

QUANG NINH PROVINCE – HAI PHONG CITY, VIET NAM



ANNEX I



**MANAGEMENT PLAN OF
HA LONG BAY – CAT BA ARCHIPELAGO
DURING THE PERIOD OF 2021 - 2025
A VISION TOWARD 2040**

THE WORLD NATURAL HERITAGE NOMINATION

NOMINATION DOSSIER OF WORLD NATURAL HERITAGE
HA LONG BAY - CAT BA ARCHIPELAGO

QUANG NINH PROVINCE - HAI PHONG CITY, VIET NAM

ANNEX 1

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VISION TOWARD 2040**

Chair Organizations
Hai Phong and Quang Ninh
Provincial People's Committee

Coordinating Organization
Ministry of Culture, Sports
and Tourism

January, 2021

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PREFACE

Located in the Northeastern part of Vietnam, about 165km away from the capital Ha Noi, Ha Long Bay - Cat Ba Archipelago, which belongs to Quang Ninh Province and Hai Phong City, is an excellent example of matured karst in the humid tropic conditions. Its outstanding values lie in limestone karst terrains inundated by the sea, which is illustrated with various impressing karst towers and typical characteristics of eroded island foots like ancient and modern sea marks, notched caves, creating a wonderful landscape.

Ha Long Bay - Cat Ba Archipelago is the best example of the high concentration of typical tropical and sub-tropical ecosystems that is superior to those of other parts of Asia such as the largest typical limestone island ecosystems in Asia, the largest tropical rainforest on limestone islands, mangrove forests, coral reefs, tidal flats, and marine lakes. Because the islands are separated from the mainland, in the course of thousand years of development several globally rare and endemic species have been preserved, including 198 species listed in IUCN Red List in which Cat Ba langur is recorded as one of 25 world's most endangered primates in urgent need of protection, as well as being one species of global significance of conservation.

In 1994 and 2000, Ha Long Bay was recognized by UNESCO as the World Natural Heritage under the criteria (vii) and (viii). In September, 2013, the nomination dossier of Cat Ba Archipelago as World Natural Heritage under the biodiversity criteria was submitted to the World Heritage Centre, UNESCO. After the evaluation, the International Union for Conservation and Nature (IUCN) drafted Decision WHC-14/38.COM/INF.8B to submit to the World Heritage Committee at the 38th congress in Qatar in 2014, which recommended "the State Party to consider the possibility of proposing an extension of Ha Long Bay, under criteria (vii) and (viii) and possibly criterion (x), to include Cat Ba Archipelago."

As a result, the extension of Ha Long Bay World Natural Heritage into Cat Ba Archipelago under the criteria accepted by UNESCO and proposed additional biodiversity criteria complies with the scientific requirements, helping protect its outstanding universal values in a sustainable manner for the present and future generations in accordance with the UNESCO Convention concerning the Protection of World Cultural and Natural Heritage (1972).

The Government of the Socialist Republic of Viet Nam respectfully submits the nomination of Ha Long Bay - Cat Ba Archipelago to UNESCO for

the assessment and approval in terms of extended boundaries and added biodiversity criteria. It is not only the honour of Quang Ninh Province and Hai Phong City as well as each Vietnamese, but also opening up a great opportunity to preserve, protect and promote sustainably the outstanding universal value, typical ecosystems and special and rare species of this area.

The Management Plan of Ha Long Bay - Cat Ba Archipelago for the period of 2021 - 2025 with a vision towards 2040 is a scientific work which has been prepared in accordance with the laws of the Socialist Republic of Vietnam and the Convention concerning the Protection of World Cultural and Natural Heritage (1972). It act as an important legal base, providing the objectives, mechanisms, policies and actions for the management, protection, and preservation of the integrity of the property in order to promote sustainably its outstanding universal values for the time being and in the long term. Meanwhile, it serves as a scientific and real foundation for the agencies at the central level, provinces and cities, socio-political organizations, enterprises, communities and individuals to mobilize resources for the heritage protection and conservation.

Hopefully, this Management Plan of Ha Long Bay - Cat Ba Archipelago shall meet the requirements of UNESCO, helping provide scientific and legal tools to honour and preserve sustainably this important heritage for the present and future generations.

Chapter 1

OVERVIEW OF HA LONG BAY - CAT BA ARCHIPELAGO

1.1. Geographical Locations, Natural Characteristics

Ha Long Bay - Cat Ba Archipelago is located in the North East of Viet Nam, 165km from Hanoi, covering a total area of 65,650 hectare with 1,133 islands. It consists of 02 main areas:

- Ha Long Bay belongs to Ha Long City, Quang Ninh Province, which was recognized by UNESCO as a World Natural Heritage Site in 1994 and 2000 (under criteria (vii) and (viii)). The World Heritage Site covers an area of 43,400 hectares with 775 islands.

- Cat Ba Archipelago of Cat Hai District, Hai Phong City, including Cat Ba Biosphere Reserve, Cat Ba National Park, contributes an area of 22,250 hectares to the nominated World Heritage Site with 358 islands, in which Cat Ba Island (also known as Pearl Island) is the most important area of Cat Hai district.

The nominated property is surrounded by a buffer zone of 34,140 ha. It is adjacent to Ha Long City (Quang Ninh Province) in the North, the Gulf of Tonkin in the South, Bai Tu Long Bay (Quang Ninh Province) in the East, and bordering with Cat Hai Island (Hai Phong City) to the West through the Lach Huyen Channel.

Ha Long Bay - Cat Ba Archipelago is located within the following geographical coordinates:

Table 1. Coordinates of the nominated area and buffer zone

Coordinates of the nominated area	Northern Latitude	Eastern Longitude
C 01	107° 4' 46.902"	20° 44' 27.2112"
C 02	107° 3' 23.9004"	20° 44' 32.1792"
C 03	106° 59' 2.8428"	20° 48' 2.2896"
C 04	106° 56' 48.9876"	20° 49' 55.5024"
C 05	106° 56' 38.0796"	20° 51' 59.0472"
C 06	106° 58' 39.8064"	20° 52' 18.6132"
C 07	106° 58' 16.3092"	20° 51' 22.6836"
C 08	106° 58' 33.1068"	20° 49' 0.7608"
C 09	107° 0' 1.1592"	20° 50' 38.9256"
C 10	106° 59' 37.1256"	20° 54' 16.6824"
C 11	107° 2' 53.6388"	20° 56' 8.4876"
C 12	107° 18' 5.76"	20° 53' 12.7644"

C 13	107° 20' 37.8132"	20° 47' 47.5008"
C 14	107° 20' 8.6352"	20° 47' 7.0116"
C 15	107° 7' 8.3208"	20° 44' 47.6232"
C 16	107° 12' 55.7352"	20° 36' 54.306"
C 17	107° 7' 45.3936"	20° 36' 35.2224"
C 18	107° 7' 26.4324"	20° 38' 50.5176"
Total area of the nominated property	65,650 ha	

Coordinates of the buffer zone	Northern Latitude	Eastern Longitude
B 01	107° 3' 29.3688"	20° 44' 3.6456"
B 02	107° 1' 49.0116"	20° 45' 21.096"
B 03	106° 58' 38.8956"	20° 47' 2.3568"
B 04	106° 56' 44.8764"	20° 49' 0.966"
B 05	106° 55' 28.0704"	20° 50' 44.6388"
B 06	106° 57' 16.2756"	20° 54' 28.5084"
B 07	106° 58' 58.5372"	20° 57' 14.382"
B 08	107° 5' 6.0036"	20° 57' 9"
B 09	107° 11' 9.5568"	20° 56' 53.3436"
B 10	107° 18' 35.7984"	20° 55' 19.3944"
B 11	107° 20' 23.4456"	20° 53' 19.0284"
B 12	107° 21' 36.8424"	20° 51' 7.8948"
B 13	107° 23' 12.7464"	20° 47' 6.18"
B 14	107° 13' 43.8096"	20° 37' 33.6972"
B 15	107° 7' 17.1516"	20° 36' 3.7404"
Total area of the buffer zone	34,140 ha	

1.2. Descriptions of the Property

In the Devonian Age, this region was once marine islands marked with the sea traces at various elevations, which was resulted by the flooding of the sea transgression after the last glacial period (the Flandrian transgression) about 18,000 years ago when Ha Long Bay – Cat Ba Archipelago began to form as it is today.

Ha Long Bay - Cat Ba Archipelago has the common characteristics of the northern delta and shares the microclimate features of a coastal karst island, which is generally tropical. Being a coastal archipelago, the property is by the

ocean under the impact of sea and mainland that regulates the climate and creates a warmer winter and a cooler summer than the mainland.

Seawater in Ha Long Bay - Cat Ba Archipelago is of good quality. Seawater temperature varies from 15 ° C to 31 ° C, having dissolved oxygen from 5.12 mg/l to 7.27 mg/l. The pH of the seawater varies in a fairly narrow range, from 7.9 to 8.3. Salinity ranges from 19 ‰ to 34 ‰. Heavy metal content in the water is within acceptable limits.

The inhabitants of Ha Long – Cat Ba have appeared here for more or less 7,000 years now. Because of high sea level rise, the people of Soi Nhu who lived in low caves at the foot of limestone mountains in the present bays of Ha Long and Bai Tu Long should move to higher and more safe land like Cat Ba Island.

The distinct and outstanding characteristics of Ha Long Bay - Ca Ba Archipelago are as follows:

- *Containing superlative natural phenomena or areas of exceptional natural beauty and aesthetic importance (the criterion vii):* Ha Long Bay-Cat Ba Archipelago is an excellent sample of karst matured in humid tropical conditions. The outstanding value of this Property is the limestone karst terrain being invaded by the sea with a multitude of majestic limestone towers and features of shore erosion, such as the notches, caves creating a wonderful natural landscape. In 1994, Ha Long Bay was officially recognized as the world's natural heritage for the aesthetic values. Similar aesthetic values of the Cat Ba Archipelago are shown through its diversification and wilderness in which its limestone karst terrains are inundated by the sea, hundreds of majestic limestone towers and peaks covered by vast primary rainforests, appearing on the emerald waters as a miracle natural scenery. Accordingly, the extension of the World Natural Heritage Ha Long Bay to include Cat Ba Archipelago under the criterion vii (criterion of aesthetic values) ensures the long-term integrity of this heritage site.

- *Being outstanding examples representing major stages of earth's history, including the record of life, significant on-going geological processes in the development of landforms, or significant geomorphic or physiographic features (the criterion viii).*

Ha Long Bay - Cat Ba Archipelago is also the outstanding and the large sample of the sea-invaded karst tower terrain and is one of the most important areas in the world for the fenglin and fengcong karst terrains submerged by the sea. It is also a world's most important fenglin and fengcong terrain. One feature

of the fengcong is the vast enclosed lakes, submerged cockpits; some lakes only appear at rising tides. The cave system is also one of the most prominent geological features of the Property, including three main types: ancient marine notch caves, ancient karst foot caves and notches. This site fully illustrates processes of karst formation at a large scale and demonstrates a long period of geological evolution. Particularly, Cat Ba Archipelago is an outstanding example of the karst tower terrain being flooded by the sea. Typical fengcong karst terrains include vast enclosed lakes like the Ang Vem, submerged cockpits (Ang Tham), some lakes only appear when the tide rises (Ang Toi, Ang Sang). A typical geological feature that characterizes Ha Long Bay - Cat Ba Archipelago is 40 caves, including the ancient marine notch caves, ancient karst foot caves and notches. It also fully demonstrates the processes of karst formation at a large scale and demonstrates a long period of geological evolution. It is the very geological and morphological similarities between Cat Ba Archipelago and Ha Long Bay that offer a great possibility to extend the World Natural Heritage Ha Long Bay in terms of geology and morphology (under the criterion viii) to include Cat Ba Archipelago.

-Being outstanding examples representing significant on-going ecological and biological processes in the evolution and development of terrestrial, fresh water, coastal and marine ecosystems and communities of plants and animals (the criterion ix).

Ha Long Bay - Cat Ba Archipelago is the best example of the high concentration of tropical and subtropical insular limestone ecosystems, typical of which include the vast tropical rainforests on limestone islands, mangrove forests, caves, marine lakes, tidal flats, corals... It illustrates the process of the sea level rises to sink the karst cockpit, which developed within a vast complex setting at the interface between karst islands and the sea. The representatives are the fengcong depressions of the karst in Ha Long Bay - Cat Ba Archipelago, which ranges from steep karst depressions with monsoon primary forests to the marine lakes that are gradually merged into the sea. Nowhere else in the world has such a process. It clearly demonstrates the entire process of repeated sea level rises across the karst area of Ha Long Bay - Cat Ba Archipelago and various environmental transformations related to the sea transgression process, which expresses the outstanding universal values under the criterion ix. Its various samples present vividly a process from the beginning until the end of the sea transgression and mountain formation processes. The high diversified ecosystems, especially the presence of one third of the world's marine lakes in

Ha Long Bay - Cat Ba Archipelago is clearly a global outstanding value, which is also the places for storage and formation of new species that would migrate into the surrounding sea areas. These characteristics fully meet the criterion ix.

- *Containing the most important and significant natural habitats for in-situ conservation of biological diversity, including those containing threatened species of outstanding universal value from the point of view of science or conservation (the criterion x).*

So far, there have been found 4,910 species of plants and animals, both terrestrial and marine, existing in the property. Of which, 2,752 species are terrestrial, accounting for 56% of the total number of species; 2,158 species are aquatic (with 11 freshwater fishes), accounting for 44%. There are 253 species listed in the IUCN Red List and Viet Nam's Red Book (198 species are listed in the IUCN Red List). In particular, Cat Ba Langur has been ranked as one of the world's 25 most endangered primates that needs urgent protection, and considered a species of global conservation value. High biodiversity and many rare and precious species of global conservation significance, particularly over 51 endemic and potentially endemic species offers the possibility of Ha Long Bay - Cat Ba Archipelago to meet the biodiversity criterion (criterion x).

