

A Scoping Report on Viet Nam Ocean Accounts

By Dr. Vu Thanh Ca, Associate Professor, Principal Lecturer, Department of Environment, Ha Noi University of Natural Resources and Environment

1. Identification of Priority Topics for Pilot Research

On 23 and 24 April 2019 a training workshop on ocean accounts was carried out in Ha Noi, Viet Nam jointly by the Institute of Strategy and Policy on Natural Resources and Environment (ISPONRE), Hanns Seidel Foundation and ESCAP. The main objectives of the workshop are (i) Reviewing and responding to the Draft Scoping Report; (ii) Reviewing related ongoing works by stakeholders; (iii) Establishing agreed priorities for policy-relevant data products to be developed by the pilot study; (iv) Participating in capacity building on the basics of SEEA and Ocean Accounts, and (v) Establishing a short-term (6-month) work plan to develop the outputs of the pilot study. Attendees of the workshop are representatives of line ministries (MPI, MONRE, MARD etc), universities, research institutes and NGOs in Ha Noi. The workshop was co-chaired by Assoc. Prof. Dr. Nguyen The Chinh, Director General, Institute of Strategy and Policy on Natural Resources and Environment (ISPONRE), Dr. Axel Neubert, Country Representative, Hanns Seidel Foundation (HSF), and Dr. Michael Bordt, ESCAP Regional Adviser on Environment Statistics.

During the workshop, participants discussed issues relating to the workshop objectives. Summary of some discussions is presented below.

- For the data on marine biodiversity and fishery resources, the Directorate of Fisheries has carried out field survey projects on Viet Nam marine biodiversity and fishery resources, and projects relating to economic valuation of Viet Nam marine and coastal ecosystem services. The data on Viet Nam marine biodiversity and fishery resources for 60 percent of the marine areas with depth of less than 200m are available, but data for the remaining 40 percent of the marine areas with depth of less than 200m, and marine areas with depth of more than 200m are still lacking. The marine statistics has not been integrated in national data system yet.
- The National Database on Sea and Island National Resources and Environment (the Database) has been established, which has almost all important data on marine and coastal natural resources and environment obtained prior to 2012 and all data from implemented projects under Prime Minister Decision No. 47/2006/QĐ-TTg dated 1 March 2006 on the approval of the Master Project on the basic Survey and Management of Marine Natural Resources and Environment Toward 2010, Vision 2020 and Prime Minister Decision No. 1876/QĐ-TTg dated 15 October 2013 on the approval of list of tasks, projects in the period 2013-2020 to implement Master Project on the basic Survey and Management of Marine Natural Resources and Environment Toward 2010, Vision 2020.
- Viet Nam is one of the top countries in the world in term of discharging plastic wastes to the ocean.
- Viet Nam now applying the system of payment for forest environmental services, but only applied at the river upstream forests.

- Ocean account is still a new concept in Viet Nam and needs to establish indicators.

The workshop identified following priority issues for Viet Nam coasts and seas:

- Marine economy;
- Climate change, sea level rise and sea related disasters;
- Pollution and wastes, especially plastic wastes;
- Fisheries, especially IUU fishing;
- Marine transport
- Lack of investment to coasts and ocean
- Marine Tourism

After discussions, two topics, namely (i) land-based and sea-based pollution (wastewater and solid waste) and (ii) tourism, were agreed to be selected for the pilot research.

The workshop also discussed the development of work plan for pilot research relating to the above mentioned two prioritized issues.

2. Viet Nam Country's Capacity to Implement SDG 14

2.1 General remarks

As presented in the previous section, two prioritized topics, namely (i) land-based and sea-based pollution (wastewater and solid waste) and (ii) tourism, were agreed to be selected for the pilot research. However, with the purpose of giving an overall view, this section will present review results on the Viet Nam country's capacity to implement SDG 14. The discussion for the above mentioned two prioritized topics can be found in the overall discussion.

With the emphasis on the importance of ocean and coasts to the country, Viet Nam has adopted the ecosystem based integrated coastal and ocean management. For this, the country has been integrating oceans into national and indicative plans and policies, including economic, environmental, disaster resilience, ecological and social dimensions. Understanding the present situation of the degradation of ocean and coastal natural resources and environment, especially ocean and coastal biodiversity and ecological systems, the country has efforts to develop country's capacity to implement SDG 14. The country's capacity to implement SDG 14 has been systematically developed from before the promulgation of UN SDG 14, but these efforts have been accelerated after the promulgation of UN SDG 14.

The Prime Minister of Viet Nam has issued Decision No. 622/QĐ-TTg dated 10 May 2017 on the promulgation of the National Action Plan (NAP) for the Implementation of the 2030 Agenda for Sustainable Development. The NAP has details of SDG Goals for Viet Nam, including SDG Goal 14 and tasks and responsibilities of ministries, ministry-level agencies and provincial governments for the implementation of the NAP.

On 22 October 2018, the Central Committee of the Viet Nam Communist Party has issued Solution No. 36/NQ/TW on the Promulgation of the Strategy for Sustainable Development of Viet Nam Maritime Economy until 2030, Vision 2045. The Strategy also stresses the importance of protection of Viet Nam marine environment, biodiversities and ecosystems.

Besides Prime Minister's Decision No. 622/QĐ-TTg and Solution No. 36/NQ/TW, Viet Nam has developed a system of laws and under-law legal documents and suitable institutions for sustainable development of the seas and coasts of Viet Nam. Viet Nam also has been

implementing various measures for developing the country's capacity for the implementation of UN SDG Goal 14.

This report will details the country's capacity to implement SDG 14, which include the list of policies, legislations, plans, institutions, implementation gaps and good practices, involved stakeholders to provide a comprehensive governance landscape of SDG 14. The discussion includes economic, environmental, disaster resilience, ecological and social dimensions of the above mentioned factors. It should be noted that this report presents only important policies, legislations and plans at the central level. Due to limit in the length of the report, sector and provincial/city policies, legislations are not presented. According to the administration system in Viet Nam, following a central policy or legislation, all sectors and coastal provinces/cities need to develop their own policy or legislation to guide the implementation of the central policy or legislation at the sector or provincial/city level.

2.2 Viet Nam Policies, legislations and plans for implementation of SDG 14

This section presents a short discussion on the Viet Nam policies, legislations and plans that define the country's capacity for the implementation of SDG 14.

Policies, legislations, plans etc. that define the country's capacity for the implementation of SDG 14 is presented in Table A1 of the Appendix.

In Table A1, the Viet Nam capacity to implement Goal 14 of UN SDGs is presented in details in the following order.

1) Goal 14.1: By 2025, prevent and significantly reduce marine pollution of all kinds, in particular from land-based activities, including marine debris and nutrient pollution

This part presents policies and legislations relating to preventing and significantly reducing marine pollution of all kinds, in particular from land-based activities, including marine debris and nutrient pollution.

According to the National Report on the State of Environment 2017 by the Ministry of Natural Resources and Environment, solid wastes at urban areas in Viet Nam has 60 percent to 70% of domestic solid wastes, and the average rate of domestic solid waste generation for urban areas is 1.3kg/person/day. The percentage of collected urban solid wastes in Viet Nam is estimated as 85.5 percent of total urban solid wastes. The total amount of rural domestic wastes in Viet Nam in 2017 is 7,312,483 tons with 6 to 8 percent of plastic wastes. The percentage of collected rural solid wastes in Viet Nam is estimated as 40 to 55 percent of total rural solid wastes. The solid industrial and construction solid wastes are in general well collected and disposed/treated.

Viet Nam is now facing a serious problem of nutrient water pollution, mainly due to untreated domestic waste water and waste water from small-scale food processing companies. According to the National Report on the State of Environment 2017, the domestic waste water in Ha Noi equals to 37 percent of total domestic waste water in all provinces and cities in the Red River Delta; while the the domestic waste water in Ho Chi Minh City equals to 54 percent of total domestic waste water in all provinces and cities in the Mekong River Delta; and the percentage of domestic waste water per total waste water in Ha Noi is 67.6 percent. In Ha Noi, only 20.62 percent of total domestic waste water is collected and treated; and in Ho Chi Minh City, the percentage of collected and treated domestic waste water is only 13 percent. The rural domestic waste water is usually very simply treated or no treated and discharged directly to the environment. For food and animal's food processing industry, only waste water from large companies is collected and treated. Also, a very large source of marine

pollution is pesticides and fertilizers from agricultural activities at coastal areas and from river basins.

On the other hand, from Table A1, it can be seen that Viet Nam has a very comprehensive system of policies and legislations for prevention and reduction of pollution, especially for marine debris and nutrient pollution. Main points of policies and regulations regarding the SDG 14.1 can be summarized as follows:

- Strictly control waste sources that directly cause environmental pollution and degradation in coastal areas. Regularly monitor the level of impacts of land-based marine pollution sources, especially from river basins, from coastal agricultural fields using chemicals or pesticides with chemical origin;
- Strictly implement regulations on the environmental impact assessment; strictly control coastal land reclamation projects, dumping of soil, rock, cobble, sand, construction materials and other materials to the sea in any kind.
- Develop plan for processing coastal facilities that cause marine environmental pollution; improve the water quality at the river catchment, estuaries and nearshore marine areas with pollution or environmental degradation.
- Develop capacity to quickly and effectively respond to oil pollution and environmental incidents at sea and coastal and estuarine areas; strictly inspect and monitor requirements on the conditions, capacities on the prevention and response to incident of ships and boats that transport oil and chemical in the Viet Nam seas or passing the Viet Nam seas, as well as of storages of oil, kerosene, chemical or pesticides at the coasts and on islands.
- Develop mechanism to encourage citizens and communities to participate in monitor and management of marine environmental pollution.

Targets are also set for successfully implementation of the above mentioned policies, for examples, becoming one of regional leaders in reducing marine plastic debris. In coastal provinces and cities, 100 percent of toxic and hazardous wastes and solid wastes are collected and processed to reach environmental standards; 100 percent of coastal economic, industrial and urban zones are planned and developed in the direction of sustainable, ecological, smart and adaptive to climate change and sea level rise, and has the collective waste water processing systems, meeting environmental standards and regulations.

However, with the present state of economy and infrastructure, Viet Nam has the capacity of addressing the marine pollution caused by solid wastes, especially the marine debris. For waste water, Viet Nam can address the pollution caused by industrial waste water, but is very difficult for Viet Nam to address the pollution caused by domestic waste water. The collection and treatment of urban domestic waste water need a huge financial investment while the collection and treatment of rural domestic waste water need a good model and also huge financial investment. The controlling of pollution sources from agricultural activities is also a challenging for Viet Nam to achieve SDG 14.1.

2) Goal 14.2 and Goal 14.5

Goal 14.2 : By 2020, sustainably manage and protect marine and coastal ecosystems to avoid significant adverse impacts, including by strengthening their resilience, and take action for their restoration in order to achieve healthy and productive oceans.

Goal 14.5: By 2020, conserve at least 10 per cent of coastal and marine areas, consistent with national and international law and based on the best available scientific information

At present, Viet Nam has 6 coastal biosphere reserves and 12 marine protected areas (MPAs) under function while another two MPAs have detailed planning and will be put in function soon. According to the Decision No. 742/QĐ-TTĐ dated 26 May 2010 of the Prime Minister of Viet Nam on the Approval of the Planning for System of Marine Protected Area in Viet Nam until 2020, until 2020 Viet Nam will have 16 MPAs under function. It is likely that by 2020, Viet Nam will have all these 16 MPAs fully functioning. However, at present, not all MPAs are under good management. Challenges that MPAs' functioning facing are¹ :

- Lack of financial budget for management activities, and provided budget is fixed for certain activities and cannot be modified when it becomes necessary. Revenue from tourism is a sustainable income for MPAs, but only some MPAs have significant revenue from tourism.
- Lack of staffs with in-depth knowledge on marine biology and biodiversity. Only Con Dao National Park has the monitoring and research program for biodiversity. Other MPAs do not have any in-depth research or monitoring program.
- Lack of essential facilities for monitoring and management, especially patrol boats and diving equipment, and other equipment for basic field survey.
- The MPA's patrol force does not have the authority to catch violators, but have to inform competent authority to enforce the law, and this leads to the delay in action, and consequently, ineffectiveness of the management.
- Incomplete regulation system for an effective MPA management.

The coastal and ocean ecosystems in Viet Nam are also facing multiple pressures from fishing activities, development, climate change and other causes. Overfishing, destructive fishing, tourism, nutrient pollution, hot weather, sea level rise and strong waves during typhoon, altogether have very bad impacts to biodiversity and coral reef ecosystem. Overfishing and coastal erosion are degrading or destroying the mangrove ecosystem; and sea level rise, nutrient pollution and strong waves during typhoon are damaging the seagrass meadows. Solving the above mentioned problems needs not only a system of policies and legislations, but also organizations and investment.

The policies and legislations in Viet Nam for achieving SDGs 14.2 and 14.5 are rather complete and address all the above mentioned challenges and issues. Main points of policies and legislations regarding the SDGs 14.2 and 14.5 can be summarized as follows:

- Survey, assessment on the state and distribution of marine ecosystems; assess the degree of vulnerability of marine ecosystems, the damages of marine ecosystems and level of threat of extinction of valuable marine animal species. Grossly assess the health of marine, coastal and island ecosystems.
- Research to assess special characteristics of marine and coastal ecosystems, natural habitats or seasonal habitats of marine animals in the priority list of protection.
- Develop the mangrove forest protection planning for present mangrove forests; reforest and naturally self-restore the coastal mangrove forests; expand the mangrove forests at important areas to establish a strong green belt along the coasts of Viet Nam, from Mong Cai to Ha Tien.

¹ Bui Thi Thu Hien et al. (2014). Vietnam Marine Protected Area Management Effectiveness Evaluation. Gland, Switzerland: IUCN, 86pp.