Chapter 2

SIGNIFICANCE AND OUTSTANDING UNINVERSAL VALUES OF HA LONG BAY - CAT BA ARCHIPELAGO

2.1. Proposed Statement of Outstanding Universal Values

Brief Synthesis

Ha Long Bay - Cat Ba Archipelago is located in the North East of Viet Nam, 165km from Hanoi, having a total nominated area of 65,650 hectares with 1,133 islands, and surrounded by a buffer zone of 34,140 hectares. Ha Long Bay - Cat Ba Archipelago nomination consists of 02 main areas as follows:

- Ha Long Bay is located in Ha Long City, Quang Ninh Province, which was recognized by UNESCO as a World Natural Heritage Site in 1994 and 2000 (under criteria (vii) and (viii)). The World Heritage Site covers an area of 43,400 hectares with 775 islands.

- Cat Ba Archipelago of Cat Hai District, Hai Phong City, including Cat Ba Biosphere Reserve, Cat Ba National Park, contributes an area of 22,250 hectares to the nominated World Heritage Site with 358 islands, in which Cat Ba Island (also known as Pearl Island) is the most important area of Cat Hai district.

The property of Ha Long Bay-Cat Ba Archipelago is an excellent example of karst matured in humid tropical conditions. Its outstanding value contains limestone karst terrains flooded by the sea, which is illustrated with a multitude of majestic limestone towers, and features of shore erosion such as notches and caves, creating a wonderful natural landscape.

Ha Long Bay - Cat Ba Archipelago is also the most outstanding and largest example of the karst terrain invaded by sea and is one of the most important areas in the world for karst tower landscapes (fenglin) and the peak-cluster depression (fengcong). Ha Long Bay - Cat Ba Archipelago contains the unique features of karst landscape, the peak-cluster depression, which is linear valleys being submerged in seawater (also called ‘tùng’) or subcircular cockpits that are flooded by the sea, or ‘áng’. Caves are also of the most striking features of the Heritage with three main types: the ancient marine notch caves, old karstic foot caves and notch caves. This area also fully represents karst formation processes at a large scale and demonstrates a long period of geological evolution.

Ha Long Bay - Cat Ba Archipelago is the best example of the high concentration of typical tropical and sub-tropical ecosystems that is superior to those of other parts of Asia, such as its having the largest typical limestone

island ecosystems in Asia, the largest tropical rainforest on limestone islands, mangrove forests, coral reefs, tidal flats, and marine lakes that account for one third of the marine lakes in the world. Because the islands are separated from the mainland, in the course of its 18,000 years of development, several globally rare and endemic species have been preserved, including Cat Ba langur, the endemic primate species only occurs in Cat Ba.

Justification for Inscription

Criterion (vii): Ha Long Bay-Cat Ba Archipelago is an excellent sample of karst matured in humid tropical conditions. The outstanding value of this Property is the limestone karst terrain being invaded by the sea with a multitude of majestic limestone towers and features of shore erosion, such as the notches, caves creating a wonderful natural landscape. In 1994, Ha Long Bay was officially recognized as the world's natural heritage for the aesthetic values. Similar aesthetic values of the Cat Ba Archipelago are shown through its diversification and wilderness in which its limestone karst terrains are inundated by the sea, hundreds of majestic limestone towers and peaks covered by vast primary rainforests, appearing on the emerald waters as a miracle natural scenery. Accordingly, the extension of the World Natural Heritage Ha Long Bay to include Cat Ba Archipelago under the criterion vii (criterion of aesthetic values) ensures the long-term integrity of this heritage site.

Criterion (viii): Ha Long Bay - Cat Ba Archipelago is also the outstanding and the large sample of the sea-invaded karst tower terrain and is one of the most important areas in the world for the fenglin and fengcong karst terrains submerged by the sea. It is also a world's most important fenglin and fengcong terrain. One feature of the fengcong is the vast enclosed lakes, submerged cockpits; some lakes only appear at rising tides. The cave system is also one of the most prominent geological features of the Property, including three main types: ancient marine notch caves, ancient karst foot caves and notches. This site fully illustrates processes of karst formation at a large scale and demonstrates a long period of geological evolution. Particularly, Cat Ba Archipelago is an outstanding example of the karst tower terrain being flooded by the sea. Typical fengcong karst terrains include vast enclosed lakes like the Ang Vem, submerged cockpits (Ang Tham), some lakes only appear when the tide rises (Ang Toi, Ang Sang). A typical geological feature that characterizes Ha Long Bay - Cat Ba Archipelago is 40 caves, including the ancient marine notch caves, ancient karst foot caves and notches. It also fully demonstrates the processes of karst formation at a large scale and demonstrates a long period of geological

evolution. It is the very geological and morphological similarities between Cat Ba Archipelago and Ha Long Bay that offer a great possibility to extend the World Natural Heritage Ha Long Bay in terms of geology and morphology (under the criterion viii) to include Cat Ba Archipelago.

Criterion (ix): Ha Long Bay - Cat Ba Archipelago is the best example of the high concentration of tropical and subtropical insular limestone ecosystems, typical of which include the vast tropical rainforests on limestone islands, mangrove forests, caves, marine lakes, tidal flats, corals... It illustrates the process of the sea level rises to sink the karst cockpit, which developed within a vast complex setting at the interface between karst islands and the sea. The representatives are the fengcong depressions of the karst in Ha Long Bay - Cat Ba Archipelago, which ranges from steep karst depressions with monsoon primary forests to the marine lakes that are gradually merged into the sea. Nowhere else in the world has such a process. It clearly demonstrates the entire process of repeated sea level rises across the karst area of Ha Long Bay - Cat Ba Archipelago and various environmental transformations related to the sea transgression process, which expresses the outstanding universal values under the criterion ix. Its various samples present vividly a process from the beginning until the end of the sea transgression and mountain formation processes. The high diversified ecosystems, especially the presence of one third of the world's marine lakes in Ha Long Bay - Cat Ba Archipelago is clearly a global outstanding value, which is also the places for storage and formation of new species that would migrate into the surrounding sea areas. These characteristics fully meet the criterion ix.

Criterion (x): In Ha Long Bay - Cat Ba Archipelago, a world's biodiversity centre has recorded 4,910 species of plants and animals, both terrestrial and marine, of which 2,752 species are terrestrial, accounting for 56% of the total number of species; 2,158 species are aquatic (with 11 freshwater fishes), accounting for 44%. There are 253 species listed in the IUCN Red List and Viet Nam's Red Book (198 species are listed in the IUCN Red List). In particular, Cat Ba Langur has been ranked as one of the world's 25 most endangered primates that needs urgent protection, and considered a species of global conservation value. High biodiversity and many rare and precious species of global conservation significance, particularly over 51 endemic and potentially endemic species offers the possibility of Ha Long Bay - Cat Ba Archipelago to meet the biodiversity criterion (criterion x).

Statement of Integrity

All the necessary elements fully reflecting the outstanding universal values of the Ha Long Bay - Cat Ba Archipelago are located within the Nominated Property as described above and protected by a surrounding buffer zone. In the property, many human activities occur such as tourism, marine transportation, sea product exploiting and other activities conducted by inhabitant communities living on the sea and islands. Therefore, the natural landscapes, aesthetics, geology, morphology, biodiversity and typical features such as limestone islands and caves within the property have been maintained and kept intact.

Protection and management requirements

Internationally, Ha Long Bay was recognized by UNESCO as World Natural Heritage in 1994 and 2000, the Cat Ba Archipelago was recognized by the UNESCO as a World Biosphere Reserve in 2004. Nationally, the Government of Viet Nam ranked Ha Long Bay as a National Scenic Site in 1962 and a Special National Monument in 2009; the Cat Ba Archipelago was designated as a National Park in 1986, a Marine Protected Area in 2003, and was ranked as a Special National Monument in 2012. Accordingly, Ha Long Bay - Cat Ba Archipelago is effectively protected through relevant laws of the State and Decrees of the Government such as Law on Cultural Heritages, Law on Biodiversity, Law on Forest Protection and Development, Law on Tourism, Law on Environmental Protection, Law on Fisheries, Law on Inland Waterway Navigation, Law on Natural Resources, Environment, Sea and Island. On the basis of available legal framework, all activities occurring in the Heritage area that may affect the value of the heritage must be approved by the Ministry of Culture, Sports and Tourism and other relevant agencies.

Ha Long Bay is directly protected and managed by the Ha Long Bay Management Board. At the same time, the Cat Ba Archipelago is protected and managed by Cat Ba Archipelago Natural Heritage Management Board (whose main human resource is recruited from the Management Board of Cat Ba National Park, Cat Ba Archipelago Biosphere Reserve, and Management Board of Cat Ba Bays). These units shall base themselves on their assigned functions and tasks as well as the relevant provisions of Vietnamese and international law to implement and carry out the activities of managing and protecting the Heritage. In addition, regular management of the property also receives the active participation of all levels, relevant sectors and local communities in monitoring cultural and socio-economic activities happening in the property, maintaining its global outstanding values, and ensuring its integrity. Socio-

economic activities in the site are clearly defined and monitored closely and effectively. Management and preservation has also been strengthened through the regulations, master plans and action plans of Quang Ninh province and Hai Phong city, such as: regulations on the management of cruise ships, dredging of sludge, encroachment of seas, discharge of waste, population, and floating farm houses, as well as education and awareness raising for the communities on heritage preservation. Besides, there are specific plans for environmental protection, tourism development and management, conservation planning, especially the Master Plan for Conservation, Management and Promotion of Ha Long Bay World Natural Heritage until 2020 has been approved by the Government and the comprehensive management plan of Ha Long Bay World Natural Heritage in the period of 2010 - 2015 approved by the People's Committee of Quang Ninh Province in 2010 and that of 2017 - 2021 period approved by the People's Committee of Quang Ninh Province in 2017. The Cat Ba Archipelago Biosphere Reserve comprehensive management plan, Master Plan for Conservation, Management and Promotion of Cat Ba National Park until 2020 have been approved by the People's Committee of Hai Phong City. Cat Ba Langur Conservation projects have attracted the interest and attention from the international organizations. Long-term orientations for heritage management focus on such issues as: ensuring the integrity of the natural landscape, geological, geomorphologic and environmental values of the property; continuing to perfect mechanisms and policies; closely supervising and monitoring socio-economic activities; applying science and technology into heritage management; conducting more research to clarify the values of the property; enhancing heritage management competencies; raising public awareness of the communities and involving them in the management and protection of the property.

2.2. Attributes of Outstanding Universal Values of Ha Long Bay – Cat Ba Archipelago

2.2.1. Attributes of Aesthetic Values under the Criterion (vii)

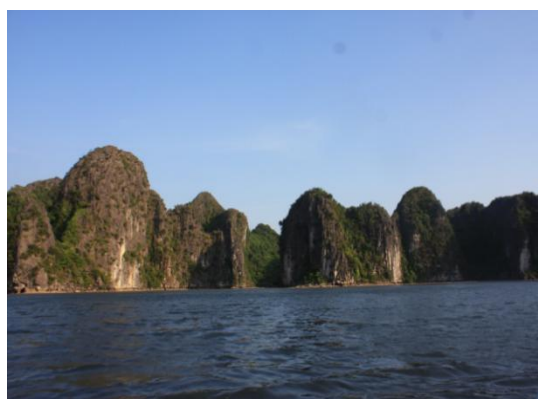
Ha Long Bay-Cat Ba Archipelago is an excellent sample of karst matured in humid tropical conditions. The outstanding value of this Property is the limestone karst terrain being invaded by the sea with a multitude of majestic limestone towers and features of shore erosion, such as the notches, caves creating a wonderful natural landscape. In 1994, Ha Long Bay was officially recognized as the world's natural heritage for the aesthetic values. Similar aesthetic values of the Cat Ba Archipelago are shown through its diversification

and wilderness in which its limestone karst terrains are inundated by the sea, hundreds of majestic limestone towers and peaks covered by vast primary rainforests, appearing on the emerald waters as a miracle natural scenery. Accordingly, the extension of the World Natural Heritage Ha Long Bay to include Cat Ba Archipelago under the criterion vii (criterion of aesthetic values) ensures the long-term integrity of this heritage site.

The large tropical limestone island of Cat Ba and hundreds of smaller islands around it in Lan Ha Bay and neighbouring Ha Long Bay together constitute a superlative coastal karst landscape that is dominated by a spectacular array of limestone peaks and towers, many being islands with sheer cliffs plunging into the sea. The terrestrial part of the nominated area on Cat Ba has an area of approximately 13,000 hectares, which is surrounded by 20,000 hectares of island-studded coastal waters. The special nature of the island of Cat Ba is already recognized by its status as a UNESCO-Man and Biosphere Reserve, the reserved area covering 26,300 hectares. Mountain summits on this Cat Ba island range from 320m to 330 m in the North, and from 250 m to 260 m in the South and many of their valleys incise almost to sea level, making their internal relief can be steep and rugged (Figure 1, 2). The larger islands off-shore rise to 150-170 m and the smaller ones up to 100 m. This is because of their abrupt emergence from the sea and sheer, spectacular cliffs. The immediately adjacent Ha Long Bay is already recognized by UNESCO for its superlative scenery of exceptional beauty (Figure 1, 2, 3).



The northwestern coast



The southeastern coast

Figure 1 and 2. Aesthetic values of Cat Ba Archipelago



Figure 3. Sheer cliffs in the seascape of Hon Dua (Cat Ba)

Its addition to the existing property would considerably increase the area that is protected, and further enhance its integrity. Cat Ba Archipelago also adds a new dimension, being by far the largest island in the west of the East Sea. Furthermore, it is also a high island with inaccessible wilderness interior, marked by steep, rocky, forested peaks and a myriad of hidden lakes, labyrinthine coastal inlets, and jigsaw puzzle shaped islands (Figure 4, 5, 6, 7). The interior topography of peaks and intervening bowl-shaped hollows is like a giant egg-tray clothed in forest, a honeycomb pattern of hidden basins ringed and overlooked by steep conical peaks, the inaccessible refuges of langur and birds of prey. Some of the lower basins contain wetland swamps and, as the coast is approached, hold emerald lakes. Around the island's edge, other basins when breached by narrow passages and caves are linked to the sea, making for hidden tidal lagoons fringed by forest. The scene is mysterious, the rocks are roughly sculpted by rain, the slopes are steep, rugged and difficult of access, and all is draped in monsoon forest, dense and lush in sheltered parts from which jagged limestone outcrops and peaks emerge. A primeval atmosphere pervades the interior, heightened by the cacophony of frogs after heavy rain. Nature is at its challenging best.

The photogenic beauty and aesthetic curiosity of limestone landscapes has long been recognised by Vietnamese art and, around tropical coasts, by tourism and film industries, and in that regard the already listed aesthetic value of Ha Long Bay has received considerable attention. The newly nominated area of Cat Ba and Lan Ha Bay is absolutely comparable in scenic beauty and so equally justifies the World Heritage designation.



Cat Ba Archipelago seen from above



Coastal Village



Cat Ba National Park



Cua Dong mountain habitat of
Cat Ba Langur

Figure 4, 5, 6, 7. Mysterious landscape/seascape of Cat Ba Archipelago

Small villages along the coast are linked by narrow rural roads and simple tracks. Some, in sheltered inlets, especially around the south coast, float on the sea. They all reflect a traditional way of boat-life and fishing that has persisted for centuries. These floating villages with their traditional vessels and colour schemes add considerable variety and unique charm to the scene, offering a striking contrast to the backdrop of vertical, inaccessible cliffs (Figure 20). They feature on the cover of IUCN's Thematic Study of 'World Heritage Caves and Karst' (2008).

Over 1000 islands, along with seven ecosystem types (insular green forests, mangroves, tidal flats, coral, marine lakes and sea beds), constitute a superlative landscape complex that Ha Long Bay - Cat Ba Archipelago can uniquely have (Figure 8).



Figure 8. Harmony of sky and blue sea on Lan Ha Bay (Cat Ba)

Ha Long Bay - Cat Ba Archipelago is in essence a natural wilderness largely unaffected by human presence, while floating villages of house boats add a special local aesthetic dimension off-shore. The forests are primeval and filled with the sounds of nature. The waters of hidden lakes are clear, ranging in colour with distance from the sea and degree of saltiness from clear dark blue to milky turquoise. The air is clean, and curious limestone landforms reflect sculpture by nature at the mobile interface of land and sea (Figure 9, 10, 11, 12).

The elements of rock, water, forest and sky combine to create an ever-changing natural world of unsurpassed beauty and fascination. The multi-coloured landscape reflects the grey of the rock, many shades of green in the forest, and transitions between deep blue and turquoise from hidden lakes to lagoons and to sheltered inlets of the sea. A striking detail is the chameleon change the landscape undergoes as soon as it starts to rain. The greyish limestone rocks immediately turn black, because of wetted blue-green algae, giving the landscape a sombre grandeur.



Cat Ba Primary Forest



Fishing Village



Sea lake



Cat Ba Panorama

Figure 9, 10, 11, 12. Local aesthetic values of Cat Ba

Hidden underground on Cat Ba island is a network of barely-explored caverns and streams, a few used as tourist attractions but many remaining unexplored and in their natural state. These are nature's vaults: sheltered sites that quietly accumulate evidence of environmental change over thousands of years in the form of sediments and organic remains that track events in the world above (Figure 13, 14, 15, 16).



Qua Vang Cave



Hang Sang Cave



Trung Trang Cave



Thien Long Cave

Figure 13, 14, 15, 16. Caves and grottos in Cat Ba

Visitors to Lan Ha and Ha Long Bay are surprised by the sheer towers (fenglin) and conical peak (fengcong), which seem to float above the sea, some attached to tree-covered hills with cliffs, creating the mysterious beauty of Cat Ba Island (Figure 17). The natural experience is inspirational, but requires concerted and effective effort to sustainably manage its values when there are more visitors. It is important to help relieve the pressure on Ha Long Bay. Therefore, extending the World Natural Heritage Ha Long Bay to include Cat Ba Archipelago under the criterion vii (aesthetic value) ensure the long-term integrity of Ha Long Bay - Cat Ba Archipelago.



Figure 17. Limestone tower and conical peak seascape of the southeastern Cat Ba Archipelago

2.2.2. Attributes of Geology and Morphology under the Criterion (viii)

Ha Long Bay - Cat Ba Archipelago is also the most outstanding and the largest example of the sea-invaded karst tower terrain and is one of the most important areas in the world for the fenglin and fengcong karst terrains. The karst fengcong terrain features vast enclosed lakes, submerged cockpits, in which some lakes only appear at high tides. Cave system is also one of the most prominent geological features of the property, including three main types: ancient marine notch caves, ancient karst foot caves and notches. This site illustrates the whole process of karst formation at a large scale and demonstrates a long period of geological evolution. Particularly, Cat Ba Archipelago is an outstanding example of the karst tower terrain being flooded by the sea and is one of the important areas of karst fenglin and fengcong terrains. Typical fengcong karst terrains include vast enclosed lakes like the Ang Vem, submerged cockpits (Ang Tham), some lakes only appear when the tide rises (Ang Toi, Ang Sang).

A typical geological feature that characterizes Ha Long Bay - Cat Ba Archipelago is 40 caves, including the ancient marine notch caves, ancient karst foot caves and notches. It also fully demonstrates the processes of karst formation at a large scale and demonstrates a long period of geological evolution. It is the similarity in geology and geo-morphology between Cat Ba and Ha Long Bay that offers a tremendous possibility for extending Ha Long Bay World Natural Heritage under the geology, geo-morphology criterion viii to include the Cat Ba Archipelago.

Ha Long Bay - Cat Ba Archipelago is outstanding among the world's most significant tropical tower karst landscapes. It provides a globally important demonstration of the final stages of karst evolution under a humid tropical climate when base level is attained. East Asia has more karst topography than any other region in the world. It can be found from the Himalayan Mountains, across the ranges and plateau of Tibet and Yunnan, into Laos, through Guizhou to Guangxi and into Viet Nam; a mountain to the sea transect.

In the area around the Red River delta in northern Viet Nam, the karst of East Asia finally meets the sea. Limestone terrain in the district progresses from on-land karst (Trang An), to large islands around Cat Ba, to isolated karst towers in the bays of Lan Ha and Ha Long, where they emerge from the sea floor and continue offshore for 20 km (Dau Be, Long Chau islands) (Figure 18, 19, 20, 21). Thus, seen in its broader context, the tower karst landscape of Cat Ba - Ha Long can be appreciated as being representative of the end stage of karst landform evolution in the great progression from high mountains to the sea, where karst landforms finally reach the base level of erosion.



Karst towers in Lan Ha Bay



Karst towers in Ha Long Bay



Dau Be Karst, the Final End of
Karst Stage



Long Chau Karst

**Figure 18, 19, 20, 21. Karst formation process at its final stage
in Ha Long Bay - Cat Ba Archipelago**

The land-sea interface is a mobile zone because of major climatic cycles through the Quaternary that caused sea level change, and because of vertical movements of land caused by tectonic processes. The modern Ha Long Bay - Cat Ba Archipelago landscape is partly submerged because sea level is now unusually high. For 50% of the last quarter of a million years, it stood 40 m or more below its present level (sometimes up to 120 m lower). Thus for much of the time in the geologically recent past, Ha Long Bay has been exposed and dry and, consequently, was then only affected by terrestrial processes. During low stands of the sea, it was a typical tower karst arising from an alluvial plain, a topography described in Chinese as fenglin (peak forest). At such times, Cat Ba Archipelago would have been a rugged part of the mainland. While these major sea level changes were driven by global climatic processes associated with glaciations in the high latitudes, there have also been some significant local effects bearing on the relationship between land and sea. The Gulf of Tonkin, including Ha Long Bay and Cat Ba, has been affected by tectonic subsidence associated with sediment loading in the neighbouring Red River delta; the main mouth being just 75 km southwest of Cat Ba. Therefore, the depth of submergence is partly attributable to tectonic processes, and slow sinking may still be on-going.

Viewed in the long-term, the Ha Long Bay - Cat Ba Archipelago landscape is the product of deep dissection of extensive areas of Palaeozoic limestones that

were uplifted as a consequence of the collision of the Eurasian and Indo-Australian tectonic plates. This movement probably commenced in the early Cenozoic and appears to have continued intermittently over the last 40 million years (Ma) or so. Displacements along the Red River fault have occasionally occurred over the latter part of this period, and tectonic displacement remains active, with differential movement along sub-parallel faults. Although no definitive field evidence has become available thus far, it seems probable that Cat Ba was uplifted at the beginning of the Pliocene (about 5 Ma ago) and again in the Early and Mid-Pleistocene (within the last 2 million Ma). The earliest tectonic movements are likely responsible for the uplifted erosion surface that forms the accordant, although slightly south-tilted summit level of Cat Ba island, which declines from 320-330 m in the north to 250-260 m in the south (perhaps tilted because of basin subsidence) (Chart 1, Figure 22, 23).

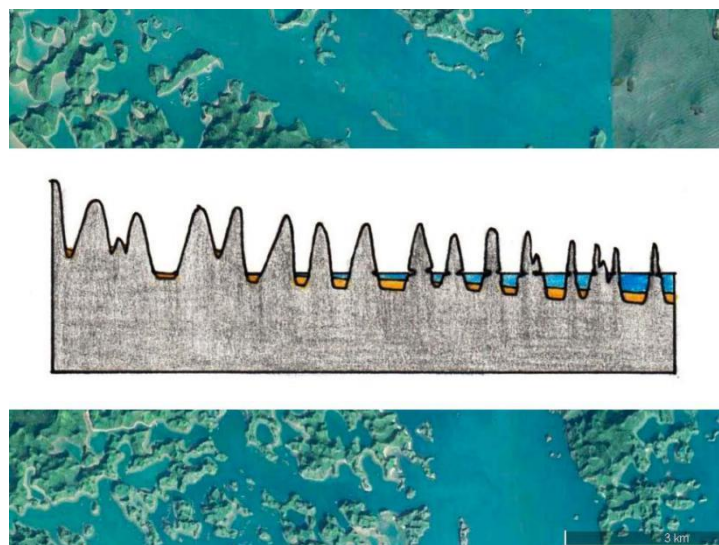


Chart 1. Tectonic Movements



Peak in Northern Cat Ba



Peak in Southern Cat Ba

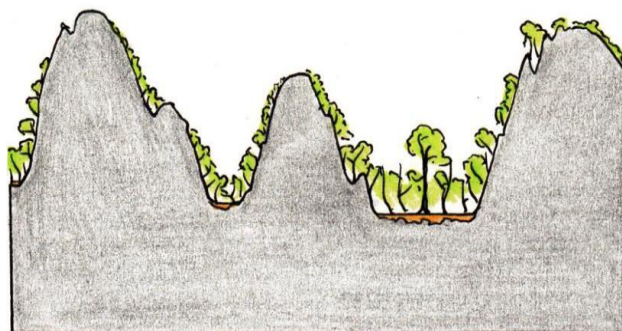
Figure 22, 23. Developmental mechanisms of topographic map foundation

Later tectonic movements are the main cause to form lower and more indefinite peaks at the elevations of 220m – 230m, and 80m – 140m (which can be seen in some islands). It is probable that during a long period of denudation prior to uplift, the Palaeozoic limestones were karstified in the Late Mesozoic and Early Cenozoic, but all traces of ancient karsts appear to have been removed by later erosion. Thus the commencement of the present phase of karst evolution responsible for the modern landscape around Cat Ba probably dates from the Pliocene, when uplift would have rejuvenated the landscape by providing more relief and reactivating groundwater circulation. The sequence of geomorphic evolution that followed is now coming to its final stages in Ha Long Bay, but is less advanced on Cat Ba island. The region displays beautifully the progression of landforms from coastal hills to the sea, and in detail reveals the shoreline complexities that arise from repeated shifts of sea level (Figure 24).



Figure 24. Coastline of Cat Ba Island

Still intact remnants of the uplifted Cat Ba massif constitute a steep-sided cone karst that is inset with deep centripetally draining depressions. The Chinese term for this style of landscape is fengcong-depression. An equivalent English language term (from Jamaica) is cockpit karst, a description that emphasizes the depressions (cockpits) between the conical hills (Chart 2). This style of landscape is typical of humid tropical karst.



**Chart 2. Illustration model of cockpit karst terrain
in Ha Long Bay - Cat Ba Archipelago**

The hillsides are steep because the limestones are thickly bedded and mechanically strong. The landforms overall have the geometry of a giant egg-tray with regularly spaced enclosed basins between conical hills located around their divides. In places, downwards etching and collapse of the base of some depressions has incised them right down to the level of the water-table, so swamps and ponds occur across their floor (Figure 25, 26, 27, 28).