- Increase the investment in conservation and development of biodiversity values, restore marine ecosystems, especially important marine ecosystems. Develop and implement the programs for conservation of high priority species.
- Implement the overall measures to prevent the degradation trend of the fishery resource in the seas of Viet Nam, step by step restore and enrich the fishery resource at the coastal water.
- Strengthen the integrated management of marine natural resources and protection of marine environment, conserve marine biodiversity and natural ecosystems. Develop and implement models for co-management of marine resources and ecological systems.
- Well manage marine, island and coastal ecosystems and protect the integrity of marine ecosystems from the coast to the sea.
- Improve and restore degraded marine, coastal and island ecological systems and polluted marine environment.
- Expand the existing area and establish new marine protected areas in the base of National Marine Spatial Planning. In 2030, Increase the area of marine and coastal marine protected areas to at least 3-5 percent and in 2045 to 6 percent of the natural area of Viet Nam Seas and restore the coastal mangrove area to at least the area in the year 2000.
- Review and assess the satisfaction of criteria for establishment of national gardens, natural reserves, habitat –species protection zones, aesthetic protection zones according to the Biodiversity Law and other related laws.
- Strengthen the investment mechanism and operating capacity for MPA. Raise the knowledge of people, and strengthen mechanisms and policies to support peoples' livelihood with relation to MPAs.
- Fully implement international agreements that Viet Nam is a signatory, and United Nation Convention on the Law of the Sea (UNCLOS) for the conservation and sustainable use of the ocean and its resources.

As discussed later, it is expected that IUU fishing will be effectively prevented in Viet Nam in the near future. As IUU fishing is one of the main causes for marine biodiversity and ecological system degradation, the effective prevention of IUU fishing will greatly contribute to stop the degradation trend of marine biodiversity and ecological systems in Viet Nam. From 2005 until now, the Government of Viet Nam has been implementing various projects for coastal mangrove protection and reforestation; and thus the decreasing trend of the area of coastal mangrove forest has been effectively prevented; and now the area of coastal mangrove forest is in the trend of increasing. Coral reef and seagrass meadow ecological systems are now better researched and protected. The National Marine Spatial Planning Project is now being implemented and results will soon be submitted to the National Assembly for approval. Then, even the present total sea area of operating MPAs in Viet Nam is still small, it is believed that Viet Nam has the capacity to implement the Goal 14.2 and 14.5 of the UN SDG 14.

3) Goal 14.3 Minimize and address the impacts of ocean acidification, including through enhanced scientific cooperation at all levels

In Viet Nam, there still no monitoring program for ocean acidification. The Decision No. 622/QĐ-TTg dated 10 May 2017 of the Prime Minister of Viet Nam on the promulgation of the National Action Plan (NAP) for the Implementation of the 2030 Agenda for Sustainable Development in Table A1 is the first policy in Viet Nam for the minimization and addressing

the impacts of ocean acidification, including through enhanced scientific cooperation at all levels. The content of this policy is as follows

- Establish a monitoring system for national ocean acidification. Regularly measure the degrees of acidification (pH).
- Increase scientific research on basic survey on marine natural resources and protection of marine environment, in controlling marine pollution.
- Strengthening the capacity of cadres in charge of state management of marine resources and environment.
- Promote international cooperation for mitigation and adaptation to ocean acidification.

Viet Nam is now developing the system of integrated sea and island natural resource and environment monitoring stations. The ocean acidification is expected to be included in this monitoring system. However, actions on ocean acidification problem in Viet Nam are still very limited; and thus it is believe that Viet Nam needs to strengthen her capacity to address the ocean acidification problem to implement Goal 14.3 of the UN SDG 14.

4) Goal 14.4, 14.6 and 14B

Goal 14.4: By 2020, effectively regulate harvesting and end overfishing, illegal, unreported and unregulated fishing and destructive fishing practices and implement science-based management plans, in order to restore fish stocks in the shortest time feasible, at least to levels that can produce maximum sustainable yield as determined by their biological characteristics

Goal 14.6: By 2020, prohibit certain forms of fisheries subsidies which contribute to overcapacity and overfishing, eliminate subsidies that contribute to illegal, unreported and unregulated fishing and refrain from introducing new such subsidies, recognizing that appropriate and effective special and differential treatment for developing and least developed countries should be an integral part of the World Trade Organization fisheries subsidies negotiation

Goal 14.B: Provide access for small-scale artisanal fishers to marine resources and markets

At present, the Viet Nam Government is spending great efforts on preventing IUU fishing in international water, other countries' marine areas and Viet Nam sea areas. As shown in Table A1, Viet Nam has a rather complete system of policies and regulations for the prevention of IUU fishing and ensuring sustainable fisheries. Main points of policies and regulations for IUU fishing prevention and ensuring sustainable fisheries are as follows:

- Prohibit activities:
 - + Damage fishery resource, aquatic ecological system, fish breeding and nursery grounds and habitats;
 - + Illegally obstruct fish migrating routes;
 - + Encroach or cause damages, negative impacts to fishery resource protection zone, marine protected areas;
 - + Illegal, unreported and unregulated fishing (IUU fishing); trade, transport, store, preliminary process and process fishes from IUU fishing with fraud trading purpose;

- + Use prohibited materials, chemicals, toxic materials, dynamites, electric shock, electricity current, destructive methods and fishing gears for fishing;
- + Throwing the fishing gears in natural waters;
- + Develop and apply guidelines community-based co-management of fishery resource;
- Revising under-law regulations on fishery to prevent IUU fishing, that include approval of offshore fishery project, planning, establishment of the multiple-agency task force for preventing IUU fishing, control the fishing export and import, fish origin certification system, upgrade the coastal technical stations at the Viet Nam Fisheries Administration and at 28 coastal provinces, cities to monitor and effectively use monitoring information from fishing vessels to stop, minimize and eradicate IUU fishing activities.
- Establish the fisheries database in the direction of integrating information on fishing vessel, fishery activity, fisheries processing, fish origin detection to enhance the verification, certification and tracking the origin of fishes caught in Viet Nam seas and establish an effective system to refuse importing fishes caught by IUU fishing of foreign vessels.
- Implement communication programs to raise public understanding on the dangerousness of IUU fishing for sustainable fisheries development, social equality and Viet Nam reputation internationally. Implement the education, training programs to raise the compliance capacity of fishing vessel owners, captains, fishermen and fisheries processing facilities owners for Viet Nam law and international laws.
- Investigate, verify and strictly punish the act of organizing fishing in foreign waters, or brokers illegally redeem fishing vessels caught overseas back to Viet Nam.
- Develop and implement the policies for career conversion and create sustainable livelihood for fishermen. Develop the mechanism to address the responsibility of the local (provincial or city) leaders with IUU fishing vessels in foreign waters.
- Develop sanctions to strictly fine ship owners, captains, fishermen, and abettors for exploiting, trading and transporting products from IUU fishing vessels.
- Strengthening the fisheries surveillance, coast guard, sector inspection forces at all levels to enhance the capacity of patrolling, controlling and handling law violations on the seas and ensure detecting the origin of fishes landed at ports.
- Develop plan to erase subsidies to fishing activities which have caused negative impacts to fisheries resource, which has been in the situation of being overfished; eradicate all kinds of subsidies to IUU fishing vessels.
- Implement the natural resource exploitation tax system to fishing activity to promote sustainable fisheries.
- Facilitate the access to marine natural resources and markets to artisanal fishing fishermen, especially fishermen from poor families.

The Government of Viet Nam has assigned tasks to all ministries, ministry-level agencies and coastal provinces and cities to prevent IUU fishing and ensure sustainable fisheries. With the Viet Nam Government efforts, it is believed that the IUU fishing will be effectively prevented and fisheries resource will be protected, recovered and livelihood of fishermen, especially poor fishermen doing artisanal fishing will be improved.

5) Goal 14.A: Increase scientific knowledge, develop research capacity and transfer marine technology, taking into account the Intergovernmental Oceanographic Commission Criteria

and Guidelines on the Transfer of Marine Technology, in order to improve ocean health and to enhance the contribution of marine biodiversity to the development of developing countries, in particular small island developing States and least developed countries

Viet Nam has been investing a large amount of money and human resource for basic surveys and scientific researches and promoting the use of scientific knowledge for sustainable use of sea and island natural resources and protection of sea and island environment. All ministries according to the mandates have developed scientific research programs to gain knowledge on sea and island to serve their respective purposes. The Ministry of Natural Resources and Environment is responsible for implementing the National Key Program for Basic Survey of Sea and Island Natural Resources and Environment (the Key Program), regulated by the Law on Sea and Island Natural Resource and Environment; and the same Ministry of Natural Resources and Environment is responsible for implementing the National Program of Scientific and Technological Research on Sea and Island Natural Resources and Environment. The Ministry of Science and Technology is responsible for implementing the National Program for Marine Scientific and Technological Research. Coastal provinces and cities according to their prioritized works on conservation and development of sea and island natural resources and environment invest in basic survey and research on the seas and islands under their respective jurisdictions. The Viet Nam Academy of Science and Technology has many organizations and basic survey, scientific and technological research project for marine natural resources and environment.

Main policies of Viet Nam for the implementation of Goal 14A can be summarized as follows:

- Promote the innovation and creation, applying modern scientific achievement, promote research;
- Determine scientific bases for planning and developing policies and legislations for sustainable development of marine economy.
- Put priority to basic marine field survey, scientific and technological research, human resource development by education and training; formulate centers for research and application of marine biotechnology, deep seabed exploitation, space technology for marine monitoring reaching the regional modern level.
- Assess the potential and advantage on the natural conditions, natural resources, ecological systems, and marine economic sectors such as maritime transport, fishery and aquaculture, fish processing, renewable energy, information and digital technology, biomedicines, subsurface automatic operating equipment, develop and effectively implement Program for basic survey of marine and island natural resources and environment.
- Invest to establish a group of modern research vessel, submarine equipment for survey at large depth of deep sea.
- Continue to promote international cooperation, seek the support from international and regional partners to take advantages of human resource, coastal infrastructure, apply modern science and technology to marine and coastal economic sectors, marine environmental protection and natural hazard prevention and adaptation to climate change, sea level rise.
- Actively participate and positively contribute to the common efforts of international communities in conservation and sustainable use of ocean and coast; maximize the use of

resources and international supports to enhance the capacity of management and exploitation of seas, in which focus on science, technology, knowledge and human resource training.

With the above mentioned facts, it is believe that Viet Nam has the capacity to implement the Goal 14A.

2.2 Organizations and involved stakeholders for implementation of SDG 14

The organizations of Viet Nam for implementing UN SDGs are listed in Table A2. It can be seen that many ministries and ministry-level has mandates for implementing SDG 14. The organizations together with policies and regulations as presented in Section 2.1 form the institution that enable Viet Nam to successfully implement SDS 14.

2.3 Implementation gaps and good practices

Viet Nam has good practices on MPA management. Some MPAs in Viet Nam, such as Cu Lao Cham, Hon Mun etc. have very good models of community-based management which can be studied to duplicate for other MPAs in Viet Nam. Other example is the successful model of community-based management of mangrove forest in Soc Trang province², and the eco-shrimp farming model with mangrove forest reforestation in the shrimp farms in Mekong Delta³. Viet Nam also building a model for effectively control the IUU fishing and has achieved lots of successes. The ecosystem based integrated coastal management is now being applied at all coastal provinces and cities in Viet Nam and Viet Nam is improving the effectiveness of this management approach. Viet Nam is also gains very significant successes in coastal poverty eradication and job training for fishermen to reduce the pressure on fish stocks. Viet Nam also has good practices in the development of conservation and sustainable development policies and regulations.

However, it should be mentioned that at present Viet Nam still needs to build up capacity to successfully implement the UN SDG 14. The ecosystem based integrated management of ocean and coast in Viet Nam has been applied to all 28 coastal provinces and cities with a relatively complete policy and legislation system. However, the country needs a good practical model to replicate to ensure the successful integrated coastal management. Some vital tools to aid successful management of Viet Nam seas and coasts, such as marine spatial planning, is still under development. The marine protection area in Viet Nam is still very small, far from reaching the SDG 14.5, and the management of many MPAs in Viet Nam still does not meet the requirement. The control of overfishing and IUU fishing still has difficulties. Resilience of coastal communities and ecological systems to natural and manmade hazards is still limited. A careful examination on the successes of present policies and institutions, and propose appropriate amendment, is needed.

2.4 National institutions together with their mandates and data holdings

This part of the report presents results of the review on national, regional and international institutions (including academic) working on oceans in the country, including their mandates, data holdings (for example, listings of main indicators, databases, or maps on ocean use, ecosystem types, or characteristics and variables related to ocean statistics used to track and adapt to future changes in ecosystem services and oceanogenic anomalies (sea surface

² Jhaveri N., Nguyen T.D. and Nguyen K.D (2018) Mangrove collaborative management in Viet Nam and Asia. USAID.

³ <https://aquaculturemag.com/2018/07/24/eco-shrimp-farming-model-for-sustainable-aquaculture-development/>

temperature, for example) that can indicate dangerous ocean conditions) and publications, and partnerships among them.

In Viet Nam, previously coastal and ocean data were stored at different organizations. However, after the establishment of the Viet Nam Administration of Seas and Islands and the National Database on Sea and Island National Resources and Environment (the Database) in 2008, all collected coastal and ocean data until 2012 are now stored at the Database. After 2012, data obtain by projects belongs to Prime Minister Decision No. 47/2006/QĐ-TTg dated 1 March 2006 on the approval of the Master Project on the basic Survey and Management of Marine Natural Resources and Environment Toward 2010, Vision 2020 and Prime Minister Decision No. 1876/QĐ-TTg dated 15 October 2013 on the approval of list of tasks, projects in the period 2013-2020 to implement Master Project on the basic Survey and Management of Marine Natural Resources and Environment Toward 2010, Vision 2020 and data obtained from other basic survey and scientific research projects implemented by the Ministry of Natural Resources and Environment are also stored in the Database. The data in the Database are marine hydrometeorological data (meteorological data, sea wave and current data), sedimentation, natural hazards, ocean and coastal chemical and environmental data, ocean biological data, biodiversity, ecological system data etc.

National institutions together with their mandates and data holdings are listed in Table A3. Regional organizations are listed in Table A4. There are many international organizations operating in Viet Nam and data and publications from such organizations can be obtained online.

Annex. Policies, legislations and organizations in Viet Nam for implementation of SDG 14.

Table A1. Policies, legislations, plans that define the country's capacity for the implementation of SDG 14

No.	Policies, legislations, plans	Objectives and contents
I		Goal 14.1: By 2025, prevent and significantly reduce marine pollution of all kinds, in particular from land-based activities, including marine debris and nutrient pollution
1.1	Solution No. 36/NQ/TW dated 22 October 2018 of the Central Committee of the Viet Nam Communist Party on the Promulgation of the Strategy for Sustainable Development of Viet Nam Maritime Economy until 2030, Vision 2045	<p>Marine environmental protection in coherence with prevention of marine environmental pollution and incident, increase the regional and world cooperation in marine environmental protection.</p> <p>Preventing, controlling and reducing marine environmental pollution; becoming one of regional leaders in reducing marine plastic debris. In coastal provinces and cities, 100 percent of toxic and hazardous wastes and solid wastes are collected and processed to reach environmental standards; 100 percent of coastal economic, industrial and urban zones are planned and developed in the sustainable, ecological, smart and adaptive to climate change and sea level rise direction, and has the collective waste water processing systems, meeting environmental standards and regulations.</p> <p>Develop standards and technical requirement strictly following international environmental standards for investment projects with high risks of environmental pollution at the coasts; ensure prevention environmental incidents, reduce and effectively manage pollution sources. Invest to develop and strengthen personal and organization, automatic monitoring equipment and warning for environmental quality, respond to environmental and toxic and noxious chemical incidents in the sea; managing marine wastes, especially plastic wastes; improve and raise the marine environmental quality.</p>
1.2	Decision No. 622/QĐ-TTg dated 10 May 2017 of the Prime Minister of Viet Nam on the promulgation of the National Action Plan (NAP) for the Implementation of the 2030 Agenda for	<p>Goal 14: Conservation and sustainable use of ocean, sea and marine resources for sustainable development</p> <p>Goal 14.1: Until 2030, significantly prevent and reduce and effectively control marine pollution, especially from inland human activities, with focus on solid wastes, water wastes and nutrient pollution.</p> <p>- Strictly control waste sources that directly cause environmental pollution and degradation in coastal areas. Regularly monitor the level of impacts of land-based</p>

	Sustainable Development	<p>marine pollution sources, especially from river basins, from coastal agricultural fields using chemicals or pesticides with chemical origin.</p> <ul style="list-style-type: none"> - Strictly implement regulations on the environmental impact assessment, strictly control coastal land reclamation projects, dumping of soil, rock, cobble, sand, construction materials to the sea in any kind. - Develop plan for processing coastal sites that cause marine environmental pollution; improve the water quality at the river catchment, estuaries and nearshore marine areas with pollution and environmental degradation. - Develop capacity to quickly and effectively respond oil pollution and environmental incidents at sea and coastal and estuarine areas; strictly inspect and monitor requirements on the conditions, capacities on the prevention and response to incident of ships and boats that transport oil and chemical in the Viet Nam seas or passing the Viet Nam seas, as well as of storages of oil, kerosene, chemical or pesticides at the coasts and on islands. - Develop mechanism to encourage citizens and communities to participate in monitor and management of marine environmental pollution. - Survey and assess the environmental carrying capacity of marine and island areas with high or very high risks of pollution; announce marine areas that cannot receive more wastes.
1.3	Viet Nam Law on Environmental Protection (Law No. 55/2014/QH13)	<p>The law regulates the management of wastes and protection of marine environment. Besides specific regulations on the management of solid and liquid wastes to prevent inland pollution and transportation of wastes to pollute the sea, the law has one chapter, Chapter 5 on the protection of marine environment. The regulations on the marine environmental protection in this chapter can be listed as follows:</p> <ul style="list-style-type: none"> - Strategy, planning and proposal for the socio-economic development, national defense and security relating to sea and islands must include environmental protection and response to climate change; - Waste sources discharged from mainland, islands and marine activities must be statistically reported, assessed and subject to any measure to be taken to prevent, reduce and dispose them to achieve accepted standards set out in the technical regulations on environment; and stakeholder

		<p>cooperation in marine environmental protection and response to environmental incidents.</p> <ul style="list-style-type: none"> - Oil, fat, drilling fluids, ballast water, chemicals and other hazardous substances after being used on the sea and islands must be collected, stored, transported and disposed in accordance with regulations on waste management; - Dumping and discharge of wastes on the marine zones and islands must be based on the specific features and attributes of wastes and must be permitted by the competent regulatory agencies - Organizations or individuals operating on the sea and islands must take the initiative in responding to environmental emergencies and bear their responsibility for working with regulatory bodies and other interested entities to respond to environmental emergencies that occur on the sea and islands; <p>Preventive and remedial measures against marine and island environmental pollution must comply with international agreements on sea and islands to which the Socialist Republic of Vietnam is a signatory;</p> <ul style="list-style-type: none"> - Organizations or individuals whose activities on the sea and islands can pose a threat to causing environmental emergencies must set up plan and prepare resources to prevent and respond to environmental emergencies as well as send a report to regulatory agencies; - Prevention and response to environmental emergencies that take place on the sea and islands require the close cooperation between regulatory bodies, rescue teams and other relevant entities;
1.4	Law on sea and island natural resource and environment (Law No. 82/2015/QH13)	<p>This is a comprehensive law on the protection of marine environment in Viet Nam. The law has Chapter 6: Control marine pollution, respond to spill of oil and toxic chemicals, and sea dumping. This chapter has regulations on the pollution control of marine environment; including prevention of pollution and degradation of marine environment, controlling marine pollution, effective management of land-based and sea-based wastes, pollution risk zoning for marine areas, assessment of environmental carrying capacity of marine areas, effectively respond to marine environmental incidents. The chapter also regulates the cooperation and coordination between different stakeholders for controlling marine environmental pollution. Field survey on the present state of coastal and offshore environment,</p>

		<p>including present state of the quality of water, sediment, ecosystem and biodiversity of the coast and offshore maritime zones is regulated in this chapter. The environmental carrying capacity assessment shall be done in coastal and offshore areas with high risk of pollution. The marine disposal is regulated in this chapter. The chapter also regulates cooperation with foreign governments and organization in controlling of marine pollution, especially cross-border environmental pollution. The chapter also specifies the responsibilities of the Ministry of Natural Resources and Environment, ministries, ministerial-level agencies, Governmental agencies, People's committees of central-affiliated coastal cities and provinces, within the scope of duties and powers in monitoring and assessment of marine environmental pollution, present states of offshore and coastal water, sediments, ecosystems and biodiversity; and survey and assessment of waste sources from land, sea and islands; and survey and assessment of environmental carrying capacity for maritime areas with high risk of pollution. The chapter also regulates the treatment of hazardous wastes, dismantling and disposal of out-of-date offshore and coastal facilities and structures. The chapter regulates the treatment and disposal of wastes from ships, drilling rigs, and other works and facilities on the sea and mud containing toxic mixtures from petroleum exploration and extraction. The chapter also specifies that land based wastes shall be prevented from disposal to the sea or shall be treated to meet required technical standards before being disposed to the sea. The chapter also specifies that pollution sources from river basins to sea shall be investigated, assess and closely controlled. The chapter also specifies in details zoning risk of sea and island environment pollution, assessment of performance of sea and island environment pollution control, report on the state of marine environmental pollution control, response to the spill of oil and toxic and hazardous chemicals in the sea. Especially, the chapter provides in details regulations for the sea dumping, including dumping in the sea outside of the maritime areas under Viet Nam jurisdiction but cause damages to environment, ecosystem and socio-economics in the sea of Viet Nam.</p>
1.5	Viet Nam maritime code (Law No. 95/2015/QH13)	This law regulates the activities of maritime transport for the prevention of marine pollution. It states that construction of a ship or seaport must entail installation of environmental protection equipment in accordance with

		laws and regulations; have oil and hazardous chemical spill response plans; seaports must have plans and solutions to receive and treat wastes discharged from ships in accordance with applicable laws; and the ship owner, seaport owner and organizations or individuals involved must comply with laws and regulations on environmental protection
1.6	Law on tourism (Law No. 09/2017/QH14)	This law regulates on the protection of tourism environment. It states that the tourism environment shall be protected, enhanced and developed towards greenness, cleanliness, security, soundness and civilization; and competent agencies shall issue regulations to protect, enhance and develop the tourism environment. The law also regulates the activities of protection of tourism environment by local government, local communities, tourists and organizations and individuals doing tourism business. The regulations specified by the law can be applied to inland tourism and coastal and marine tourism.
1.7	Fishery law (Law No. 18/2017/QH14)	There are many contents for protection of marine environment in this law, namely: Develop the system of environmental monitoring and warning; Aquatic feeds and products for adjusting aquaculture environment shall satisfy requirements for biosafety and environmental safety; Organization and individuals engaged in aquaculture shall comply with regulations on environmental safety; For building, modification, chartering and purchase of commercial fishing vessels, there is a department of quality supervision and management to ensure that its products meet standards and conditions for environmental safety prescribed by law; Captains of commercial fishing vessels shall refuse to operate the commercial fishing vessel if it fails to satisfy conditions for ensuring preventing environmental pollution.
1.8	Decree No. 38/2015/NĐ-CP dated 24 April 2015 on the management of waste and scraps	This decree provides comprehensive regulations on the management of solid wastes, liquid wastes and scraps. It states that organizations and individuals has the responsibility of enhancing measures to save natural resources and energy; use natural resources, renewable energy, and products, materials, clean energy friendly to environment; cleaner production, implementing environmental audit for wastes and have other measures

		<p>to prevent and reduce wastes. The organizations and individuals have to classify wastes at sources in order to increase reuse, recycle, process and use wastes to generate energy. Waste water shall be collected, process, reuse or be transferred to a facility with the capacity of processing the waste water reaching environmental technical standards, and be processed before being discharged to the environment. Exhausted air shall be processed to reach the environmental technical standards before being discharged to the environment. The decree also regulates fees for collecting, transport, and processing wastes.</p>
1.9	<p>Decision No. 1570/QĐ-TTg dated 06 September 2013 of the Prime Minister on the approval of the Strategy for sustainable extraction and use of marine natural resource and protection of marine environment until 2020, vision 2030</p>	<p>This is a comprehensive strategy on the protection of marine environment. It requires the country protecting marine water quality, prevent the trend of increasing marine pollution at coasts and coastal waters, increase the capacity and effectiveness of the management of marine environment, complete and implement the mechanism for integrated management of seas, islands and coasts of Viet Nam; partly satisfy the basic technical information requirements for marine natural resources and environment; implement the survey on the present state of marine environment, assess the sensibility and resilience of marine environment with natural hazards, detect and process environmental conflicts; control marine pollution sources at the coasts, especially from coastal urban areas, industrial zones, export processing zones, aquaculture, fish processing, trading and service areas at the coasts and on islands; ensure waste water be treated to meet environmental standards before being discharged to the sea.</p> <ul style="list-style-type: none"> - Monitoring and assessing extent and level of impacts of land-based marine pollution sources, especially from river catchments, coastal agricultural areas with using chemicals and pesticides with chemical origins; establish plans for processing coastal pollution sources; improve the water quality of river catchments, estuaries, coastal water which have been polluted or degraded. - Carrying out the strategic environmental assessment with development strategies, planning and plans, with projects for extending the development scope of marine economy sectors to adjust for or developing plans for prevention of marine pollution; strictly implement regulations on environmental impact assessment with socio-economic development projects at the coasts, on the sea and on islands and groups of islands; inspect and

		<p>provide environmental standard meeting certification before permitting operation.</p> <ul style="list-style-type: none"> - Detect and rapidly stop, circumscribe the impact areas and rapidly respond to the oil spills or chemical environmental incidents on the sea and estuaries; closely inspect and monitor requirements for capacities for prevention and response to environmental incidents of ships or vessels transporting oil or chemicals in or passing Viet Nam seas, and storages of oil, gasoline, chemicals, pesticides at the coasts and on islands. - Strictly implement the environmental impact assessment according to laws and regulations, closely control coastal land reclamation, disposal of soil, sand, cobble and construction materials to the sea; prevent the disposal of noxious and toxic materials to the sea in any kind.
1.10	<p>Decision No. 798/QĐ-TTg dated 11 May 2016 of the Prime Minister of Viet Nam on the approval of the national action plan for the implementation of the strategy for sustainable extract and use of marine natural resources and protection of marine environment until 2020, vision 2030</p>	<p>Implement the programs, plans for waste management, controlling land-based and sea-based pollution sources according Decision No. 2295/QĐ-TTg dated 17 December 2014 of the Prime Minister.</p> <p>Increase the inspection on environmental protection for activities that have high risk of causing marine pollution or are causing serious marine pollution, especially coastal urban areas, industrial areas, export processing zones, aquacultures and fish processing facilities, trade, tourism service activities at the coasts and on islands; establish the list and plans for processing facilities that are now seriously pollute marine environment; Establish the cooperative mechanism between competent government authorities on marine environment, environmental police, border guard and coastguard in inspection and monitoring activities on marine natural resource use and extraction, and marine environmental protection.</p> <p>Promulgate the set of criteria on marine environmental protection in marine economy development, land use planning, sector planning related to the sea.</p> <p>Speed up the modernization of the marine environmental monitoring stations, waste water processing systems; support the development of environmental friendly industrial zones, export processing zones, production and processing facilities at the coastal urban areas. Implement integrated environmental and natural resource monitoring system according to the Law on Sea and Island Natural Resources and Environment.</p> <p>Ensure good operation of three Oil Spill Response Centers and complete the second phase of these centers according</p>

		<p>to Decision 224/QĐ-TTg dated 12 February 2015 of the Prime Minister.</p> <p>Develop and implement the Survey and assessment of environmental carrying capacity, environmental risk zoning of important lagoons, bays of Viet Nam for the purpose of economic development and environmental protection. Predict the progress of marine pollution and environmental carrying capacities of marine environmental components due to activities on use and extraction according to zones, sector; inventory and establish the new lists of marine natural resource extraction and use activities that are polluting marine environment; implement management measures according to laws, and research for establishing the particular sensitive sea area (PSSA) in Viet Nam seas.</p> <p>Strictly implement regulations on the collection and process toxic and hazardous wastes, and disposal at sea.</p> <p>Complete national technical standards on the marine pollution control.</p> <p>Implement the strategic environmental assessment according to laws and regulations, development planning and plans; strictly implement the environmental impact assessment with socio-economic development projects on islands, and groups of islands; certify environment protection requirement satisfaction before letting the facilities functioning; and increase the regular inspection.</p> <p>Promulgate the report on the present state of marine environment; develop and publish the national and provincial marine environmental state reports; and special purpose marine environmental state reports</p>
1.11	<p>Decision No. 2295/QĐ-TTg dated 17 December 2014 on the approval of the Viet Nam National Strategy for Integrated Coastal Management Until 2020, Vision 2030</p>	<ul style="list-style-type: none"> - Develop and implement integrated marine environmental monitoring program satisfying information requirement on coastal environment for Integrated coastal management; strengthen the capacity of marine environmental observation, monitoring and analysis; support the completion of the observation information for effective coastal environmental management and socio-economic development. - Develop and implement programs, plans for waste control; control of land-based and sea-based pollution sources to mitigate bad impacts to environmental quality, resources, ecological system health, biodiversity and other natural values of the coastal zone. Strictly implement regulations on the protection of coastal natural resources and environment.