Viet Hai Fengcong



Viet Hai Cockpit



Sea Lake in Mountain



Viet Hai Swamp

Figure 25, 26, 27, 28. Fengcong terrains and sea lakes in mountain

Elsewhere, the saddles between neighbouring depressions have been so lowered by denudation that their floors merge (Chart 3, 4, 5 and Figure 29). This is typical of the advanced stage of karst evolution, where cockpit depressions that reach the water-table no longer incise vertically, but the conical hills around them continue to wear down, so that depression floors widen laterally, saddles are lowered and basins start to join up. As this process continues, subcircular cockpit floors are replaced by interior valleys, which are often aligned along planes of weakness provided by faults. Large, flat-floored interior basins liable to flood are known as poljes (Slav word for field). Application of the term is usually restricted to basins with flat floors that cover at least 100 ha in area. There are several poljes on the island of Cat Ba, including near Hai Son and Viet Hai. The main road from Cat Ba to Gia Luan follows for much of its length a northwest-southeast trending structural lineament along which elongate polje basins have developed.

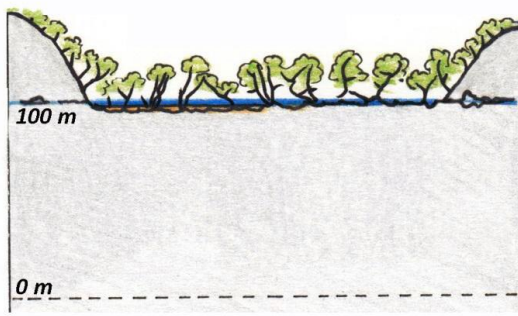


Chart 3. Simulated mechanism for formation of cockpits and lakes

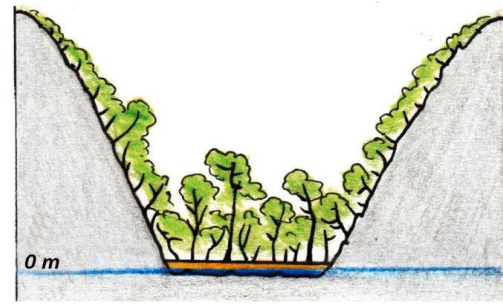


Chart 4. Simulated mechanism for formation of cockpits and lakes



Chart 5. Swamp and lake distribution in Viet Hai



Figure 29. Gia Luan Valley

Chart 3, 4, 5 and Figure 29. Model for the formation of karst erosion cockpit

The floors of poljes are subject to floods, and wetlands have organic-rich waters that are mildly acidic and so can dissolve the base of neighbouring limestone hillsides. This weakens and undercuts the foot of slopes, and sometimes etches swamp notches at the level of the water-table. This undercutting encourages collapse, thereby steepening slopes and causing isolated cones to develop into towers with subvertical cliff faces. The tower in which Dong Trung Trang tourist cave is located provides an example. Caves within such towers exhibit scalloped erosion patterns from stream flow and condensation corrosion, and many varieties of carbonate speleothems are found, including dripstones (stalactites, stalagmites and columns) and draperies (curtains). Beneath the alluvium surrounding the tower (or beneath a polje surface) there is a buried rock garden of solution sculpted limestone rocks, testament to the strong corrosive action of organic wetland waters (Figure 30, 31).



Figure 30, 31. Forms of stalactites and stalagmites in Trung Trang cave

During the Pleistocene and Holocene, the coast around Cat Ba was invaded and re-occupied by the sea many times, and at other times the floor of Ha Long Bay and Lan Ha Bay (Cat Ba Archipelago) was completely exposed. There have been over 40 significant oscillations in sea-level during the Quaternary and on about 14 occasions the ocean surface has dropped at least 50 m below its present level. In the last million years it has fallen that much (or more) 11 times. During the last quarter of a million years, the sea has been at or above its present level for only 10% of the time, with its median position being around -40 m; so present ‘normal’ conditions are, in fact, very unusual. Evidence of a higher sea level (probably 3000-4000 years ago) can be seen inside Thien Long Cave, where oyster shells in position of growth mark a former high water level in the cave.

The relevance of these sea level oscillations for Ha Long Bay - Cat Ba Archipelago is clearly evident in the landscape. The karst landscape of the whole area was mainly developed by terrestrial processes above sea-level. But when sea-level rose, it partly drowned the egg tray-like fengcong-depression terrain, to the extent that many of the enclosed depressions were flooded by the rising water-table or, near the coast, directly inundated by encroaching sea water. During times of high sea-level, many parts of the karst terrain became islands, and most of these have shapes reminiscent of pieces of a jigsaw puzzle, because their rounded inlets, bays and interior lakes were originally formed as subcircular karst depressions (cockpits).

The fengcong hills are of rounded conical form. When partly drowned by the sea, marine processes etch deep notches around these cones in the intertidal zone. Incision of the notches undermines the edge of the cone and encourages slope failure. Repeated notch incision and slope collapse results in the development of cliffs, and in this way steep-sided fengcong cones are transformed into sheer-sided fenglin towers. Thus, the typical landscape of Lan Ha and Ha Long Bays with their steep-sided islands is a product of coastal

process modification of karst terrain. Although the fengcong depression terrain of interior Cat Ba and other large islands probably developed from the Pliocene and through the Quaternary (i.e. over a period of around 5 million years), most of the cliff faces around the islands have formed only in the last 6000-7000 years since sea-level attained its present post-glacial position. The last time that sea-level was close to its present position was 125,000 years ago in the Last Interglacial. Sea-level then was about 6m higher than now, but similar landforms would have been characteristic then of Lan Ha Bay and Ha Long Bay to what we see today, but no vestige of these old tower landforms remain, because coastlines around all islands have eroded and retreated relatively quickly. However, sediments deposited in caves on the islands record former sea-level positions.

The tower karst islands characteristic of Lan Ha Bay and Ha Long Bay are unusual, because development of fengling (tower karst) landforms is usually associated with terrestrial processes involving the undercutting of karst cones when they are isolated on an alluvial plain. Swampy freshwaters are acidic, and swamp notches undercut slopes, causing them to collapse and form cliffs. These are the processes responsible for the world's most well-known example of fenglin near Yangshuo in Guangxi Province, China. Such processes would also have operated in Ha Long during times of low sea level, but the swamp notches are now submerged and located where underwater islands meet the sea floor. Intertidal marine processes are now the principal (and more vigorous) tower-forming agent at Ha Long Bay and Lan Ha Bay. This shows that karst towers of similar geometry can be produced by undercutting whether by freshwaters or marine processes.

The landscape in Ha Long Bay and Lan Ha Bay provides the world's best example of limestone tower production by marine-dominated processes, although some of the Ha Long Bay islands may already have been of fenglin style even before they were affected by the sea. It is clear that Ha Long Bay - Cat Ba Archipelago exhibits a comprehensive array of characteristic humid tropical limestone karst landforms. These include cones, enclosed depressions (cockpits), interior draining valleys (poljes), karren, subterranean streams, caves with speleothems, and an array of these features partly drowned by the sea and modified by coastal processes. Thus there are many enclosed basins now occupied by lakes with water quality ranging from fresh to salt, some being tidal and connected to the sea by caves. Deeply cut marine notches in the intertidal zone are evident everywhere on exposed limestone coasts, but become

progressively less well developed as exposure reduces in sheltered tidal inlets, even though the tidal range is unaffected. Thus fengcong cones when surrounded by sea waters only become steepened into sheer towers by undercutting and slope collapse when exposed to active waves and swell. The transition from terrestrial cone karst to marine-modified tower karst is superbly displayed at Cat Ba main island - Lan Ha Bay - Ha Long Bay, and is arguably better demonstrated there than in any other known location. The already recognized outstanding universal value of Ha Long Bay under criterion (viii) is considerably reinforced and extended by the addition of the equally valuable landscapes of Cat Ba Archipelago.

2.2.3. Attributes under the Criterion (ix)

Ha Long Bay - Cat Ba Archipelago is one of the best examples of the typical tropical and subtropical marine and insular ecosystems in Asia (Chart 6), which presents several typical adjoining ecosystems all evolving in one property, such as tropical rainforests on limestone islands, caves, mangroves, coral reefs, soft bottoms, marine lakes, tidal flats. The adjacent and successive development clearly illustrates a continuous ecological regeneration from the limestone cliffs as high as 322m to typical tropical rainforest ecosystem at the edge of the island, followed by cave ecosystems, mangroves, and then the strong development of the tidal area, and coral reefs at the bottom of the sea. The development of the ecosystems follow a marine ecological regenerative patterns together with 138 marine lakes, accounting for one third of the world's marine lakes. Particularly, Ha Long Bay owns 42 'tung' and 81 'ang', according to the statistics of Ha Long Bay Management Board.

Marine lakes are considered as a natural laboratory describing an evolving ecological and biological process in the evolution and development of marine island ecosystems in the Property. Ongoing ecological and biological processes in the evolution and development of marine and island ecosystems of Ha Long Bay - Cat Ba Archipelago vividly illustrates a process of the sea encroachment to flood karst fengcong cockpits; from the sheer karst cockpits with primary monsoon forests to the marine lake that are gradually merging into the sea, where harbours tropical coral reefs, seaweeds and seagrasses. Nowhere in the world has such a process. High diversity of marine and island animal and plant communities that are continuing to form new species. There are 51 species of animals and plants endemic to this area. The process is illustrated very clearly with many different samples, which shows a process of submergence from the beginning to the end in the area of the islands of Dau Be - Long Chau. Each

geoform corresponds to its broader environmental conditions. This is the outstanding universal value under Criterion ix. The ecosystems are evolving and creating new species, clearly evidenced by the existence of over 51 endemic species of plants and animals. After 18,000 years of development, this site has retained its natural, undisturbed nature, although it has long been inhabited by people for 7,000 years now. The global values of the heritage are also reflected in the presence of a tropical rainforest ecosystem on limestone islands of the Cat Ba Archipelago, which covers an area of over 15,000 ha, the largest of its type along the west coast of the East Sea.

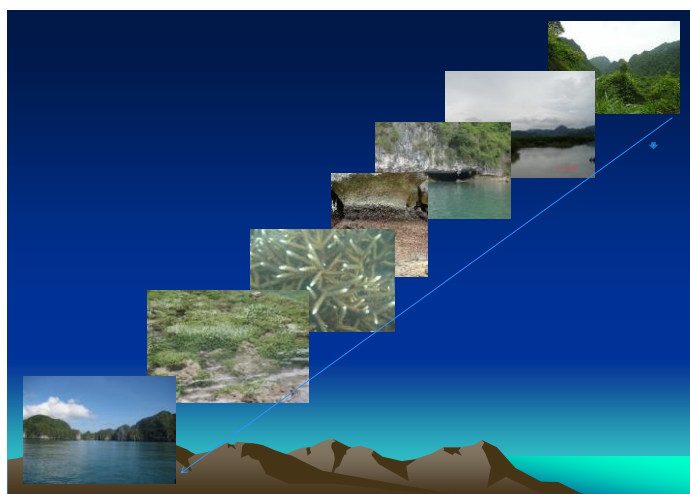
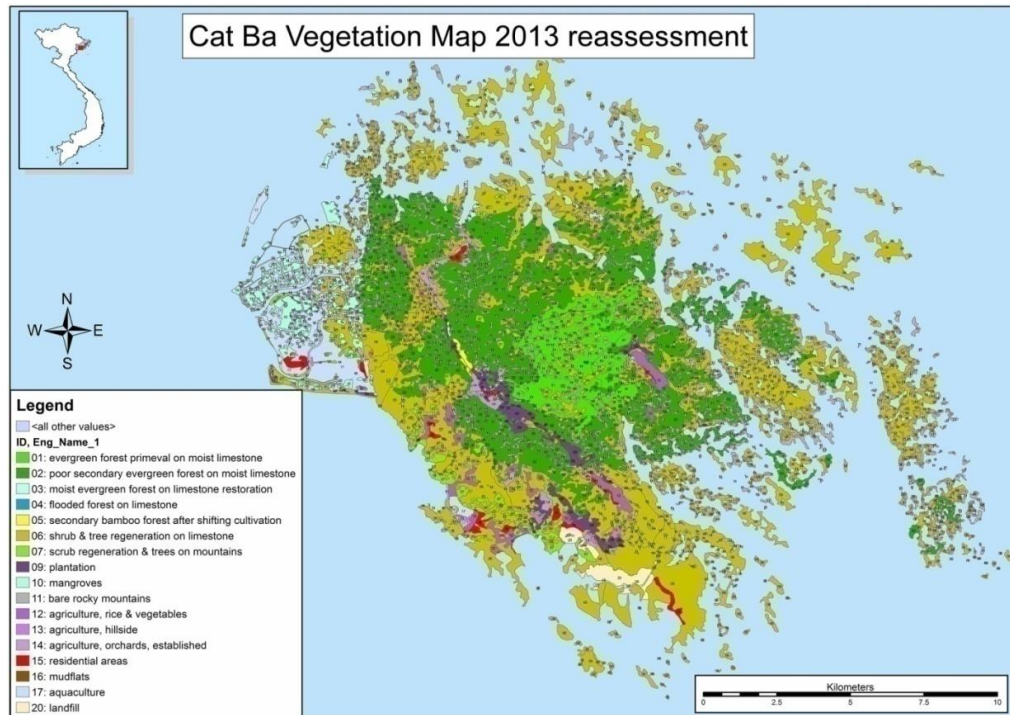


Chart 6. Island to sea integration process

Tropical rain forest ecosystem on the Cat Ba limestone islands covering an area of over 15,000ha, is the biggest in the west of the East Sea and typical of its kind in the world. Limestone karst hill system rises from the sea level up to over 322m, combined with tropical rainforest ecosystems on the island to create a large home for species and a favourable environment for biological, ecological processes to take place (Map 1). 18,000 years ago, animals and plants on the island were isolated from the mainland. Therefore, the species have evolved to adapt to the effects of the marine environment as well as the complex biological interactions in the tropical forest. This is an important foundation for the evolution of new species. It is justified by the large number of endemic species discovered in the nominated property. In addition, within this ecosystem, there are many unique habitat types, each of which has its own flora and fauna system, such as diluvium at foot slope with slow water-drainage, filled karstic valley (by accumulation), water-retentive karstic valleys, modern karst wash surfaces with mainly drought tolerant evergreen shrubs with sparse dicotyledon

woods and sometimes with savannah and colluvi. The forest ecosystem on the island has a stratified canopy structure developed on the weathering of carbonaceous formations.



Map 1. Tropical primary rainforest on limestone islands of Cat Ba

The cave ecosystem, including terrestrial caves and aquatic caves, is a particular type of karst structure at sea. Cat Ba has many large caves that have been discovered in such as Hoa Cuong, Trung Trang, Quan Y, Dong Moi (terrestrial caves) and Xich, Thung (aquatic caves). Caves are not only a habitat for animals, but also a shelter for the primitive people. In the terrestrial caves, 19 species were recorded with 4 species listed in the IUCN Red List. Particularly, the Cave Crab *Tiwaripotamonedostilus* found in 2001, is an endemic species of Cat Ba. Aquatic caves in Cat Ba include partly inundated caves and completely submerged caves. Marine species are concentrated in these caves. In particular, soft sponges and soft corals are found common here (Figure 32). Marine organisms concentrate in a large number in these caves. Especially, marine sponge and soft coral is commonly found here.



Figure 32. Notched Cave in Tung Gau

Mangrove ecosystem is the largest in the islands of Viet Nam and still in its intact condition. It is mainly distributed in Phu Long, and a small area in Duong Gianh. This ecosystem originally exists in the funnel-like estuaries, and on the island there exist the most typical high salt-tolerant vegetation association in the Bach Dang estuary (Figure 33).



Figure 33. Phu Long Mangrove Forest

Mangrove forests produce large biological productivity, creating the ideal habitat for marine species., They also contain complex biological and ecological processes related to the overlapping relationships in food chains and food webs. Particularly, in the North of Phu Long, communities of mangroves are distributed adjacent to the formation of terrestrial vegetation, which creates a unique form of habitat where reptiles, amphibians, monkeys often cross these boundaries. This makes the relationship between the creatures more diverse,

greatly affecting the characteristics and behaviours of the species between the two regions. Terrestrial species can move to the mangroves for food or shelter while seabirds can use the forest area on land for nesting. Geologically, the mudflats with mangroves are typical of marine sediment (sea marsh), morphology and bio-geomorphology, sediment structure, buried materials and remains of mangrove vegetation over generations.

Tidal ecosystem with unique mosaics of clinging organisms includes sandy tidal flats, rocky tidal flats and muddy tidal flats. In the property, there are about 40 sandy tidal flats, mainly distributed in Southeast of Cat Ba Island. They are usually situated on the coral benches at a height of 1 - 4 m above the sea level, with the width of 20 - 200 m. Muddy tidal flats, mostly in Gia Luan and Phu Long, contain wide tidal flats of thousands of meters long (Duong Gianh Flat), and Ang Ke Flat (50ha). Rocky tidal flats occupy the majority of the tidal flat area around the islands. Mosaics of clinging organisms on these rocky tidal flats are composed of algae and oysters, typical of the clinging organism community in the tropical seas (Figure 34).

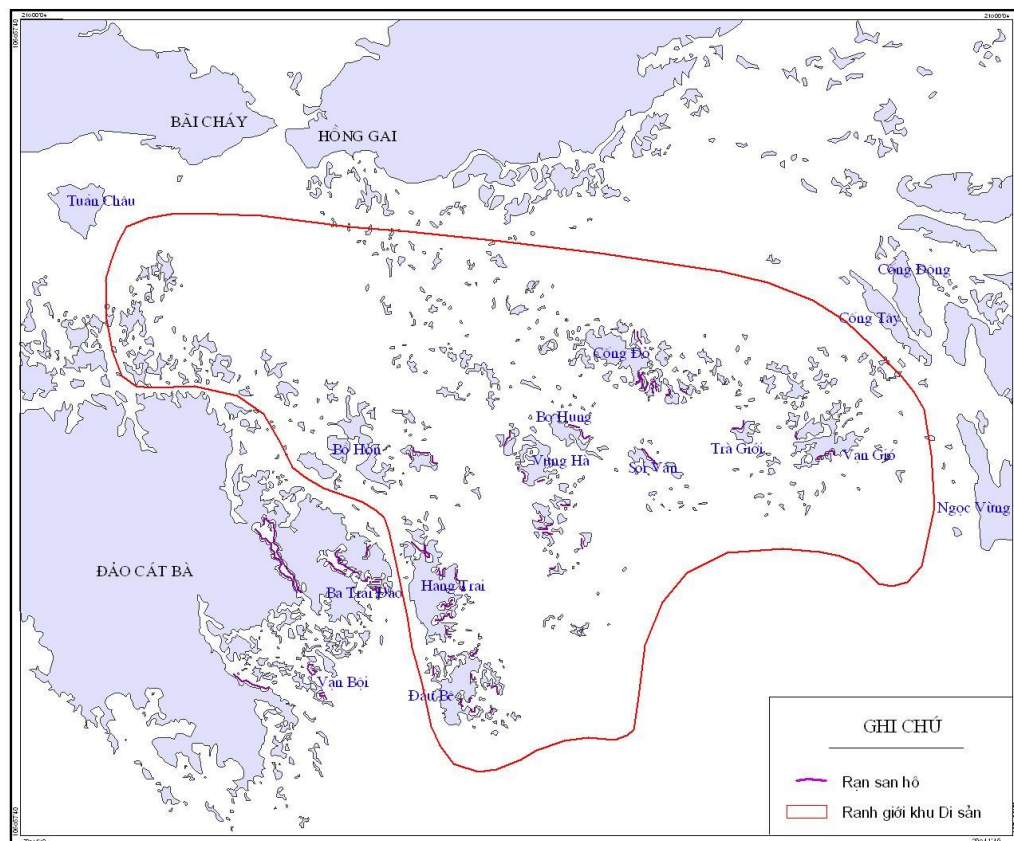


Figure 34. Attaching Organism Mosaics

The tidal flora is highly adaptive to cyclical variation as well as to the abnormalities of natural conditions. In Ha Long Bay - Cat Ba Archipelago, they are located adjacent to mangrove forests and tropical forests, creating complex nutrient relationships between species. This is considered to be one of the important factors contributing to the creation of typical biological and biological processes in the heritage site, thereby forming terrestrial species that have adapted to the marine environment.

Coral reef ecosystem is considered to be the most developed in the Gulf of Tonkin. It is a typical representative for the entire area, particularly Cong Do, Hang Trai, Dau Be, Cat Ba and Long Chau in terms of the reef structure,

distribution, composition and structure of the reef forming organism communities (Map 2). Coral reefs in the nominated property are still kept at relatively intact, which attract most groups of marine life such as polychaetes, mollusc, echinodermata, crustaceans, sea reptiles, reef fish, etc. Apart from being places for foods, reproduction, they are also the safe shelter for these groups of organisms. One distinguished feature of the reefs in Cat Ba - Long Chau is that corals are not only distributed under the water but also in the tidal area. This creates the ecologically diverse but unique ecological and biological linkages of tidal and underwater organisms.



Map 2. Coral distribution in Ha Long Bay - Cat Ba Archipelago

Regarding soft bottom ecosystem, Ha Long Bay - Cat Ba Archipelago seabed has a network of ancient river beds covered by emerald water to a depth of -29m. it is home to more than 1,000 species of marine animals and plants, and also contains the main breeding grounds of the Gulf of Tonkin. The Cat Ba sea bed is not distributed continuously but is severely divided by islands, reefs, and coral reefs. This creates a close link between the organism groups of soft bottom, coral reefs, mangroves and tidal areas, which sometimes do not identify their specific boundaries. Thus, the soft bottom is not only a diverse habitat of species but also plays an important role in the biological and ecological

relationships between the marine ecosystem (tidal, mangrove, coral reefs), as well as tropical forest ecosystems.

Regarding limestone lake ecosystem, the Tung and Ang forms are officially considered as typical sub-ecosystem of Ha Long - Cat Ba, which was proposed by the Institute of Marine Resources and Environment in 1997 (Nguyen Chu Hoi, Do Cong Thung 1997). According to a survey by the scientists, in the area of Ha Long Bay, Bai Tu Long Bay and Cat Ba there are a total of 119 marine lakes (62 ang and 57 tungs) (Figure 37). It is estimated that the total area of the 62 ang is 289.4 hectares, and 57 tungs 1,186.2 hectares (Nguyen Chu Hoi, Do Cong Thung, 1997, Do Cong Thung, 2004). Using Google Earth, Jaap Jan Vermeulen, Netherlands identified 138 lakes for Ha Long Bay - Cat Ba Archipelago (Figure 11). The total marine lakes in Ha Long Bay - Cat Ba Archipelago is between 119 and 138. Checked with Google Earth, Jaap Jan Vermeulen estimated that there are about 400 lakes around the world. Ha Long Bay - Cat Ba Archipelago owns about 1/3 of this figure. Ho Ang Vem (28.8 ha) is the largest lake (Figure 11); and the smallest one is the Tre Moi (0.7 ha), and the remainders are scattered throughout the nominated property (Do Cong Thung, 1999).

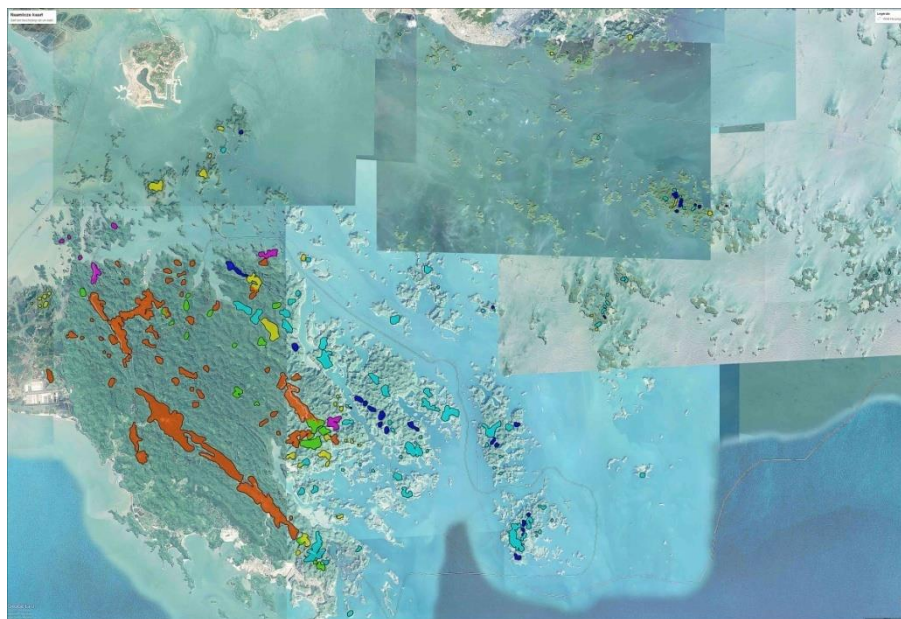
During three surveys in April 2003, September 2003 and April 2004 (in one year cycle), scientists from the Institute of Marine Environment and Resources (Viet Nam Academy of Science and Technology) and the Ancona Institute of Marine Sciences (Italy) surveyed 8 marine lakes in the Cat Ba and Ha Long areas, including Me Cung, Bu Xam, Ang Du I, Ang Du II, Ba Ham lake, Ang Vem, Ang Tham, Ang Luon. It is worth noting that Ang Du 1, Me Cung, Bu Xam are completely enclosed lakes that are not connected with outside, others have more or less openings to the surrounding sea. In 2014, the Institute of Marine Resources and Environment identified the specific location and size of 30 marine lakes in Ha Long Bay - Cat Ba Archipelago. The results of the study determine the environmental conditions of the marine lakes are significantly different to the external water environment. Especially, the marine lakes has higher water temperature, fluctuating around 29⁰C - 32⁰C, salinity 9 - 24⁰/₀₀, and high levels of nitrate and phosphate. These factors will put pressure on populations of organisms, forcing them to adapt by forming more tolerant varieties, or new species that adapt to changing habitat conditions. Possibly, this is the process of forming new species in marine lake ecosystems, adding to the species living in the watershed through openings to the sea. Species composition of biotic communities in marine lakes (Tung - Ang) is quite diversified, in the

intertidal zone there is usually a alternating structure among groups of clinging organisms with benthic groups on sand - gravel. The submerged parts of the coral reefs and seaweeds quite develop, and in many places they are quite densely populated. As a result, it creates a beautiful landscape, very attractive to visitors. So far over 150 plant and animal species have been found in the marine lakes. There are 21 species of seaweed, 37 species of soft coral (19 species of univalve clams, and 18 species of Bivalve), 8 species of crustaceans, 6 species of echinoderm, 31 species of sponges, 41 species of corals and 6 species of fish. Common coral genera: *Acropora*, *Porites*, *Favia*. Typical molluscs include: *Brachidontes spp*; *Anomalodiscus squamosa*, *Paphiamalabarica*, *Annadara subcrenata*, *Isognomum legumen*, *Pteria martensii*, etc. Especially, the jellyfish of genus *Mastigias* appear in large numbers in 6 surveyed lakes. This species of jellyfish, found in five Palau Islands, is considered to be a descendant of the *Mastigias papua*, and is also considered a distinct species (Dawson, 2005). The species status of *Mastigias sp.* along with the two sponges, *Suberites sp.* and *Protosuberites sp.* has never been observed outside of this lake environment (Cerrano et al., 2006).