		- Establish incentive mechanisms, policies and encourage organizations and individuals and non-state economic sector to invest in building waste processing facilities and rehabilitate coastal natural resources and environment.
1.12	Decision No. 914/QĐ-TTg dated 27 May 2016 on the Approval of National Action Plan for Implementation of Viet Nam National Strategy for Integrated Coastal Management Until 2020, Vision 2030	<p>Prevention, control of marine pollution</p> <p>Develop and guide community based coastal environmental pollution monitoring and pilot apply at coastal communities with the purpose of enhancing the responsibility of coastal communities in monitoring and controlling marine pollution causing activities for improvement of coastal environment</p> <p>Land-based and sea-based pollution source assessment and inventory with the purpose of determining land-based and sea-based pollution sources for developing measures for controlling of coastal pollution and protecting coastal environment. Propose, develop and approve some legal documents for controlling pollution sources and protecting marine environment.</p> <p>The above mentioned tasks are being implemented at the central level and provincial level. To implement this task, all 28 coastal provinces and cities in Viet Nam has developed, approved and been implementing the provincial/city action plan for implementation of the Strategy for Integrated Coastal Management Until 2020, Vision 2030</p>
1.13	<p>Decision No. 2149/QĐ-TTg dated December 17, 2009 on the approval of the National Strategy for Integrated Management of Solid Waste Up to 2025, Vision 2035</p> <p>Decision No. 491/QĐ-TTg dated May 07, 2018 on the approval of the Adjustments to National Strategy for Integrated Management of Solid Waste to 2035, Vision 2050</p>	<p>These two Prime Minister Decisions approved the National Strategy for Integrated Management of Solid Waste Up to 2025, Vision 2035 and the Adjustments to National Strategy for Integrated Management of Solid Waste to 2035, Vision 2050. The two Prime Minister Decisions set forth the activities and goals for integrated management of solid wastes in Viet Nam with the purpose of reducing environmental pollution, including marine environmental pollution by solid wastes. The two Prime Minister Decisions also stress the reduction of plastic wastes, one of most serious pollutants in ocean nowadays. The two decisions also set forth responsibilities of competent Viet Nam Government agencies and provincial authorities in integrating management of solid wastes. The Decision No.491/QĐ-TTg adds the collection and process of hazardous solid wastes, domestic solid waste, especially domestic solid waste discharged from rural areas and plastic wastes, ordinarily industrial solid waste and other particular solid wastes. Main solutions in the National</p>

		<p>Strategy for Integrated Management of Solid Waste in Viet Nam are as follows:</p> <p>Solutions for adjusting the Strategy</p> <p>a) Finalizing the building of a legal document system and a policy on solid waste management:</p> <ul style="list-style-type: none"> - Finalize the research, amendments and preparation of legal documents of solid waste management in consistent with other relevant regulations of laws and socio-economic development of the country prior to 2020, concentrate on: <ul style="list-style-type: none"> + Formulating regulations and completing the formulation of an incentive policy on reduction, reusing and recycling of solid waste; promulgating an appropriate roadmap to the reduction of persistent plastic bag use towards the end of such use; + Completing the formulation of regulations providing guidelines for valuation of solid waste collection, transport and treatment services, strive to reach the goal of full payment for collection and transport service charges by 2025 and making up 50% of treatment service charge by 2050; + Amending and providing guidelines for incentive policies issued by the State on investments in construction of domestic solid waste treatment facilities. - Review and amend standards, national technical regulations, economic-technical restrictions regarding solid waste management, to be specific: <ul style="list-style-type: none"> + Promulgate standards, national technical regulations as well as economic-technical restrictions on recycling and treatment of construction solid waste and sludge of septic tank; + Amend and formulate new standards, national technical restrictions on construction of landfills as well as ordinary and hazardous solid waste treatment facilities; + Promulgate standards for means of storing, collecting and transport of daily-life solid waste - Promulgate regulations on management of inter-provincial solid waste treatment facilities and mechanism for cooperation among relevant provinces - Formulate regulations on management and use of recycled materials and products for each type of solid waste recycling. - Provide guidance on conditions and procedures for enjoying privileges and assistance from environmental
--	--	--

		<p>protection funds and other financial or credit institutions applied to plans for investment in collection, transport and construction of domestic solid waste treatment facilities</p> <p>b) Promote the scientific research, technology modernization and production of solid waste recycling and treatment equipments:</p> <ul style="list-style-type: none"> - Enhance the research and application of advanced technologies for recycling, reusing and treatment of solid waste; especially concentrate on the development of energy recovery or electricity generation from solid waste; - Foster the performance of national or ministerial-level applied research and transfer of key technology or science regarding the general management of solid waste; concentrate on completing the development of domestic equipments and technological lines for the purpose of collecting, transporting and treating solid waste; - Study and apply criteria or standards in selecting technologies, design, construct and operate solid waste treatment facilities; - Conduct an advanced and applied research on domestic solid waste collecting and transporting equipments for good-looking appearance and effective use assurance. - Encourage organizations and individuals to participate in conducting a research on solid waste treatment technologies suitable for conditions of Vietnam <p>c) Reviewing and adjusting the planning on solid waste management:</p> <ul style="list-style-type: none"> - Review the implementation of the planning on managing solid waste in key economic sectors and river basins, the planning on solid waste management of local authorities, contents of the planning on solid waste included in the urban planning involving climate change in consistent with the objectives of adjustments to the Strategy; - Review, adjust and prepare plans for investment and development of solid waste treatment facilities depending on the planning that has been approved; determine investment requirements, projects for prioritizing investments and missions in each period of the planning or plan of each local authority; - Boost the inspection and supervision of implementation of plans for solid waste management that have been approved by competent authorities <p>d) Creating a local and central data system of solid waste, to be specific, designing software and provide training in figure collecting and reporting</p>
--	--	--

		<p>dd) Developing human resources for adjusting the Strategy:</p> <ul style="list-style-type: none"> - Provide management capacity building training for officials participating in the management of solid waste and environment in central to local entities; - Reinforce and expand vocational training facilities or centers, improve the quality of skilled staff training serving the management, operation and maintenance of solid waste treatment facilities <p>e) Promoting propaganda and education for awareness building:</p> <ul style="list-style-type: none"> - Develop and run media programs for raising public awareness in schools, community, regulatory agencies, production or service facilities about reduction, separating at source, recycling, reusing or disposal of solid waste in prescribed places; - Design an educational environment program with contents and time suitable for the awareness of children in each general education level; - Include contents of solid waste management consisting of prevention, reduction of solid waste, use of environmentally-friendly materials, collection and transport of solid waste as regulated in the training program for officials at agencies, production, trading or service facilities. <p>g) Strengthening communication and cooperation with countries, international institutions, non-governmental organizations in capacity building training, know-how acquiring, technical assistance, technology transfer and financial assistance regarding solid waste management. Especially the Decision No. 491/QĐ-TTg requires that 100 percent of single-use plastic shopping bags at trading centers and supermarkets are replaced by ecological friendly shopping bags.</p>
1.14	Decision No. 582/QĐ-TTg dated April 11, 2013 of the Prime Minister on the approval of the plan for controlling environmental pollution due to the use of persistent plastic bags in daily life up to 2020	This Prime Minister Decision has the purpose of reducing the import, production, trade, use and management of wastes due to persistent plastic bags in daily life. The decision has the view point of sustainable production and consumption, contribute to the success of the National Strategy for the management of solid waste by 2025 and the orientation towards 2050; step by step replace non-biodegradable plastic bags with eco-friendly products; comprehensively implement solutions: economic solutions among which are the epicenter in association with

		propagating awareness and implementing technological/scientific solutions.
1.15	National Action Plan for the Management of Ocean Plastic Debris until 2030	At present, this is just a draft, but it will be submitted to the Prime Minister of Viet Nam by June 2019 and will be promulgated during the second half of 2019. The National Action Plan (NAP) states that until 2030, 100 percent of hazardous wastes, domestic solid wastes are collected and processes to reach environmental standards at the coastal provinces and cities; 50 percent of total plastic shopping bags are collected and reused; and in general, limit single-use plastic products; promote renovation and creative, technological transfer in production, recycle, reuse plastic products and effectively process plastic wastes that cannot be recycled or reused; prohibit free single-use plastic shopping bags at shops; increase researches to enhance knowledge about ocean plastic debris; impacts of plastic wastes, especially microplastic wastes to marine natural resource, environment, ecological systems and human health.
II	<p>Goal 14.2: By 2020, sustainably manage and protect marine and coastal ecosystems to avoid significant adverse impacts, including by strengthening their resilience, and take action for their restoration in order to achieve healthy and productive oceans.</p> <p>Goal 14.5: By 2020, conserve at least 10 per cent of coastal and marine areas, consistent with national and international law and based on the best available scientific information</p>	
2.1	Solution No. 36/NQ/TW dated 22 October 2018 of the Central Committee of the Viet Nam Communist Party on the Promulgation of the Strategy for Sustainable Development of Viet Nam Maritime Economy until 2030, Vision 2045	<p>Vision: Sustainable development of the marine economy on the base of blue growth, biodiversity and marine ecosystem conservation; ensure the harmony between economic and natural ecosystems, between conservation and development.</p> <p>General objectives: Strengthen the integrated management of marine natural resources and protection of marine environment, conserve marine biodiversity and natural ecosystems; increase the investment in conservation and development of biodiversity values, restore marine ecosystems, especially important marine ecosystems; protect the integrity of marine ecosystems from the coast to the sea; formulate the marine ecological culture.</p> <p>Special objectives: Well manage marine, island and coastal ecosystems; increase the area of marine and coastal marine protected areas to at least 6% of the natural area</p>

		<p>of Viet Nam Seas; restore the coastal mangrove area to at least the area in the year 2000.</p> <p>Main Policies: Develop and replicate coastal ecological economic, industrial zones. Change the idea in development and implement planning and plans for the development of the system of coastal urban areas with synchronized and modern technical and social structures following the blue growth development and smart city criteria, models. Speed up the development and completion of infrastructures for coastal economic and industrial zones in the direction of ecological economic and industrial zones... attract and effectively use resources, especially high quality human resource; better solve environment and social problems, and raise the living quality of people.</p> <p>Marine spatial planning in the direction of protection – conservation zones, buffer zones and socio-economic development zones for sustainable marine economic development on the base of promoting advantages of the diversity of marine ecosystems.</p> <p>Expand the existing area and establish new marine protected areas in the base of National Marine Spatial Planning; attach special importance to biodiversity conservation, restoration of marine ecosystem, especially coral reefs, seagrass meadows, mangrove forests and coastal hazard-prevention forests; ensure the integrity and natural relationship between inland and marine ecosystems.</p>
2.2	Decision No. 622/QĐ-TTg dated 10 May 2017 of the Prime Minister of Viet Nam on the promulgation of the National Action Plan (NAP) for the Implementation of the 2030 Agenda for Sustainable Development	<p>Goal 14.2: Until 2030, enhance the management and protection of marine, coastal and island ecosystems to avoid negative impacts, enhance the health and resilience for ocean</p> <ul style="list-style-type: none"> - Survey, assessment on the state and distribution of marine ecosystems; assess the degree of vulnerability of marine ecosystems, the damages of marine ecosystems and level of threat of extinction of valuable marine animals. Grossly assess the health of marine, coastal and island ecosystems. - Formulate the mangrove forest protection planning for present mangrove forests, reforest and naturally self-restore the coastal mangrove forests, expand the mangrove forests at important areas to establish a strong green belt along the coasts of Viet Nam, from Mong Cai to Ha Tien.