The above data does not show all species diversity of the marine lake ecosystem due to the limited level of investigation. Groups of echinodermata, and marine fish are still less investigated. The research results by many authors have determined the special values of marine lakes in terms of scientific and practical values such as:

- Demonstrating strong evolution of the population, often creating new species, indigenous species;
- Showing evidence of evolutionary adaptation of organisms with the formation of new species under new environmental conditions;
- Being a special marine ecosystem, but more or less separated from the surrounding sea, they clearly show the impact of weather and climate on the environment.

It is from these characteristics that marine lake ecosystems provide an excellent opportunity to monitor and study relationship between the variability of physical and climatic factors and the evolution of population ecology and species.

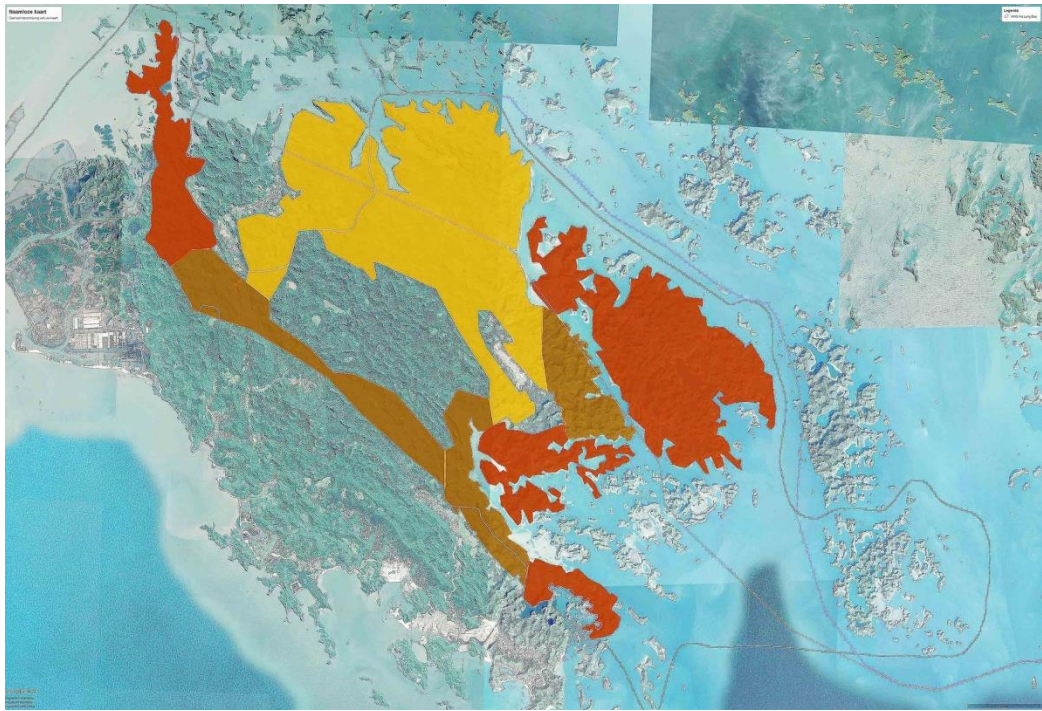


Map 3. Karst doline systems in Ha Long Bay - Cat Ba Archipelago

2.2.4. Attributes under the Criterion (x)

The nominated property of Ha Long Bay - Cat Ba Archipelago is a centre of high biodiversity with 4,910 species of terrestrial and marine plants and animals. Among them, 253 species are listed in Viet Nam Red Book and the IUCN List (Refer to Annex 3).

So far 198 species in Ha Long Bay - Cat Ba Archipelago have been included in the Red List of protected species, including 50 species of terrestrial animals, 1 species of birds, 33 species of plants, 114 marine species. Notably, 1 species of primates, 2 species of sea turtles and 6 species of plants classified as Critically Endangered (CR), such as, Cat Ba Langur *Trachypithecus poliocephalus*, *Dermochelys coriacea*, *Eretmochelys imbricata*, *Aquilaria Crassna*, *Diospyros mun*, *Vatica diospyroides*, *Parashorea chinensis*, *Hopea chinensis* and *Dipterocarpus dyeri*. One endangered mammal species at (EN) level: *Manis pentadactyla*, five endangered plant species: *Afzelia xylocarpa*, *Erythrophleum fordii*, *Dalbergia oliveri*, *Dipterocarpus alatus* and *Annamocarya sinensis*. There are 2 species of mammals, 1 reptile, 9 species of Vulnerable (VU) level, 6 species of mammal, 1 species of reptile, 5 species of plants classified as Near Threatened (NT). In particular, Cat Ba Langur (*Trachypithecus poliocephalus*) is endemic with only about 65-71 individuals in 2020, living only in Cat Ba Island and nowhere else in the world. This species is listed in the IUCN Red List as Critically Endangered, considered as the symbol of Cat Ba (Map 4).



Map 4. Langur distribution map 2017

Generally, Cat Ba Archipelago is home to many animals and plants that are posed to a high danger of extinction and needed to be protected urgently, especially Cat Ba Langur, an endemic species to the property. Having a population of 65 – 71 individuals distributed in 7 areas, Cat Ba Langur has a high risk of extinction. Recent conservation efforts have been highly appreciated when 13 new babies was borne. Besides, Cat Ba Archipelago has been protected as a national park and world biosphere reserve. Therefore, the recognition of the property by UNESCO as World Natural Heritage (under criterion x) shall open up major opportunities for strengthening more measures at the national and international levels to conserve the outstanding universal values at a risk of threatening as well as preventing from the extinction of Cat Ba Langur.

2.3. Integrity

2.3.1. Nominated property containing adequate outstanding universal values that meet Criteria vii, viii, ix, x

Ha Long Bay - Cat Ba Archipelago, as well as the northeastern region of Viet Nam has a long geologic history. It was once part of the Caledonian folding structure marked with the end of the Katazia oceanic trough in the late Silurian period. Over the long-term evolution, Ha Long Bay - Cat Ba Archipelago has evolved the outstanding universal natural values that meet the four criteria (vii, viii, ix, x) of the Convention:

- The karst terrain that is flooded by the sea with numerous limestone towers and the features of coastal erosion such as arches and caves creating a superlative natural landscape (Criteria vii);

- The most special and largest form of the Fenglin (tower) and Fengcong (conical peak) karst topography that is invaded by the sea and is one of the most important areas of fenglin and fengcong karst in the world (Criteria viii);

- Ha Long Bay - Cat Ba Archipelago is the an outstanding example of the tropical, subtropical sea-island ecosystems of Asia; containing several adjacent and coevolving ecosystems, such as tropical rainforest on the island, cave ecology, coastal mangroves, tidal flats, coral reefs, soft bottom, and marine lakes. It illustrates vividly the process of repeated sea level rises that invade the karst valleys, forming in a large, complex landscape at the interface between the sea and the karst island (Criteria ix);

- The nominated area is a biodiversity hotspot, containing 4,910 species of plants and animals. Of these, up to 198 species are listed in the IUCN Red List and many of them are of high conservation value. Especially, the Cat Ba Langur (*Trachypithecus poliocephalus*) has currently only one population with 65 - 71 individuals left in Cat Ba and nowhere else in the world. Therefore, this species is listed by the IUCN as Critically Endangered, of high risk of extinction that needs urgent protection. Cat Ba Langur is the symbol of Cat Ba Island. The existence of over 51 endemic species in Ha Long Bay - Cat Ba Archipelago demonstrated that evolution is still ongoing and continuing to form new species here (criteria x).

2.3.2. Nominated property has a sufficiently large area and favourable environment to maintain and develop ecological and biodiversity values

Total area of 99,790 ha; including 775 islands in Ha Long Bay and 358 islands in Cat Ba Archipelago. The area of the core zone is 65,650 ha and the buffer zone is 34,140 ha. All the majestic landscape, the most prominent and largest form of karst tower and conic peak terrains; all typical ecosystems, recorded species, and rare and endangered species of global conservation values are distributed within the core zone of the nominated property and have been well protected. This property contains a total of 1,133 limestone islands typical for the Fengling and Fengcong karst island systems in the world. The core zone also covers the entire area of primary forest, mangroves, coral reefs in the southeast of Cat Ba, Hang Trai, Dau Be, Cong Do, about 1/3 of the world's karst lakes, sand beaches and the tidal flats on the island. It is also home to 198

species of rare species ranked by the IUCN, including 65 - 71 species of Cat Ba langur, a globally valuable species that survives and develops on the island, and is home to migratory birds from the north (Figure 35). The buffer zone is 34,140 ha large enough for ecological-economic activities, ensuring the buffer zone functions for protection of the property.



Figure 35. Cat Ba Langur

The environment of Ha Long Bay - Cat Ba Archipelago is favourable for the development of evergreen moist forests as well as species. Relatively high average humidity, clear sky, abundant sunshine are favourable for the plants' photosynthesis and growth. Sea water in the nominated property has good quality, relatively high salinity and warm temperature, which is suitable for the development of aquatic species.

The system of Bach Dang River (Hai Phong City) runs through Lach Huyen channel, and Cua Luc River system, including Dien Vong, Man and Troi rivers discharged at Cua Luc bay and then into Ha Long Bay. The system of Ba Che and Tien Yen rivers runs across the Northeastern part (Cua Ong) into Bai Tu Long bay. Therefore, Ha Long Bay - Cat Ba Archipelago has been continuously supplemented with alluvia and sand mud from the Red River Delta which accumulates in various degrees and increase the environmental diversity. This ensures the stability and integrity of the property. Particularly, submerged limestone mountains and alluvial and sand water flows, an important and distinct characteristic of the limestone island system in Ha Long Bay - Cat Ba Archipelago shall ensure the integrity of the property.

2.3.3. nominated property received the agreement of local communities and authorities, and central offices in order to protect the outstanding universal values of geology, geoform, landscape and biodiversity

The nomination of Ha Long Bay - Cat Ba Archipelago as proposed World Natural Heritage in geology, geomorphology and biodiversity received high consensus of the communities of the six communes directly related to the boundary of the nominated property in Cat Ba (Hai Phong) and Ha Long City (Quang Ninh Province). The governments of Quang Ninh province and Hai Phong city, and the central ministries of Viet Nam have strongly supported this nomination. Determination to protect the world natural heritage of Ha Long Bay - Cat Ba Archipelago is the will of the community and the authorities of Viet Nam. The will to protect the heritage of Ha Long Bay - Cat Ba Archipelago is reflected in the policies and activities for sustainable conservation.

2.4. Protection and management requirements

In 1962, Ha Long Bay was ranked by the Government of Vietnam as a National Scenic Site and in 2009 as a Special National Monument. The property is effectively protected through relevant laws of the State and Governmental decrees such as the Law on Cultural Heritage, the Law on Biodiversity, the Law on Tourism, the Law on Environmental Protection, the Law on Fisheries, Law of Sea Transport. On the basis of such laws, all activities occurring in the Heritage area that may affect the values of the Heritage must be approved by the Ministry of Culture, Sports and Tourism and other relevant ministries.

Shortly after Ha Long Bay was recognized as World Natural Heritage, Ha Long Bay Management Board was established with the function of managing, preserving and promoting the values of the heritage. The Board has strictly adhered to the provisions of the Convention on Protection of the World Cultural and Natural Heritage, strictly adhering to the recommendations of the World Heritage Committee, and enforcing relevant laws of the State and the Decrees of the Government of Viet Nam and the decisions of Quang Ninh Provinces. In addition, the regular management of the Heritage also involves the active participation of all levels, sectors and local communities in order to maintain the integrity of the Property and to monitor the socio-economic activities taking place in the bay. As such, there has been so far no threat to the prominent values of the Property. Socio-economic activities in the Bay are clearly defined and monitored closely and effectively. Heritage management and preservation have also been strengthened through regulations, master plans and provincial action plans, such as: Ha Long Bay Management Regulation, Environmental Protection

Planning, Heritage management Plan, regulations on management of cruise ships, dredging of sludge, encroachment of sea, discharge of waste, management of population and floating houses, education and awareness raising on Heritage conservation. There are also specific plans for environmental protection, tourism development and management, conservation planning, especially the Master Plan for Conservation, Management and Promotion of Natural Heritage The World Ha Long Bay to 2020, which was approved by the Government in 2001 and the Master Management Plan for Ha Long Bay Natural Heritage in the period 2010-2015, approved by the People's Committee of Quang Ninh Province in 2010. Long term orientations for the heritage management focus on: securing the integrity of the natural landscape, the geological, geomorphological and environmental values of the property; continue to perfect mechanisms and policies; closely supervision of socio-economic activities; application of science and technology to heritage management; intensified research to clarify the values of heritage; enhancing heritage management competences; educate the public awareness, engage them in the management and protection of the heritage.

For the Cat Ba Archipelago, in 1986, the Cat Ba Archipelago was established by the Government of Vietnam as the first National Park at sea; in 2004 it was designated as a World Biosphere Reserve by the UNESCO; in 2012 as a Special National Monument. Thus, the Cat Ba Archipelago is effectively protected through relevant laws of the State of Viet Nam and Government Decrees such as the Cultural Heritage Law, the Biodiversity Law, the Law on Tourism, Law on Environmental Protection, Law on Fisheries, Law on Marine Transport. On the basis of these laws, all activities taking place in the geographical area that may affect the values of the Heritage are subject to the approval of the Ministry of Culture, Sports and Tourism and other relevant ministries. Management Board of Cat Ba National Park was established in 1986, Management Board of Cat Ba Archipelago Biosphere Reserve was established in 2004. The Management Boards are responsible for managing, conserving and promoting the values of the property, strict compliance with the provisions of the Convention on Protection of the World Cultural and Natural Heritage, the strict implementation of the recommendations of the World Heritage Committee, and enforcement of the relevant laws of the State and the Decrees of the Government of Vietnam and the decisions of Hai Phong City. The area also has received the active participation of all levels, sectors and local communities in order to maintain the integrity of the property and monitor the socio-economic

activities taking place on the island. Therefore, so far there has been little threat to the prominent values of the property. Socio-economic activities on the island as well as at the sea are clearly defined and monitored closely and effectively.