		<ul style="list-style-type: none"> - Develop and implement the programs for conservation of high priority species. - Implement the overall measures to prevent the degradation trend of the fishery resource in the seas of Viet Nam, step by step restore and enrich the fishery resource at the coastal water. - Develop and implement models for co-management of marine resources and ecological systems. - Improve and restore degraded marine, coast and island ecological systems and polluted marine environment. - Fully implement international agreements that Viet Nam is a signatory, and United Nation Convention on the Law of the Sea (UNCLOS) for the conservation and sustainable use of the ocean and its resources. <p>Goal 14.5: Until 2030, the area of coastal and marine MPA reaches 3-5% of natural sea area of Viet Nam, based on scientific calculation and domestic and international laws.</p> <ul style="list-style-type: none"> - Research to assess special characteristics of marine and coastal ecosystems, natural habitats or seasonal habitats of marine animals in the priority list of protection; review and assess the satisfaction of criteria for establishment of national gardens, natural reserves, habitat –species protection zones, aesthetic protection zones according to the Biodiversity Law and other related laws. - Review and research, add new MPA to the planned coastal and marine MPA. - Increase the capacity for marine research and technical transfer according to guidelines and criteria of IOC to improve the ocean health and increase the contribution of the biodiversity into national development (UN Goal 14.a). - Strengthen international cooperation in the marine conservation. - Strengthen the investment mechanism and operating capacity for MPA. - Strengthen the mechanisms and policies to support people with livelihood with relation to MPAs. - Strengthen the knowledge of people at the MPAs.
2.3	Viet Nam Biodiversity Law (Law No. 20/2008/QH12)	This is a comprehensive document on the biodiversity conservation. It has main content of the UN Convention on Biological Diversity (CBD), but regulates in details the biodiversity conservation activities in Viet Nam. This law guides the establishment and functions of MPAs, and also

		guides the conservation and sustainable use of marine biological resource in Viet Nam.
2.4	Viet Nam Law on Environmental Protection (Law No. 55/2014/QH13)	This law is on environmental protection, but also mention the biodiversity conservation as one content of environmental protection and one of the activities concerning environmental protection that is encouraged
2.5	Law on sea and island natural resource and environment (Law No. 82/2015/QH13)	This law regulates the management of marine, island and coastal natural resources and environment. It also mentions about the conservation of biodiversity and ecological systems. Especially, one content of the integrated planning for sustainable use and extraction of coastal natural resources regulated by this law is the coastal area for conservation. Now, this law is being revised to change the existing integrated planning for sustainable use and extraction of coastal natural resources to marine spatial planning with the contents similar to that guided by IOC/UNESCO ⁴
2.6	Fisheries Law (Law No. 18/2017/QH14)	Together with Biodiversity Law, this law is the most important law for conservation and sustainable use of biological resources in the seas of Viet Nam. The law regulates the fisheries and aquaculture activities, the conservation and protection of marine and coastal biodiversity and ecological system, habitats. The law also provides in very details regulations in fishing to avoid IUU fishing. Aquaculture activities are also regulated in this law to ensure aquaculture activities have minimum impacts to natural marine environment, especially local marine and coastal biodiversity, ecological systems and endemic species
2.7	Decree No. 26/2019/NĐ-CP dated 8 March 2019 Guidelines for Implementation of the Fisheries Law	The decree regulates the protection and development of fisheries resource, including regulations on the community and authority co-management of fisheries resource, management of endangered fish species, marine protected areas, fisheries resource protection and development fund, aquaculture, fishery, including the vessel monitoring system, fishery permission, fishery surveillance force, fishery trading and import, export. This Decree is designed in the direction of preventing IUU fishing and ensuring sustainable fishery and marine culture in Viet Nam.
2.8	Decision No. 742/QĐ-TTG dated 26 May	This is very important decision by the Prime Minister of Viet Nam on the setup of the system of MPAs in Viet Nam.

⁴ Ehler C. and F. Douvere (2009) Marine spatial planning: a step-by-step approach toward ecosystem-based management. Intergovernmental Oceanographic Commission. 85p.

	<p>2010 of the Prime Minister of Viet Nam on the Approval of the Planning for System of Marine Protected Area in Viet Nam until 2020</p>	<p>The Decision states that until 2020, 16 MPAs will be established in Viet Nam seas.</p> <p>The Decision states that during the period of 2016 – 2020, research, survey and assessment for proposing new planning to expand the current system of MPA in Viet Nam. During this period, detailed planning and documents for establishing new MPAs need to be submitted for approval and putting the new MPAs in function. It is also necessary to monitor the variation of fishery resources, biodiversity and ecological systems at every established MPA. Community based MPA management model are also developed to ensure sustainable livelihood for local people while conserving and protecting marine biodiversity, ecological systems and fishery resources in the MPAs. The Decision also encourages organizations and individuals to invest in establishment and management of MPAs. The assignment of coastal marine areas to local authority and community for co-management and communication on the MPA and MPA management, and capacity building for MPA, the international cooperation and financial mechanism for sustainable management of MPA are also specified in this Decision.</p> <p>At present, there are 14 out of 16 MPAs in Viet Nam have the detailed planning and 12 MPAs are now under operation. Some MPAs, such as Cu Lao Cham, Hon Mun, Con Co etc are very well functioned. The community based MPA management model has been developed and applied successfully in some MPAs, for example Cu Lao Cham, Hon Mun etc. In the future, this model will be studied and replicated at other MPA of Viet Nam. Researches and surveys are being carried out for the proposal of new MPAs to achieve the target of total areas of MPAs achieving 4 to 5 percent of the area of Viet Nam sea.</p>
2.9	<p>Decision No. 1250/QĐ-TTg dated 31 July 2013 of the Prime Minister of Viet Nam on the Approval of the National Biodiversity Strategy until 2020, vision 2030</p>	<p>This Prime Minister Decision regulates the conservation and sustainable use of the biodiversity of Viet Nam, including the marine and coastal biodiversity and ecological systems. It set forth content of the biodiversity conservation view point, vision and activities. This Decision provides guidance for the conservation of marine and coastal biodiversity conservation activities in Viet Nam.</p>
2.10	<p>Decision No. 1570/QĐ-TTg dated 06 September 2013 of the Prime Minister</p>	<p>As the Strategy for sustainable extraction and use of marine natural resource and protection of marine environment until 2020, vision 2030, this Prime Minister Decision regulates many aspects of conservation and</p>

	<p>on the approval of the Strategy for sustainable extraction and use of marine natural resource and protection of marine environment until 2020, vision 2030</p>	<p>sustainable use and extraction of biodiversity and fisheries resource in Viet Nam. It requires the completion and successful operation the mechanism of integrated management of the seas and coasts of Viet Nam based on the function zoning and marine spatial planning. Ecosystem based climate change adaptation; use and extraction of natural resources within the recovery limit, ensure integrated effectiveness in economic, social and environmental aspects; limit the conflicts between protection and conservation with natural resource use and extraction, economic development; inclusion in the development processes the poor and vulnerable communities; climate change adaptation for sustainable development of coasts and seas. Maintain the ecological functions and biological production rate of marine ecological systems. Reduce the degradation and scarcity of marine and coastal natural resources. Survey, assess and develop maps for coastal wetland, mangrove forests, coral reefs, seagrass meadows, specific, local ecosystems with high biodiversity, nursery coastal and marine areas, marine animal migration routes, migrating fish and bird refugia; investigate the fishery capacity and potential for fishing of fisheries resource in Viet Nam seas; establish database for marine animals, especially animals with high economic values, dangerous with high priority of protection species.</p>
2.11	<p>Decision No. 798/QĐ-TTg dated 11 May 2016 of the Prime Minister of Viet Nam on the approval of the national action plan for the implementation of the strategy for sustainable extract and use of marine natural resources and protection of marine environment until 2020, vision 2030</p>	<p>This Prime Minister Decision provides details of activities, plans, programs and projects for the implementation of the strategy for sustainable extract and use of marine natural resources and protection of marine environment until 2020, vision 2030. The projects and tasks are as follows:</p> <ul style="list-style-type: none"> - Develop and implement the monitoring program for the impacts of climate change and sea level rise to coasts and marine and coastal ecosystems; - Develop and implement marine spatial planning and zoning for priority areas, areas with restrictions or forbidden on the exploitation of natural resources and other economic activities for conservation and protection of marine environment and ecological systems; <p>Effectively implement the program for protection and development of fisheries resource;</p> <ul style="list-style-type: none"> - Implement the Project for Preventing and Controlling Invasive Species to 2020; continue to implement the projects belong to the Viet Nam Planning until 2020 following the Prime Minister Decision No. 742/QĐ-TTg;

		<ul style="list-style-type: none"> - Implement the 02 projects: The Developing Capacity for the Management of the System of Natural Conservation Areas Project and Restoration of Important Degraded Natural Ecological System, which belongs to the National Biodiversity Strategy until 2020, vision 2030, approved by the Prime Minister Decision No. 1250/QĐ-TTg dated 31 July 2013 of the Prime Minister of Viet Nam; - Effectively implement the National Master Planning for Biodiversity Conservation Until 2020, Vision 2030 Project, approved by the Decision No. 45/QĐ-TTg dated 8 January 2014 of the Prime Minister; - Implement the urgent plan for conservation of endangered and rare species according to the Prime Minister Decision No. 218/QĐ-TTg dated 07 February 2014 of the Prime Minister. - Implement the Protection, Restoration of Bio-production Rate and the Capacity for Providing Nutrient Source and Breeding Ground of the Marine Ecological System Project, approved by the Decision No. 166/QĐ-TTg dated 21 January 2014 of the Prime Minister; - Implement the Developing Detailed Planning and Documents for Development of New Special Forests, Marine Protected Areas and Protected Domestic Water Areas, approved by the Prime Minister Decision No. 218/QĐ-TTg dated 07 January 2014 of the Prime Minister and consistent with the land use planning and plans which have been approved by competent state agencies; - Continue to implement the Project for Protection and Development of Coastal Forest to Respond to Climate Change during 2015-2020, approved by the Prime Minister Decision No. 120/QĐ-TTg dated 22 January 2015 of the Prime Minister
2.12	Decision No. 2295/QĐ-TTg dated 17 December 2014 on the approval of the Viet Nam National Strategy for Integrated Coastal Management Until 2020, Vision 2030	<p>Objectives: Rationally extract and use of coastal natural resources; ensure the harmonization between socio-economic development and environmental protection; protection, maintain and restoration of coastal habitats, ecosystems, resources and natural, culture and historic values; prevent and reduce negative impacts by human, nature and climate change to coastal natural resources and environment</p> <p>Tasks:</p> <ul style="list-style-type: none"> - Develop and implement the national and provincial/city coastal function zoning in the direction of rationally use and extract coastal natural resources and spaces; minimize the conflicts between different economic sectors, support

		<p>the sustainable, safe and effective coastal zones; protect, maintain and restore marine and coastal ecological systems.</p> <ul style="list-style-type: none"> - Develop and implement models for community-based co-management of marine and coastal natural resources, habitats and ecological systems to strengthen the participation of communities and social organizations; increase the responsibilities of people and reduce the burden for state management agencies; create livelihood, contribution to the poverty eradication and reduction, and increase the rights of people in getting benefits from values of the coasts. - Develop and implement programs and plans for protection, conservation and restoration of coastal ecosystems, habitats, biodiversity, endemic species and natural values that have been degraded or damaged due to human activities and natural processes; limit and minimize the negative impacts of climate change and sea level rise.
2.13	Decision No. 914/QĐ-TTg dated 27 May 2016 on the approval of the National Action Plan for Implementation of the Strategy for Integrated Coastal Management Until 2020, Vision 2030	This Prime Minister Decision has a task of sustainable use and extraction of coastal natural resources and conservation of natural biodiversity. This task is being implemented at the central level and provincial level. To implement this task, all 28 coastal provinces and cities in Viet Nam has developed, approved and been implementing the provincial/city action plan for implementation of the Strategy for Integrated Coastal Management Until 2020, Vision 2030
III	Goal 14.3 Minimize and address the impacts of ocean acidification, including through enhanced scientific cooperation at all levels	
3.1	Decision No. 622/QĐ-TTg dated 10 May 2017 of the Prime Minister of Viet Nam on the promulgation of the National Action Plan (NAP) for the Implementation of the 2030 Agenda for Sustainable Development	<p>To implement the Goal 14.3 of the UN SDGs, Decision No. 622/QĐ-TTg lists the following actions that Viet Nam need to carry out:</p> <ul style="list-style-type: none"> - Establish a monitoring system for national ocean acidification. Regularly measure the degrees of acidification (pH). - Increase scientific research on basic survey on marine natural resources and protection of marine environment, in controlling marine pollution. - Strengthening the capacity of cadres in charge of state management of marine resources and environment. - Promote international cooperation for mitigation and adaptation to ocean acidification.