The management and preservation of the heritage values has also been strengthened through the regulations, master plans and action plans of Hai Phong city such as the regulation on the management of cruise ships, dredging of sludge, encroachment of sea, discharge of waste, management of population, floating houses, education and raising public awareness on conservation of the values of the property; regulations on coordinated management to conserve and promote the value of Ha Long Bay and the bays in Cat Ba Archipelago was signed by Ha Long Bay Management Board and Cat Hai District People's Committee. There are also specific plans for environmental protection, tourism development and management, conservation planning, especially the Biosphere Reserve Master Plan, Master Plan for Conservation, management and promotion of the values of Cat Ba National Park until 2020, the conservation project for Cat Ba Langur has been a special interest of the international organizations. Long-term orientations for heritage management focus on: preserving the values of natural landscapes, values of typical tropical and subtropical ecosystems, endemic species of global values and the environment of the property.

2.5. Objectives of the management plan for Ha Long Bay - Cat Ba Archipelago

The management plan of Ha Long Bay - Cat Ba Archipelago is made and targeted at the following basic objectives:

- Establishing a legal basis for implementing Viet Nam's international obligations to protect, conserve and introduce Ha Long Bay - Cat Ba Archipelago to the future generations in accordance with the World Heritage Convention;
- Meeting the requirements of preserving and promoting outstanding universal values of Ha Long Bay - Cat Ba Archipelago;
- Ensuring the necessary conditions for long-term protection and stability of the integrity of the heritage;
- Establishing a legal and scientific foundation for building sustainable development strategies, and masterplans on heritage conservation and promotion;
- Integrating heritage conservation and promotion with tourism development, residential community development and local socio-economic development;

- Proposing mechanisms and policies to manage, protect and promote the suitable values in consistency with the characteristics of the heritage area;

- Proposing an effective coordination mechanism between Ha Long Bay Management Board, Cat Ba Archipelago Natural Heritage Management Board and all relevant administrative agencies in the region, private enterprises, local communities, and residents on the basis of maintaining harmony and minimizing conflicts of interest between sectors and communities in exploiting and utilizing the heritage values, in order to prevent activities that can affect the outstanding universal values, and the environmental landscape of the heritage site;

In achieving the above objectives, the Management Plan of Ha Long Bay

- Cat Ba Archipelago must define:

- Long-term management policies and principles, with a vision to 2040;

- Planning of some actions to implement in the first phase (2021 - 2025) in order to manage, preserve and promote the heritage value.

Chapter 3

LEGAL BASIS, MECHANISMS AND POLICIES APPLIED TO THE MANAGEMENT AND PROTECTION OF HA LONG BAY - CAT BA ARCHIPELAGO

3.1. International Legal Documents

- The Convention concerning the Protection of World Cultural and Natural Heritage (1972);
- International Convention on Biological Diversity (1992);
- The Ramsar Convention on Wetlands of International Importance especially as Waterfowl Habitat (1971);
- International Convention for the Prevention of Pollution from Ships (MARPOL) 1973 (Amended 1990, 1992);
- Convention on International Trade in Endangered Species of Wild Fauna and Flora (CITES) (1973, 1994);
- Guidelines for Applying the IUCN Protected Area (1994);
- Decision dated December 17th, 1994 by UNESCO in recognition of Ha Long Bay (Quang Ninh Province) as the World Natural Heritage that bears the outstanding universal value under the criterion vii (aesthetic value);
- Decision dated December 2nd, 2000 by UNESCO in recognition of Ha Long Bay (Quang Ninh Province) as the World Natural Heritage that bears the outstanding universal value under the criterion viii (geological and morphological values);
- Decision dated December 2nd, 2004 by UNESCO in recognition of Cat Ba Archipelago (Hai Phong City) as the World Biosphere Reserve that covers an area of 26,140ha including 17.040 ha of natural land on the island and 9,100ha of marine land.

3.2. Legal documents at the central level

- Law on cultural heritage (2001) and Law on the amendments and additions to some articles of the Law on cultural heritage (2009);
- Law on fisheries (2017);
- Law on forestry (2017);
- Law on residence (2006) and Law on the amendments and additions to some articles of the Law on residence (2013);
- Law on inland waterway transportation (2004) and Law on the amendments and additions to some articles of the Law on inland waterway transportation (2014);

- Law on biodiversity (2008);
- Law on water resources (2012);
- Housing Law (2014) ;
- Law on natural resources and environment of sea and island (2015)
- Law on tourism (2017)
- Law on environmental protection (2020) ;
- Decree No.107/2007/NĐ-CP dated June 25, 2007 of the Government on the implementation for some articles of the Law on residence;
- Decree No.73/2010/NĐ-CP dated July 12, 2010 of the Government on sanctions against administrative violations regarding security, social order and safety;
- Decree No.98/2010/NĐ-CP dated September 21, 2010 of the Government on the implementation for some articles of the Law on Cultural Heritage and its amendment and supplement;
- Decree No.31/2014/NĐ-CP dated April 18, 2014 of the Government regarding the details of some articles and measures in implementation of the Law on Residence;
- Decree No.132/2015/NĐ-CP dated December 25, 2015 of the Government on sanctions against administrative violations in the domain of inland waterway traffic;
- Decree No.109/2017/NĐ-CP dated September 21, 2017 of the Government on the protection and management of world natural and cultural heritage in Viet Nam;
- Decree No.35/2019/NĐ-CP dated April 25, 2019 of the Government on sanctions against administrative violations in the field of forestry;
- Decree No.42/2019/NĐ-CP dated May 16, 2019 of the Government on sanctions against administrative violations in fisheries;
- Decree No.45/2019/NĐ-CP dated May 21, 2019 of the Government on sanctions against administrative violations in tourism;
- Decision No.100/2007/QĐ-TTg dated July 6, 2007 of the Prime Minister on afforestation of 5 million hectares of forest, especially afforestation of coastal protection forests is seen as the priority task for all coastal areas;
- Decision No. 158/2008/QĐ-TTg dated December 2, 2008 of the Prime Minister on approving the National Target Program in response to Climate Change;

- Decision No. 2139/QĐ-TTg dated December 5th, 2011 of the Prime Minister on approving the National Strategy for Climate Change;
- Decision No. 1474/QĐ-TTg dated October 5th, 2012 of the Prime Minister on issuing the National Action Plan on Climate Change for the period 2012-2020;
- Resolution No.71/NQ-CP dated August 8, 2017 of the Government on promulgating the Government's action plan to implement the Directive No.13-CT/TW dated January 12, 2017 of the Party Central Committee's Secretariat on strengthening the Party's leadership in forest management, protection and development;
- Joint Circular No.19/2013/TTLT-BVHTTDL-BTNMT dated December 30, 2013 of the Ministry of Culture, Sports and Tourism and the Ministry of Natural Resources and Environment on environmental protection in tourism, festivals, protection and promotion for the value of monuments;
- Circular No.35/2014/TT-BCA dated September 9, 2014 of the Ministry of Public Security on detailed guideline about some articles of the Law on Residence and Decree No.31/2014/NĐ-CP dated April 18, 2014 of the Government on detailed guideline of some articles and measures to implement the Law on Residence;
- Circular No.18/2016/TT-BTNMT dated July 25, 2016 of the Ministry of Natural Resources and Environment on specifying the records of islands resources, the establishment and management of island resources records;
- Decision No.1184/CNR dated December 1st, 1992 issued by the Forestry Ministry (presently Ministry of Agriculture and Rural Development) on approval of the Masterplan of the Central Area of Cat Ba Archipelago;
- Decision No.192/2003/QĐ-TTg dated September 17, 2003 of the Prime Minister on approving the Strategy for systematic management of natural conservation zones in Viet Nam until 2010, in which the marine area of Cat Ba Archipelago is recognized as one of 15 Vietnam's marine protected areas, covering an area of 5,400 ha of sea surface (in the Southeastern Cat Ba Island);
- Decision No.333/QĐ-TTg dated April 06, 2004 of the Prime Minister on the management transfer of Cat Ba National Park back to Hai Phong city;
- Decision No. 1448/QĐ-TTg dated September 16th, 2009 issued by the Prime Minister approving the amendment of the general planning on construction of Hai Phong until 2025 and a vision towards 2050.

3.3. Legal documents at the provincial/municipal levels

3.3.1. Legal documents of Quang Ninh Province

- Decision No.1026/QĐ-UBND dated April 8, 2008 of the People's Committee of Quang Ninh province on approving the capacity building project of Ha Long Bay Management Board ;

- Decision No.679/QĐ-UBND dated March 7, 2008 of the People's Committee of Quang Ninh province on approving the fishing villages planning in Ha Long Bay including Ba Hang, Hoa Cuong, Cua Van, Ba Ham , Cong Tau, Vong Vieng, Cong Dam ;

- Decision No.819/QĐ-UBND dated March 21, 2008 of the People's Committee of Quang Ninh province on approving the project of arranging, managing and moving floating houses on Ha Long Bay;

- Decision No. 476/QĐ-UBND dated February 21st, 2011 of the People's Committee of Quang Ninh province on approving of the tender plan for some tender packages under the investment project of GPS-based management and supervision system for tourist boats in Ha Long Bay;

- Decision No.716/2011/QĐ-UBND dated March 15, 2011 of the People's Committee of Quang Ninh province on promulgating the management of ship operation for tourism transportation and accommodation on Ha Long Bay;

- Decision No.713/QĐ-UBND dated April 3, 2012 of the People's Committee of Quang Ninh province on approving the Action Plan in response to climate change of Quang Ninh province during the period of 2010-2015, vision to 2020;

- Decision No.2178/QĐ-UBND dated August 28, 2012 of the People's Committee of Quang Ninh province approving the relocation plan for floating houses in Ha Long Bay;

- Decision No.3268/QĐ-UBND dated December 11, 2012 of the People's Committee of Quang Ninh province on the management of tourism business environment in Quang Ninh province;

- Decision No.1418/QĐ-UBND dated July 4, 2014 of the People's Committee of Quang Ninh province on approving the Master Plan on tourism development in Quang Ninh province until 2020, a vision toward 2030;

- Decision No.2669/QĐ-UBND dated November 14, 2014 of the People's Committee of Quang Ninh province on approving the Forest Protection and Development Planning of Quang Ninh Province up to 2020;

- Decision No.4012/QĐ-UBND November 30, 2016 of the People's Committee of Quang Ninh Province on approving the adjustment of the solid waste quality management Planning in Quang Ninh province until 2030, a vision toward 2050;

- Decision No.4209/QĐ-UBND dated December 15, 2016 of the People's Committee of Quang Ninh province on approving the fisheries development planning in Quang Ninh province until 2030, a vision toward 2030;

- Decision No.4/2017/QĐ-UBND dated August 11, 2017 of the People's Committee of Quang Ninh province on the regulation concerning the hotline intake process and receipt for protecting aquatic resources in Quang Ninh province;

- Plan No.6162/KH-UBND September 30, 2016 of the People's Committee of Quang Ninh province on the implementation of the Directive No. 25/CT-TTg dated August 31, 2016 of the Prime Minister on some urgent tasks, solutions for environmental protection;

- Plan No.61/KH-UBND dated July 3, 2008 and No.72/KH-UBND dated August 6, 2008 of the People's Committee of Ha Long City on the coordination and implementation of the project of floating house management and relocation on Ha Long Bay;

- Official dispatch No. 5753/UBND-VX1 dated September 14th, 2016 of the People's Committee of Quang Ninh Province regarding the nomination dossier on the extension of Ha Long Bay to include Cat Ba Archipelago submitted to UNESCO for the recognition as the World Heritage.

3.3.2. Legal Documents of Hai Phong City

- Decision No.704/QĐ-UBND dated April 3, 2002 of the People's Committee of Hai Phong city on approving the detailed planning of Cat Ba town, Cat Hai district, Hai Phong city up to 2020;

- Decision No.1088/QĐ-UBND dated July 13, 2004 of the People's Committee of Hai Phong city on the functions, tasks and authorities of the Cat Ba Archipelago Biosphere Reserve Management Board;

- Decision No.271/2006/QĐ-TTg dated November 27, 2006 of the Government on approving the adjustment of the master plan on socio-economic development of Hai Phong city up to 2020;

- Decision No. 1795/QĐ-UBND dated November 7th, 2011 of the People's Committee of Hai Phong City on approving the proposal preparing the action plan for climate change and sea level rise in Hai Phong City until 2025;

- Decision No.65/QĐ-UBND dated January 8, 2014 of the People's Committee of Hai Phong city on adopting the action plan in response to climate change and sea level rise in Hai Phong city up to 2025;

- Decision No.2732/QĐ-UBND dated December 5, 2014 of the People's Committee of Hai Phong city on approving the master plan for sustainable tourism development of Cat Ba archipelago until 2025, a vision toward 2050";

- Decision No.800/2015/QĐ-UBND dated 20/4/2015 of the People's Committee of Hai Phong city on promulgating the regulation for integrated management of natural resources and environmental protection of sea and islands in Hai Phong city;

- Decision No.1309/QĐ-UBND dated May 30, 2017 of the People's Committee of Hai Phong city on approval for the master plan of development of culture, sports and tourism of Hai Phong city up to 2025, a vision toward 2030;

- Decision No.1876/QĐ-UBND dated July 24th, 2017 of the People's Committee of Hai Phong city on the consolidation of functions, mission, authorities and organizational structure of Cat National Park;

- Resolution No. 16-NQ/TV dated January 27th, 2004 of the Hai Phong City Party's Executive Committee regarding the construction and development of Cat Hai District until 2020;

- Resolution No. 44/NQ-CP dated March 29th, 2013 of the Government regarding the land use planning until 2020 and the land use scheme for the first 5 years (2011-2015) in Hai Phong City;

- Resolution No. 150/2016/NQ-HDND dated December 13th, 2016 of Hai Phong City People's Council regarding the approval of the forest management and development plan for the period 2017-2020.