3.2	<p>Except measure listed in Decision No. 622/QĐ-TTg, Viet Nam has not concentrated on the issue of ocean acidification. Climate change policies only deal with changes in green house gases, changes in air temperature, rainfall, typhoons, extreme weather events and sea level rise. The mitigation measures for climate change are using cleaner technology, cleaner production to reduce green house gases emission in coastal and ocean industries, increase green carbon, such as reforestation, newly plantation for mangrove forests. Various adaptation measures are proposed to counter negative impacts of climate change and sea level rise to ocean and coastal natural resources and ecological systems.</p>	
IV	<p>Goal 14.4: By 2020, effectively regulate harvesting and end overfishing, illegal, unreported and unregulated fishing and destructive fishing practices and implement science-based management plans, in order to restore fish stocks in the shortest time feasible, at least to levels that can produce maximum sustainable yield as determined by their biological characteristics</p> <p>Goal 14.6: By 2020, prohibit certain forms of fisheries subsidies which contribute to overcapacity and overfishing, eliminate subsidies that contribute to illegal, unreported and unregulated fishing and refrain from introducing new such subsidies, recognizing that appropriate and effective special and differential treatment for developing and least developed countries should be an integral part of the World Trade Organization fisheries subsidies negotiation</p> <p>Goal 14.B: Provide access for small-scale artisanal fishers to marine resources and markets</p>	
4.1	<p>Solution No. 36/NQ/TW of the dated 22 October 2018 of the Central Committee of the Viet Nam Communist Party on the Promulgation of the Strategy for Sustainable Development of Viet Nam Maritime Economy until 2030, Vision 2045</p>	<p>Aquaculture and fisheries: change from traditional aquaculture and fisheries into industrial with the application of high technology. Re-organize the fishery activities in the direction of reducing nearshore fishing and increase offshore fishing, suitable with maritime areas and the recovery capacity of marine ecological systems, together with simultaneously and effectively implementing job training and career change for fishermen. Promote the sustainable aquaculture and fishery activities, enhancing the protection and recover the fishery resource, strictly forbid destructive fishing practices. Modernize the marine fishery sector. Speed up the application of modern science and technology in aquaculture, catchfish, preserve and process fishes.</p>
	<p>Law on Fisheries (Law No. 18/2017/QH14)</p>	<p>This is a comprehensive law on fisheries and aquaculture. The Law has many article on the overfishing, illegal, unreported and unregulated fishing and destructive fishing practices, implementing science-based management plans, in order to restore fish stocks in the shortest time feasible, prohibiting certain forms of fisheries subsidies which contribute to overcapacity and overfishing, eliminate subsidies that contribute to illegal,</p>

		<p>unreported and unregulated fishing and refrain from introducing new such subsidies.</p> <p>Article 7 of this law provides a list of activities that are strictly prohibited in Viet Nam. The prohibited activities for sustainable fishery and aquaculture are listed as:</p> <ul style="list-style-type: none"> - Damage fishery resource, aquatic ecological system, fish breeding and nursery grounds and habitats. - Illegally obstruct fish migrating routes. - Encroach or cause damages to fishery resource protection zone, marine protected areas. - Fishing or doing aquaculture activities or building structures or other activities that cause negative impacts to living environment of fishes and fishery resources in the strictly protection zone and ecological recovery zone of marine protected areas. - Fishing boats, ships and other maritime equipment that illegally operate in the strictly protection zone of marine protected areas, except for force majeure. - Illegal, unreported and unregulated fishing (IUU fishing); trade, transport, store, preliminary process and process fishes from IUU fishing with fraud trading purpose. - Use prohibited materials, chemicals, toxic materials, dynamites, electric shock, electricity current, destructive methods and fishing gears for fishing. - Throwing the fishing gears in natural waters, except for force majeure. - Use of antibiotics, veterinary drugs and pesticides banned from use in aquaculture; chemicals, biological preparations and microorganisms banned from use in the production of aquatic feeds and products for adjusting aquaculture environment; use of aquatic breeds not included in the list of aquatic species permitted for trading in Vietnam for aquaculture. <p>The Law has other regulations with their implementation facilitating the achievement of the SGD Goals 14.4, 14.6 and 14B, such as community-based co-management of fishery resource, Chapter 2 on protection and development of fishery resource, Chapter 3 on aquaculture, Chapter 4 on fishery with very strict regulations on the sustainable fishing and aquaculture etc.</p>
4.2	Decree No. 26/2019/NĐ-CP dated 08 March 2019 Guidelines for	This decree guides in details the implementation on the Law on Fisheries. The first part of its content deals with protection and development of fisheries resource. It has three sections with very detailed regulations on

	<p>implementation of the Law on Fisheries</p>	<p>community-based co-management of fisheries resource, management of endangered and rare fish species, and regulations for management of marine protected areas. The second part of the content of this Decree deals with aquaculture, with detailed regulations on 1) management of aquaculture breeds, 2) aquafeeds and aquaculture environment treatment products, and 3) aquaculture activity setup. The third part of this decree deals with fishing with the first section regulates the management of Viet Nam organizations and individuals fishing on seas. This part regulates in details about the conditions of fishing vessels operating in coastal and offshore waters, and the fishing vessel monitoring system. It is required that commercial fishing vessels must install the fishing vessel monitoring system, and this system must be turn on all time when the vessel is operating, and the recorded data cannot be erased or modified and must be saved for at least 36 month for possible later inspection. The fishing vessels operating outside Viet Nam sea water must be equipped following international laws and regulations, and if they are operating in a foreign country's water, they must obey laws and regulations of that country. The second section of this part regulates the operation of foreign vessels in Viet Nam sea water. The remaining parts of this decrees deals with fishing vessel's harbours, ports and shelters, fishery resources surveillance etc.</p>
<p>4.3</p>	<p>Decision No. 78/QĐ-TTg dated 16 January 2018 on the approval of the National Action Plan for Prevention, Minimize and Eradication of Illegal, Unreported and Unregulated Fishing Until 2025</p>	<p>This Prime Minister Decision has the following important objective and contents for prevention, minimize and eradication of Illegal, Unreported and Unregulated Fishing (IUU fishing)</p> <p>Objective:</p> <p>Prevent, minimize and eradicate the IUU fishing activities of Viet Nam and foreign organizations and individuals in Viet Nam seas for promoting sustainable and responsible fishery, contribute to national, regional security and international integration; stop Viet Nam fishing vessel and fishermen fishing in foreign waters.</p> <p>Tasks in this NAP include revising under-law regulations on fishery to prevent IUU fishing, that include approval of offshore fishery project, planning, establishment of the multiple-agency task force for preventing IUU fishing, control the fishing export and import, fish origin certification system, upgrade the coastal technical stations at the Viet Nam Fisheries Administration and at 28 coastal provinces, cities to monitor and effectively use monitoring information from fishing vessels, and effectively use</p>

		<p>information from 3,000 equipment of fishing vessel information management project (MOVIMAR); the information from the above mentioned monitoring system will be effectively use to stop, minimize and eradicate IUU fishing activities. Establish the fisheries database in the direction of integrating information on fishing vessel, fishery activity, fisheries processing, fish origin detection to enhance the verification, certification and tracking the origin of fishes cached in Viet Nam seas and establish an effective system to refuse importing fishes cached by IUU fishing of foreign vessels. Implement communication programs to raise public understanding on the dangerousness of IUU fishing for sustainable fisheries development, social equality and Viet Nam reputation internationally. Implement the education, training programs to raise the compliance capacity of fishing vessel owners, captains, fishermen and fisheries processing facilities owners for Viet Nam law and international laws. Investigate, verify and strictly punish the act of organizing fishing in foreign waters, or brokers illegally redeem fishing vessels caught overseas back to Viet Nam. Guide organizations and individuals to fish in maritime waters with overlapping claims by other countries in the region. Formulate detailed plans, programs and projects of ministries, sectors and 28 coastal provinces and cities for effective implementation of the NAP. Develop and implement the policies for career conversion and create sustainable livelihood for fishermen. Develop the mechanism to address the responsibility of the local leaders with IUU fishing vessels in foreign waters. Develop sanctions to strictly fine ship owners, captains, fishermen, and abettors for exploiting, trading and transporting products from IUU fishing vessels. Strengthening the fisheries surveillance, coast guard, sector inspection force at all levels to enhance the capacity of patrolling, controlling and handling law violations on the seas and ensure detecting the origin of fishes landed at the port. Ban some destructive fishing practices such as extraction of sea cucumber, giant clams.</p>
4.4	<p>Decision No. 622/QĐ-TTg dated 10 May 2017 of the Prime Minister of Viet Nam on the promulgation of the National Action Plan (NAP) for the Implementation of</p>	<p>Goal 14.6: Until 2030, strictly prohibit all kinds of fishery subsidies which lead to overfishing or (IUU) fishing, enabling fishery negotiation with World Trade Organization</p> <ul style="list-style-type: none"> - Develop plan to erase subsidies to fishing activities which have caused negative impacts to fisheries resource, which

	the 2030 Agenda for Sustainable Development	<p>has been in the situation of being overfished; eradicate all kinds of subsidies to IUU fishing vessels.</p> <ul style="list-style-type: none"> - Implement the natural resource exploitation tax system to fishing activity to promote sustainable fisheries. - Facilitate the access to marine natural resources and markets to artisanal fishing fishermen, especially fishermen from poor families.
V	Goal 14.A: Increase scientific knowledge, develop research capacity and transfer marine technology, taking into account the Intergovernmental Oceanographic Commission Criteria and Guidelines on the Transfer of Marine Technology, in order to improve ocean health and to enhance the contribution of marine biodiversity to the development of developing countries, in particular small island developing States and least developed countries	
5.1	<p>Solution No. 36/NQ/TW dated 22 October 2018 of the Central Committee of the Viet Nam Communist Party on the Promulgation of the Strategy for Sustainable Development of Viet Nam Maritime Economy until 2030, Vision 2045</p>	<p>Promote the innovation and creation, applying modern scientific achievement, promote research; determine scientific bases for planning and developing policies and legislations for sustainable development of marine economy.</p> <p>Put priority to basic field survey, scientific and technology research, marine human resource development by education and training; formulate centers for research and application of marine biotechnology, deep seabed exploitation, space technology for marine monitoring reaching the regional modern level. Assess the potential and advantage on the natural conditions, natural resources, ecological systems, and marine economic sectors such as maritime transport, fishery and aquaculture, fish processing, renewable energy, information and digital technology, biomedicines, subsurface automatic operating equipment, develop and effectively Program for basic survey of marine and island natural resources and environment; enlarge and increase the effectiveness of international cooperation in survey and research at international maritime area. Invest to establish a group of modern research vessel, submarine equipment for survey at large depth of deep sea. Continue to promote international cooperation, seek the support from international and regional partners to take advantages of human resource, coastal infrastructure, apply modern science and technology to marine and coastal economic sectors, marine environmental protection and natural hazard prevention and adaptation to climate change, sea level rise.</p> <p>Increase and expand the international cooperation, actively participate and positively contribute to the</p>

		<p>common efforts of international communities in conservation and sustainable use of ocean and coast; maximize the use of resources and international supports to enhance the capacity of management and exploitation of seas, in which focus on science, technology, knowledge and human resource training</p>
5.2	Viet Nam Biodiversity Law (Law No. 20/2008/QH12)	<p>This Law has article 71 on basic survey, scientific research, and management of biodiversity information and data, which has the following main contents</p> <ul style="list-style-type: none"> - State invests in basic survey on natural ecological systems, wild species, cultivated varieties, animal breeds, microbials and fungi, valuable genetic resource for conservation and sustainable development of biodiversity. - State encourages organizations and individuals to do scientific researches conservation and sustainable development of biodiversity, and socio-economic development. - Information and data obtained from basic survey and scientific research results have to be collected and unifiedly managed inside the National Database on Biodiversity
5.3	Viet Nam Law on Environmental Protection (Law No. 55/2014/QH13)	<p>This law has several articles on scientific research relating to environmental protection, especially Article 158 on the expansion of international cooperation for environmental protection. It states that the state encourage organizations, individuals cooperate with foreign and overseas Vietnamese partners for enhancing the capacity and effectiveness of domestic environmental protection. The state facilitates foreign and overseas Vietnamese partner investing and supporting human resource development, scientific research, technology transfer, nature conservation and other activities relating to environmental protection; develop and rational, effectively use international cooperation resources on environmental protection. The state promote cooperation with neighbouring and regional countries to solve problems relating to management and exploitation of natural resources and protection of environment</p>
5.4	Law on Sea and Island Natural Resource and Environment (Law No. 82/2015/QH13)	<p>This law has a chapter on basic survey and scientific research on sea and island natural resources and environment. The chapter addresses many aspects of basic survey on natural resources and environment of Viet Nam, including requirements for basic survey of sea and island natural resources and environment, projects belong to the National Key Program for Basic Survey of Sea and</p>

		<p>Island Natural Resources and Environment (the Key Program), and projects do not belong to the Key Program. The chapter also regulates the inventory of the sea and island natural resources and environment. Regarding the sea and island scientific research, the chapter regulates that sea and island scientific activities are implemented through this law and Law on Science and Technology. The State prioritize investment to scientific and technology research projects relating to sea and island natural resources and environment through the National Program of Science and Technology on Sea and Island Natural Resources and Environment. The chapter also regulates the permitting processes for foreign organizations and individuals doing scientific research in Viet Nam seas.</p>
5.5	<p>Fishery Law (Law No. 18/2017/QH14)</p>	<p>This law provides some regulations in the international cooperation that helps enhancing scientific research capacity of Viet Nam, namely:</p> <ul style="list-style-type: none"> - Conclusion of and compliance with international treaties related to fishery activities. -Provision of assistance and investment in resources in fishery activities. - Provision of training in human resources; scientific research, technological development and technology transfer; exchange of information, trade and experience related to fishery activities. - Conservation and management of organism resources in international waters in accordance with regulations issued by regional fishery organizations and United Nations Convention on the law of the Sea 1982. - Cooperation in inspecting and taking actions against illegal commercial fishing inside and outside the territory of Vietnam in accordance with regulations of international treaties to which the Socialist Republic of Vietnam is a signatory.
5.6	<p>Decision No. 1570/QĐ-TTg dated 06 September 2013 of the Prime Minister on the approval of the Strategy for sustainable extraction and use of marine natural resource and protection of marine</p>	<p>This Prime Minister Decision provides many tasks on basic survey and scientific researches on marine and coastal natural resources and environment. This includes survey, assess and map coastal wetland, mangrove, coral and seagrass ecological systems, specific and local coastal ecological systems, areas with high biodiversity, breeding ground, migrating routes of marine animals, cold weather avoiding habitats for migrating birds; provide more information on fishery resources, formulate database on marine animals, especially species with high economic values and prioritized for protection, and invasive species.</p>

	environment until 2020, vision 2030	<p>Survey on the state of marine environment, assess natural hazard sensitivity and resilience of marine and coastal environment and ecological systems; survey on hydrometeorology, geology, morphology, water resource, tourism resources and other resources; develop the capacity for natural hazard prediction and warning; step by step upgrade the marine and coastal natural resource and environment observation and monitoring station system; researches on the dynamical, environmental and ecological processes in offshore and nearshore marine areas; predict changes in coastal and marine natural resources, environment and ecological system; assess the impacts of climate change and sea level rise to natural resources and environment and developing mitigation, adaptation measures for climate change and sea level rise.</p> <p>This Prime Minister Decision is the foundation for proposal and implementation of many basic survey and scientific research projects to increase the knowledge of Viet Nam on ocean and coastal natural resources and environment for sustainable development.</p>
5.7	Decision No. 798/QĐ-TTg dated 11 May 2016 of the Prime Minister of Viet Nam on the approval of the national action plan for the implementation of the strategy for sustainable extract and use of marine natural resources and protection of marine environment until 2020, vision 2030	<p>This Prime Minister Decision specify many programs and projects for implementation of the Strategy for sustainable extract and use of marine natural resources and protection of marine environment until 2020, vision 2030. It should be noted that like other national action plan, relevant central government agencies in Viet Nam and 28 coastal provinces and cities of Viet Nam need to develop, approve and implement sector, provincial or city action plan to implement the national action plan. This means that all relevant ministries agencies and provinces and cities need to carry out basic survey and scientific research on marine and coastal natural resources and environment under their competent.</p>
5.8	Decision No. 2295/QĐ-TTg dated 17 December 2014 on the approval of the Viet Nam National Strategy for Integrated Coastal Management Until 2020, Vision 2030	<p>This Prime Minister Decision also contains tasks on basic survey and scientific research on coastal natural resources and environment, the establishment of the database for coastal natural resources and environment for the implementation of the integrated coastal management.</p>
	Decision No. 914/QĐ-TTg dated 27 May	<p>This Prime Minister Decision and provides detailed programs, projects for the implementation of the Strategy</p>

	2016 on the approval of the National Action Plan for Implementation of the Strategy for Integrated Coastal Management Until 2020, Vision 2030	for Integrated Coastal Management Until 2020, Vision 2030, which contains projects on basic survey and scientific research on the subject.
5.9	Decree No. 26/2019/NĐ-CP dated 08 March 2019 Guidelines for implementation of the Law on Fisheries	This decree regulates the basic surveys and scientific researches on the fishery resource, including marine and coastal marine ecological systems, biodiversity, marine protected areas etc. These provide foundation for sustainable fishery and aquaculture development in Viet Nam seas and coasts.
5.10	Prime Minister Decision No. 47/2006/QĐ-TTg dated 1 March 2006 on the approval of the Master Project on the basic Survey and Management of Marine Natural Resources and Environment Toward 2010, Vision 2020 Prime Minister Decision No. 1876/QĐ-TTg dated 15 October 2013 on the approval of list of tasks, projects in the period 2013-2020 to implement Master Project on the basic Survey and Management of Marine Natural Resources and Environment Toward 2010, Vision 2020	The Prime Minister Decision No. 47/2006/QĐ-TTg provides view point, objectives and content, including a comprehensive list of projects and tasks for basic survey of marine natural resources and environment in Viet Nam seas. The projects and tasks in the Master Project are very diversified and comprehensive; provide a very comprehensive and up-to-date data on present state of marine natural resources, environment, biodiversity, ecological systems etc. The data obtained from project in the first phase (from 2006 – 2013) have been integrated to the National Database on Sea and Island Natural Resources and Environment of Viet Nam. The Prime Minister Decision No. 1876/QĐ-TTg provides list of projects and tasks that are implemented during the Phase 2 (period 2013-2020) that are supplement to the projects and tasks that were carried out during Phase 1. The two phases of this Master Project provides scientific understanding, data and information on Viet Nam marine, coastal and island natural resources and environment, present state of management of marine, coastal and island natural resources and environment as well as socio-economic activities that can provide sound foundation for developing policies, regulations, planning and plans for use and extraction of marine and coastal natural resource, protection of marine and coastal environment and conservation of marine and coastal ecological system for sustainable development
5.11	Marine Scientific Research Program KC/09	This is a national scientific research program on the seas of Viet Nam, managed by the Minister of Science and Technology of Viet Nam. This program provides fund for many scientific research projects on the sea of Viet Nam

		and provide data for continuing scientific research and sustainable development of the seas of Viet Nam
VI	14.C	Enhance the conservation and sustainable use of oceans and their resources by implementing international law as reflected in UNCLOS, which provides the legal framework for the conservation and sustainable use of oceans and their resources, as recalled in paragraph 158 of The Future We Want
6.1	Solution No. 36/NQ/TW dated 22 October 2018 of the Central Committee of the Viet Nam Communist Party on the Promulgation of the Strategy for Sustainable Development of Viet Nam Maritime Economy until 2030, Vision 2045	<p>Establish and maintain peaceful, stable and legal order on the sea to enable safe and effective use and exploitation of the sea. Solve disputes and conflicts on the sea by peaceful based on international laws, especially UN Convention on the Law of the Sea (UNCLOS). Actively participate in international and regional forum, especially maritime cooperation activities inside ASEAN; cooperate with other countries to implement the Declaration on the Conduct of Parties in the South China Sea (DOC) and promote to sign the Code of Conduct of Parties in South China Sea (COC).</p> <p>Promote the international cooperation on the sustainable management, use and conservation ocean and seas; strictly implement regional and international agreement that Viet Nam is a signatory; study to participate in important international maritime agreement; at first, prioritize international agreement on marine natural resource management, environmental protection and scientific research.</p>
6.2	Viet Nam Biodiversity Law (Law No. 20/2008/QH12)	<p>This Law has article 69 on international cooperation and implement international agreements on biodiversity, which has the following contents</p> <ul style="list-style-type: none"> - Viet Nam commit to implement international agreements on biodiversity, which Viet Nam is a signatory and expand the cooperation in conservation and sustainable development of biodiversity with countries and territories, foreign organizations and individuals. - Ministry of Natural Resource acts as the focus point and in cooperation with other ministries and ministerial level agencies to propose the negotiation, sign and participate in international agreements on biodiversities.
6.3	Law on treaties (Law No. 108/2016/QH13)	<p>This Law regulates that in cases where a legal document and a treaty to which the Socialist Republic of Vietnam is a party, contains different provisions on the same matter, the provisions of the treaty shall prevail, except the Constitution. The National Assembly, the National Assembly Standing Committee, the Ethnic Council, the</p>

		National Assembly's Committees, National Assembly deputies' delegations and individual National Assembly deputies shall, within their responsibilities and jurisdiction, supervise conclusion and implementation of treaties
6.4	Decision No. 78/QĐ-TTg dated 16 January 2018 on the approval of the National Action Plan for Prevention, Minimize and Eradication of Illegal, Unreported and Unregulated Fishing Until 2025	Implement the education, training programs to raise the compliance capacity of fishing vessel owners, captains, fishermen and fisheries processing facilities owners for Viet Nam law and international laws. Approve the participation in the international and regional fisheries management agreements relating to prevention of IUU fishing: Conservation and Management of Straddling Fish Stocks and Highly Migratory Fish Stocks (UN Fish Stocks Agreement), Agreement on Port State Measures (PSMA) and cooperate and participate (if possible) with regional fishery organizations: CCAMLR, WCPFC, IWC, IOTC, ICCAT etc

Table A2. Organizations for implementation of UN SDG 14

No.	Organization	Functions and mandates relating to implementation of UN SDG 14
1	National Council for Sustainable Development and Competitiveness Improvement	<p>The National Council for Sustainable Development and Competitiveness Improvement is an organization chaired by the Deputy Prime Minister of Viet Nam and has the mandate of</p> <ul style="list-style-type: none"> - Advising the Government and Prime Minister to: <ul style="list-style-type: none"> + Develop and implement strategies, policies, programs and tasks on sustainable development and competitiveness improvement; monitoring and assessing the implementation of sustainable development goals and criteria following Direction of Sustainable Development Strategy in Viet Nam, which has been approved by the Prime Minister; + Implement activities relating to commitments of Viet Nam Government with United Nations and other international institutions within the activities of the Decade of Education for Sustainable Development of UN; - Develop National Report on the Sustainable Development and organize the National Conference on the Sustainable Development. - Submit to the Government, Prime Minister consultant reports and recommendation of the Council on sustainable development. - Implement other tasks assigned by the Government or Prime Minister.

		The Council has four sub-councils with different tasks and mandates. The Council can direct different ministries for activities relating to sustainable development, including sustainable development of the seas of Viet Nam.
2	Ministry of Natural Resources and Environment	Implementing the governance of sea and island natural resources and environment of Viet Nam. The Ministry has many agencies for doing basic survey, scientific research, develop and submit for approval draft policies, laws, regulations on natural resources and environment of Viet Nam. The Ministry is responsible for marine and coastal environmental management, integrated management of seas and islands, management of marine biodiversity etc. Agencies under the Ministry that are working on the management of seas and islands in Viet Nam are Viet Nam Administration of Seas and Islands, Viet Nam Environmental Administration, Department of National Remote Sensing, etc. The Ministry needs to cooperate with other ministries and ministry level agencies for the management of sea and island natural resources and environment.
3	Ministry of Agriculture and Rural Development	This ministry is responsible for the management of fisheries and aquaculture. The Ministry is responsible for the management of fishing vessels, fish ports and harbours, fishery resources, marine protected areas and mangrove forests. This Ministry
4	Ministry of Construction	This Ministry is responsible for solid and liquid waste collection, transportation and processing. This Ministry needs to cooperate with Ministry of Natural Resource and Environment in the management of wastes
5	Ministry of Transport	This Ministry is responsible for the management of maritime transport and port development. The Ministry also manages wastes generated by maritime transport and other marine environmental impacts caused by maritime transport, such as noise, ballast water etc.
6	Ministry of Culture, Sport and Tourism	This Ministry is responsible for marine tourism. The Ministry cooperates with Ministry of Natural Resources and Environment, Ministry of Agriculture to manage coastal and ocean tourism resources and wastes generated from tourism activities
7	Ministry of Science and Technology	This Ministry manages the marine and coastal scientific research. The Ministry has the National Scientific Program for Marine Research, which every five years provides fund for marine and coastal scientific researches. It also in close cooperation with the Ministry of Natural Resources and

		Environment to manage and implement the Key Basic Survey Program for Sea and Island Natural Resources and Environment
8	Viet Nam Academy of Science and Technology	The Viet Nam Academy of Science and Technology has many institutions under it to do the scientific researches on the seas and coasts of Viet Nam. Such institutions are Institute of Oceanography, Institute of Marine Resources and Environment, Institute of Marine Geology and Geophysics etc

Table A3. National institutions together with their mandates and data holdings

No.	Name of Institution	Mandates and data holdings
1	National Center for Information and Database on Sea and Island National Resources and Environment	This center belongs to Viet Nam Administration of Seas and Island and has the mandate of collecting and storing all data on sea and island natural resources and environment. The Center has created the National Database on Sea and Island National Resources and Environment (the Database). In Viet Nam, previously coastal and ocean data were stored at different organizations. However, after the establishment of the Viet Nam Administration of Seas and Islands and the National Database on Sea and Island National Resources and Environment (the Database) in 2008, all collected coastal and ocean data until 2012 are now stored at this database. After 2012, data obtain by projects belongs to Prime Minister Decision No. 47/2006/QĐ-TTg dated 1 March 2006 on the approval of the Master Project on the basic Survey and Management of Marine Natural Resources and Environment Toward 2010, Vision 2020 and Prime Minister Decision No. 1876/QĐ-TTg dated 15 October 2013 on the approval of list of tasks, projects in the period 2013-2020 to implement Master Project on the basic Survey and Management of Marine Natural Resources and Environment Toward 2010, Vision 2020 and data obtained from other basic survey and scientific research projects implemented by the Ministry of Natural Resources and Environment are also stored in the Database. However, after 2012, data from basic survey projects and scientific research projects that are not under the supervision of the Ministry of Natural Resources and Environment are not stored in the Database. The data in the Database are marine hydrometeorological data (meteorological data, sea wave and current data), sedimentation, geological, geophysical, sea bed mineral resource, natural hazards, ocean and coastal chemical and environmental data, ocean biological data, biodiversity, ecological system data etc.

2	Center for Planning and Survey of Sea and Island Natural Resources and Environment in the Northern Region	This center, previously called Center for Marine Geology and Mineral Resources, belongs to the Viet Nam Administration of Seas and Islands. This center has done extensive survey on the marine geology, mineral resources, bottom sediment, bottom sediment environment etc and got a huge amount of data from the implemented survey projects. The data obtained by this center and now stored at the Database include geological, geophysical, sedimentation, sediment environment, coastal erosion, coastal biodiversity and ecological systems, marine and coastal economic activities, coastal planning, land based and sea based wastes and limited data on nearshore dynamical processes (waves, current, water level) and water quality.
3	Center for Planning and Survey of Sea and Island Natural Resources and Environment in the Southern Region	This center, established in 2008 together with the Viet Nam Administration of Seas and Islands, belongs to the Viet Nam Administration of Seas and Islands. This center has done a limited number of survey and scientific research projects on the coastal natural resources and environment, and got data from the implemented survey and scientific research projects. The data obtained by this center and now stored in the Database are nearshore and estuarine dynamical processes (waves, current, water level), coastal sedimentation and erosion, biodiversity and ecological systems, marine and coastal economic activities, coastal planning, land based and sea based wastes.
4	Viet Nam Institute of Seas and Island	This institute, established in 2008 together with the Viet Nam Administration of Seas and Islands, belongs to the Viet Nam Administration of Seas and Islands. The institute has carried out a number of survey and scientific research projects on the coastal natural resources and environment, and got data from the implemented survey and scientific research projects. The data obtained by this institute and now stored in the Database include marine and coastal environment (water quality and sediment quality, marine and coastal pollution), marine, coastal and estuarine dynamical processes (waves, current, water level), sediment transport, sedimentation and coastal erosion, marine and coastal natural hazards, climate change, marine and coastal biodiversity and ecological systems, marine spatial planning, marine and coastal socio-economic activities, coastal and marine related legislations, sea and island management data etc.
5	Center for Oceanography	This center belongs to the Viet Nam Administration of Seas and Islands. Previously, the center has a marine research vessel for measuring the hydrometeorological parameters of the seas of Viet Nam. This center also owns a system of coastal radar stations to measure nearshore sea current and waves. The data obtained by this center and now stored in the Database and at the center are marine, coastal and estuarine dynamical

		processes (waves, current, water level), meteorological conditions, sediment and water quality, coastal and marine pollution, coastal erosion and sedimentation, coastal ecological systems and natural hazards etc.
6	Northern Environmental Monitoring Center Central Environmental Monitoring Center Southern Environmental Monitoring Center	Three environmental monitoring centers: Northern Environmental Monitoring Center, Central Environmental Monitoring Center, and Southern Environmental Monitoring Center, belong to the Viet Nam Environmental Administration. The three centers have the mandate of monitoring the environmental quality, including marine and coastal environmental quality. The data obtained from the centers and stored in the Database and the centers are water and sediment quality data (salinity, pH and concentrations of important pollutants such as DO, TSS, NH ₄ ⁺ , PO ₄ ³⁻ , Fluorua (F ⁻), Cyanide, Asen, Cadimi etc.
7	Institute of Strategy and Policy on Natural Resources and Environment	The Institute of Strategy and Policy on Natural Resources and Environment (ISPONRE) is a research institute under the Ministry of Natural Resources and Environment (MONRE), has the functions of doing researches, proposing and developing strategies and policies on natural resources and environment. The Institute has implemented or been implementing many projects and scientific research projects relating to assessment of policies and strategies on Viet Nam sea and island natural resources and environment, and has data on policies, strategies, legislations and other data relating to the management of sea and island natural resources and protection of sea and island environment of Viet Nam obtained from the implemented projects (present state of sea and island natural resource and environment, marine and coastal socio-economic activities, climate change, planning data, marine and coastal environmental and ecological service data, marine and coastal sustainable development model etc).
8	Nature and Biodiversity Conservation Agency	This is an agency under the Viet Nam Environmental Administration, has the mandates of helping the Director General of the Viet Nam Environmental Administration to do the state management and implementation of policies and legislations relating to the conservation of nature and biodiversity of Viet Nam. The Agency is also responsible for the state management of the marine and coastal biodiversity of Viet Nam. The agency has the data on biodiversity and ecological systems of coasts and seas of Viet Nam, and data on the management of marine nature and biodiversity conservation

		and management in Viet Nam (present state of coastal and marine biodiversity, change trend of marine and coastal biodiversity, impacts of economic development and conservation on coastal and marine biodiversity and ecological systems etc.
9	Institute of Oceanography	This research institute was established in 1922 and now belongs to the Viet Nam Academy of Science and Technology. This research institute has done a large number of scientific researches and a limited number of survey projects on oceanography, marine biology and geology. The data obtained from this research institute prior to 2012 are now stored in the National Database on Sea and Island National Resources and Environment. The data obtained by this research institute from 2012 until now are stored in the research institute. Data stored in the research institute are oceanographic data (waves, current, water level, meteorological conditions, water temperature), marine chemistry at water surface and different depths, marine biodiversity (fauna and flora species), coastal and marine ecological systems, water quality and pollution, natural hazard data etc.
10	Institute of Marine Environment and Resources	This research institute was established in 2008 and belongs to the Viet Nam Academy of Science and Technology. This research institute has done a number of scientific researches and a limited number of survey projects on marine natural resources and environment, especially marine biodiversity and geology. The data obtained from this research institute prior to 2012 are now stored in the Database. The data obtained by this research institute from 2012 until now are stored in the research institute. The data stored in the research institute are geological and geodesy data, marine and coastal biodiversity and ecological system data (marine, coastal and estuarine fauna and flora species, present state of marine, coastal and estuarine biodiversity and ecological systems etc), water and sediment quality data, coastal and marine pollution, socio-economic activities and planning data etc.
11	Institute of Marine Geology and Geophysics	This research institute was established in 2005 from the Ha Noi Sub-institute for Oceanography and belongs to the Viet Nam Academy of Science and Technology. This research institute has done a number of scientific researches and a limited number of survey projects on oceanography, marine geology and geophysics. The data obtained from this research institute prior to 2012 are now stored in the Database. The data obtained by this research institute from 2012 until now are stored in the research institute. Data stored in the research institute include marine geological and geophysical data, sediment transport and

		sedimentation data, and limited data on oceanography (waves, currents, water level, meteorological conditions).
12	Research Institute for Marine Fisheries	This research institute was established in 1971 and belongs to the Ministry of Agriculture and Rural Development. This research institute has done a large number of survey and scientific research projects on the biodiversity and fisheries resource, and marine environment relating to fisheries in Viet Nam sea water. The data obtained from this research institute prior to 2012 are now stored in the National Database on Sea and Island National Resources and Environment. The data obtained by this research institute from 2012 until now are stored in the research institute. The data stored in the research institute include biodiversity of fishes (fish, crustacean, shellfish etc.) at the coasts and offshore, present state and variation trend of fishery resource, catchfish, sustainable fisheries resource exploitation, fish vessel monitoring system and fisheries planning data, and data on livelihood of fishermen and fish trading.
13	Research Institute for Aquaculture 1 (RIA1)	This is a research institute under the Ministry of Agriculture and Rural Development. The main function of RIA1 is to carry out scientific and technological research in the field of aquaculture, including: genetic and seed production; aquaculture techniques; environment management and disease prevention; resource protection and development for coastal and freshwater areas; post-harvesting technology; technology innovation and transfer. Working area of RIA1 is in the Northern Region of Viet Nam. The research institute has done a number of scientific research projects on aquaculture in the North Viet Nam. Data on marine culture obtained by this research institute prior to 2012 are now stored in the Database. The data on marine culture obtained by this research institute from 2012 until now are stored in the research institute. Data stored in the research institute include data on present state of marine culture, environmental conditions for marine culture, socio-economic data related to marine culture (number of worker, prices and trade of marine cultural products), and livelihood of people working on marine culture of people in the Northern coastal areas of Viet Nam
14	Research Institute for Aquaculture 2 (RIA2)	This is a research institute under the Ministry of Agriculture and Rural Development and has similar mandate to RIA1, but for Central Viet Nam. The research institute has done a number of scientific research projects on aquaculture in the Central Viet Nam. Data on marine culture obtained by this research institute prior to 2012 are now stored in the Database. The data on marine culture obtained by this research institute from 2012 until now are stored in the research institute. Data stored in the research institute include data on present state of marine

		culture, environmental conditions for marine culture, socio-economic data related to marine culture (number of worker, prices and trade of marine cultural products), and livelihood of people working on marine culture in the Central coastal areas of Viet Nam
15	Research Institute for Aquaculture 3 (RIA3)	This is a research institute under the Ministry of Agriculture and Rural Development and has similar mandate to RIA1, but for South Viet Nam. The research institute has done a number of scientific research projects on aquaculture in the South Viet Nam. Data on marine culture obtained by this research institute prior to 2012 are now stored in the Database. The data on marine culture obtained by this research institute from 2012 until now are stored in the research institute. Data stored in the research institute include data on present state of marine culture, environmental conditions for marine culture, socio-economic data related to marine culture (number of worker, prices and trade of marine cultural products), and livelihood of people working on marine culture in the Southern coastal areas of Viet Nam.
16	Institute of Aquaculture	This is a research institute under the Nha Trang University and has the mandate of educating graduate students (Master Course) and post graduate students (PhD Course) and doing researches on aquaculture, aquaculture diseases, aquaculture environment and fisheries resource management. The data on marine culture obtained by this research institute are stored in the research institute. Data stored in the research institute include data on present state of marine culture, environmental conditions for marine culture, socio-economic data related to marine culture (number of worker, prices and trade of marine cultural products), and livelihood of people working on marine culture in the South-Central coastal areas (Phu Yen, Binh Dinh, Khanh Hoa, Ninh Thuan) of Viet Nam
17	Viet Nam Institute of Fisheries Economics and Planning	This research institute is under the Ministry of Agriculture and rural development. The research institute has done a large number of survey and scientific research projects on fisheries economic and planning. The data obtained from this research institute are now stored in this research institute. Data stored in the research institute include data on present state of marine culture, socio-economic data related to marine culture (number of worker, prices and trade of marine cultural products), livelihood of people working on marine culture and marine culture planning
18	Institute for Tourism	This institute is under the Viet Nam National Administration of Tourism. This research institute is conducting research on developing tourism strategies, planning, policies for state

	Development Research	management in tourism; provide research and consultancy services. Data on marine and coastal tourism stored in the research institute include data on coastal and marine tourism resource and potential, present state of coastal and marine tourism, marine and coastal tourism management, sustainable marine and coastal tourism development, marine and coastal tourism planning, and socio-economic data on marine and coastal tourism (marine and coastal tourism sector working force, income, revenue, and tourism business etc)
19	General Statistics Office of Viet Nam	This office is now keeping all data on socio-economic activities of coastal provinces/cities of Viet Nam. The data is published in the Statistic Yearbook. Other data can be obtained by request. The GSO is responsible to analyze and synthesize data on marine and coastal natural resources and environment, and socio-economic development relating to the seas and coasts of Viet Nam, and provide data to line ministries and ministry-level agencies, and the Government of Viet Nam for development of policies and legislations relating to sustainable development, including implementation of SDG 14 of seas and coasts of Viet Nam.
20	Departments of natural resources and environment (DONRE), coastal provinces and cities	The departments of natural resources and environment of coastal provinces and cities have the mandate of carrying out surveys to provide data for integrated management and socio-economic development of coastal zone under their competent. The data obtained are stored in their office and can be obtained per request. The data stored in DONREs are data on sea and island natural resources and environment (mineral resources, biodiversity and ecological systems, fisheries, tourism, transport, energy and other resource data), socio-economic development data, livelihoods of people living at the coasts or have livelihood depending on sea and island products, conflict in use of sea and island natural resource, protection of sea and island environment and conservation of sea and island biodiversity, ecological systems and natural habitats, marine and coastal planning and management data with the province or city.
21	Departments of science and technology (DST), coastal provinces and cities	The departments of science and technology of coastal provinces and cities have the mandate of carrying out scientific researches to provide scientific foundation for integrated management and socio-economic development of coastal zone under their competent. The data obtained are stored in their office and can be obtained per request. Depend on research projects, the data stored in DSTs can be data on sea and island natural resources and environment (mineral resources, biodiversity and ecological systems, fisheries, tourism, transport, energy and other resource data), socio-economic development data, livelihoods

		of people living at the coasts or have livelihood depending on sea and island products, conflict in use of sea and island natural resource, protection of sea and island environment and conservation of sea and island biodiversity, ecological systems and natural habitats, marine and coastal planning and management data with the province or city.
--	--	---

Table A4. Regional institutions together with their mandates and data holdings

No.	Name of Institution	Mandates and data holdings
1	Partnerships in Environmental Management for the Seas of East Asia (PEMSEA)	<p>This is an intergovernmental organization operating in East Asia to foster and sustain healthy and resilient oceans, coasts, communities and economies across the region. In cooperation with member countries, PEMSEA has done various projects on the sustainable development of the seas of East Asia. PEMSEA is now doing several projects in Viet Nam, including the project “Strengthening capacity for SDS-SEA implementation”. Recently, PEMSEA has published the report “State of the Coast (SOC)”. PEMSEA has many data for implementation of integrated coastal management in Viet Nam. The data from PEMSEA are available in its home page and can be obtained by sending requirement.</p> <p>Viet Nam is an active member of PEMSEA.</p>
2	Coordinating Body on the Seas of East Asia (COBSEA)	<p>The Coordinating Body on the Seas of East Asia (COBSEA) is an organization under UNEP, consisting of ten member countries and is the steering committee for implementation of the Action Plan for the Protection and Development of the Marine Environment and Coastal Areas of the East Asian Seas Region (the East Asian Seas Action Plan), which was approved in 1981 by then COBSEA member countries. At present, COBSEA is restructuring to become an independent intergovernmental organization. During 2001-2007, COBSEA together with member countries has implemented the project titled “Reversing Environmental Degradation Trends in the South China Sea and Gulf of Thailand”. The project had produced a large amount of data on the state of the marine environment and biodiversity, ecological systems in the South China Sea and the Gulf of Thailand. COBSEA and member countries are now preparing to implement the second phase of this project. Data of COBSEA have been published and available online.</p> <p>Viet Nam is an active member of COBSEA.</p>
3	Southeast Asian Fisheries	<p>The Southeast Asian Fisheries Development Center (SEAFDEC) is an autonomous inter-governmental body established in 1967. The mission of SEAFDEC considered and adopted by the Special</p>

	Development Center (SEAFDEC)	<p>Meeting of the SEAFDEC Council 2017 is “To promote and facilitate concerted actions among the Member Countries to ensure the sustainability of fisheries and aquaculture in Southeast Asia”. The SEAFDEC Secretariat is mandated to coordinate and oversee the general policy and planning of the Center, and acts as the focal point for channeling and implementing the decisions and resolutions of the SEAFDEC Council of Directors. In addition, the Secretariat also organizes regular SEAFDEC meetings to obtain directives and guidance from the Member Countries on the operation of the organization, as well as regional technical consultations and meetings on issues as recommended by the Member Countries. SEAFDEC has many publications and data. Publications and data from SEAFDEC are available online.</p> <p>Viet Nam is an active member of SEAFDEC.</p>
	Asia-Pacific Fishery Commission (APFIC)	<p>The Asia-Pacific Fishery Commission was established under the APFIC agreement as the Indo-Pacific Fisheries Council in 1948 by the Food and Agriculture Organization of the United Nations. APFIC is an Article XIV FAO Regional Fishery Body established by FAO at the request of its members. The Secretariat is provided and supported by FAO. The purpose of the Commission is to promote the full and proper utilization of living aquatic resources by the development and management of fishing and culture operations and by the development of related processing and marketing activities in conformity with the objectives of its Members.</p> <p>APFIC has many data and publications. All data and publications from APFIC can be obtained online.</p> <p>Viet Nam is a member of APFIC</p>