3.4. Specific legal documents for the property

3.4.1. Specific legal documents for Ha Long Bay

- Decision No.1272/QĐ-TTg dated August 12, 2009 of the Prime Minister on ranking Ha Long Bay as Special National Scenic Site (Quang Ninh Province);

- Decision No.313-VH/VP dated April 28, 1962 of the Ministry of Culture and Information (now the Ministry of Culture, Sports and Tourism) on ranking Ha Long Bay as National Scenic Site;

- Decision No.142/2002/QĐ-TTG dated October 21, 2002 of the Prime Minister on approving the planning for heritage values conservation and promotion of Ha Long Bay until 2020;

- Decision No.1139/QĐ-UBND dated April 27, 2015 of the People's Committee of Quang Ninh province on approving the specific plan for heritage values conservation and promotion of Ha Long Bay until 2020;
- Decision No.4768/QĐ-UBND dated December 7, 2017 defining the function, responsibility, authority and organizational structure of the Ha Long Bay Management Board;
- Decision No.4088/2015/QĐ-UBND dated 21/12/2015 by the People's Committee of Quang Ninh Province promulgating the Regulation on management of cruise ships operating on Ha Long Bay;
- Decision No. 4278/2016/QĐ-UBND dated December 21st, 2016 by the People's Committee of Quang Ninh Province promulgating the collection of fees and charges in the field of culture, sports and tourism in Quang Ninh Province;
- Decision No.2633/QĐ-UBND dated July 7, 2017 of the People's Committee of Quang Ninh province on approval for the World Natural Heritage Management Plan of Ha Long Bay during the period of 2017 - 2021
- Decision No.06/2019/QĐ-UBND dated January 29, 2019 by the People's Committee of Quang Ninh province on promulgating the regulation on management, protection and promotion of the value in Ha Long Bay natural World Heritage.

3.4.2. Specific legal documents for Cat Ba Archipelago

- Decision No.79/CT dated March 31, 1986 of the Chairman of the Council of Ministers (now the Prime Minister) on establishing Cat Ba National Park.
- Decision No. 2383/QĐ-TTg dated December 9, 2013 of the Prime Minister on ranking Cat Ba Archipelago (Hai Phong city) as Special National Scenic Site.
- Decision No.1497/QĐ-UBND dated July 8, 2005 of the People's Committee of Hai Phong city on issuing the regulation on management of the World Biosphere Reserve of Cat Ba Archipelago;
- Decision No.462/QĐ-UBND dated April 29, 2010 of the People's Committee of Cat Hai district on the establishment of the Cat Ba Bays Management Board;
- Decision No.714/QĐ-UBND dated April 1, 2014 by the People's Committee of Hai Phong city on the consolidation of Cat Ba Archipelago Natural Heritage Management Board;

- Decision No. 01/QĐ-BQL dated May 14th, 2014 by Cat Ba Archipelago Natural Heritage Management Board regarding the consolidation of staffing for the Office of the Board;

- Decision No.1876/QĐ-UBND dated July 24th, 2017 of the People's Committee of Hai Phong city on the consolidation of functions, mission, authorities and organizational structure of Cat National Park;

- Notice No.181/TB-UB dated June 15th, 2005 of Hai Phong City People's Committee of the management and functions of Cat Ba National Park;

- Decision No. 26/2020/QĐ-UBND dated October 2nd, 2020 of Hai Phong City People's Committee on promulgating the Regulation on tourism activities in the bays of Cat Ba Archipelago, Cat Hai District, Hai Phong City;

- Decision No. 3232/QĐ-UBND dated October 22nd, 2020 of Hai Phong City People's Committee on the consolidated organizational structure of Cat Ba Biosphere Reserve Management Board.

3.5. Main provisions of laws applied to the management and protection of Ha Long Bay - Cat Ba Archipelago

Ha Long Bay - Cat Ba Archipelago is protected by the legal documents of Viet Nam and provisions of international conventions in which Viet Nam is a signatory as well as related legal guidelines. According to these bases, the property shall be protected by the provisions of some major laws and guidelines, including the Cultural Heritage Law (2001, amended and supplemented in 2009); Law on Forestry 2017; Law on Biodiversity 2008; Fisheries Law 2003; Law on Environmental Protection 2014; Tourism Law as well as the heritage management regulations issued by the People's Committee of Quang Ninh province and the People's Committee of Hai Phong city regarding the direct management and protection of the property. Furthermore, the property is protected by relevant international legal regulations on the protection of the World Biosphere Reserve, and the Convention on the Protection of World Cultural and Natural Heritage.

3.5.1. Law on cultural heritage and guidelines

The protection measures are stated in the Cultural Heritage Law as follows:

“All cultural heritages in the Vietnamese territory, which have domestic or foreign origin and are under the ownership in various forms, shall be protected and have their values promoted (Clause 1, Article 8 of the Law on Cultural Heritage 2001, as amended and supplemented in 2009).

“The following acts are strictly prohibited:

1. Appropriating or deviating cultural heritages;
2. Ruining or posing a danger of ruining cultural heritages;
3. Conducting illegal excavations at archaeological sites or illegal construction, encroaching upon the land within historical-cultural relics, famous landscapes and beauty spots.” (Clauses 1, 2 and 3, Article 13 of the 2001 Law on Cultural Heritage, amended and supplemented in 2009).

“1. Organizations and individuals that are relic owners or assigned relics for management and use shall have to protect such relics. In cases where they detect that a relic is encroached upon, ruined or in danger of being ruined, they shall have to promptly take preventive measures and report such to their immediate superior agency, the local People’s Committee or the nearest competent State agency in charge of culture and information.

2. The local People’s Committees or the competent State agencies in charge of culture and information shall, upon receiving reports on relics being ruined or in danger of being ruined, have to promptly apply preventive and/or protective measures and immediately report such to their immediate superior agencies.

3. The Ministry of Culture, Sports and Tourism shall, upon receiving reports on relics being ruined or in danger of being ruined, have to promptly direct and guide the local competent State agencies and/or owners of such relics to immediately apply preventive and/or protective measures; and report to the Prime Minister, for special national relics.” (Clauses 1, 2 and 3, Article 33 of the 2001 Cultural Heritage Law, amended and supplemented in 2009).

For heritage protection and promotion of cultural values, the Law on Cultural Heritage (2001, amended and supplemented in 2009) decentralizes very specific responsibilities of the People's Committees at all levels and relevant ministries and branches. This is an important legal basis that has a positive impact on activities to maintain the integrity of the heritage.

“1. The Government exercises the unified State management over cultural heritages.

2. The Ministry of Culture, Sports and Tourism is answerable to the Government for exercising the State management over cultural heritage.

3. The ministries, ministerial-level agencies, agencies attached to the Government shall have to exercise the State management over cultural heritages according to the responsibility assignment by the Government.

The Government shall specify the responsibilities of the ministries, ministerial-level agencies and agencies attached to the Government for

coordinating with the Ministry of Culture and Information to exercise the unified State management over cultural heritage.

4. The People's Committees of all levels shall, within the ambit of their missions, and authorities, exercise the State management over cultural heritages in their respective localities according to the responsibility assignment by the Government.” (Article 55 of the 2001 Cultural Heritage Law, amended and supplemented in 2009)

“1. The preservation, embellishment and restoration of relics must meet the following requirements:

a/ To preserve to the utmost original constituents of relics;

b/ To work out plans and projects and submit them to competent state agencies for approval, except minor repair not affecting relics' original constituents. The preservation, embellishment and restoration of relics must be approved in writing by provincial-level competent agencies in charge of culture, sports and tourism, for provincial-level relics; or by the Minister of Culture, Sports and Tourism, for national relics and special national relics (Points a and b, Article 34 of the 2001 Cultural Heritage Law, amended and supplemented in 2009).

1. Relic protection zones include:

a/ Protection zones I, covering areas with relics' original constituents;

b/ Protection zones II, covering areas surrounding or adjacent to protection zones I.

In case protection zones II cannot be determined, the determination of only protection zones I shall be decided by provincial-level People's Committee chairmen, for provincial-level relics; by the Minister of Culture, Sports and Tourism, for national relics; or by the Prime Minister, for special national relics.

2. Protection zones defined in Clause 1 of this Article must be delineated by competent state agencies on cadastral maps and in protection zoning records of relic dossiers and must have boundary markers placed on the field.

3. Protection zones I must have their original ground and space protected. In special cases when the construction of works in these zones is needed for directly protecting and promoting the values of relics, such construction must be approved in writing by persons competent to rank those relics.

The construction of works for protecting and promoting the values of relics in protection zones II must be approved in writing by provincial-level

People's Committee chairpersons, for provincial-level relics; or by the Minister of Culture, Sports and Tourism, for national relics and special national relics.

The construction of works specified in this Clause must not affect original constituents, natural landscapes or the eco-environment of relics.” (Clause 3, Article 32 of the 2001 Law on Cultural Heritage, to be amended and supplemented in 2009).

“When approving a project of renovation and construction of works outside the relic-protected areas specified in Article 32 of this Law, it is deemed to have the potential to adversely affect the natural landscape and environment that must be verified in writing by a competent state agency in charge of culture, sports and tourism.

In case investors of work renovation and construction projects specified in Clause 1 of this Article request them, competent state agencies in culture, sports and tourism shall provide relevant documents and specific requirements on relic protection for investors to choose appropriate solutions to ensure the protection and promotion of relic values.

1. If before being approved, projects on renovation or construction of works lying outside relics protection zones prescribed in Article 32 of this Law are deemed likely to adversely affect the natural scenery and ecological environment of such relics, there must be written appraisal opinions of the competent State agencies in charge of culture and information.

2. In cases where investors of projects on renovation or construction of works specified in Clause 1 of this Article make any request, the competent State agencies in charge of culture and information shall have to supply relevant documents and make specific proposals on protection of relics so that such investors can select appropriate solutions ensuring the protection and promotion of values of relics (Article 36 of the Law on Cultural Heritage in 2001, amended and supplemented in 2009).

3.5.2. Law on Forestry (2017)

In Ha Long Bay - Cat Ba Archipelago, a large area of forest is located in Cat Ba National Park. Therefore, the property is also protected by the Law on Forestry and relevant legal guidelines. Accordingly, forest protection is regulated in Article 9 of the Law on Forestry with prohibited acts as follows:

“Article 9. Prohibited acts

1. Illegally felling, deforesting, exploiting or encroaching forests.

2. *Illegally discharging sewage or bringing toxic chemicals, explosives, flammable substances, tools or vehicles into forests; grazing cattle or livestock in strictly protected sub-zones of reserve forests or newly planted forests.*

3. *Illegally hunting, shooting, catching, caging, slaughtering, transporting or trading in forest animals; illegally collecting specimens of forest plant or animal species.*

4. *Destroying forest resources, ecosystems or works used for forest protection and development.*

5. *Violating regulations on fire safety in forests; prevention and elimination of organisms harmful to forests; management of harmful allochthonous species; provision of forest environmental services.*

6. *Storing, trading, transporting, processing, advertising, displaying, exporting, importing, temporarily importing, temporarily exporting or transiting forest products against regulations of Viet Nam law and international agreements to which the Socialist Republic of Viet Nam is a signatory.*

7. *Exploiting natural resources, mineral resources or forest environment; building, digging, damming, stopping natural flows or other activities against regulations of law that lead to change in the natural landscape structure of forest ecosystems.*

8. *Illegally allocating, leasing out or appropriating forests, converting types of forests, repurposing of forests; illegally exploiting or transporting forest products; illegally changing forest area, transferring, inheriting, gifting, mortgaging or contributing capital with the value of forest use rights or planted production forest ownership; discriminating against religions, beliefs or genders when allocating or leasing out forests.*

9. *Illegally using materials for forest products processing.”*

3.5.3. Law on Biodiversity (2008)

The Law on Biodiversity defines biodiversity conservation and sustainable development; rights and obligations of organizations, households and individuals in biodiversity conservation and sustainable development.

The provisions of Clause 1, Article 3 of the Law on Biodiversity stipulates that:

“1. Biodiversity conservation means the protection of the abundance of natural ecosystems which are important, specific or representative; the protection of permanent or seasonal habitats of wild species, environmental landscape and the unique beauty of nature; the rearing, planting and care of

species on the list of endangered precious and rare species prioritized for protection; and the long-term preservation and storage of genetic specimens.”

Article 5 of the Law on Biodiversity stipulates:

“State policies on the biodiversity conservation and sustainable development:

1. Giving priority to the conservation of natural ecosystems which are important, specific or representative for an ecological region and the conservation of species on the list of endangered precious and rare species prioritized for protection; ensuring control of access to genetic resources.

2. Ensuring funds for basic survey, observation, inventory and building of databases on biodiversity and biodiversity conservation planning; investing material - technical foundations for conservation areas and biodiversity conservation facilities set up by the State; and ensuring local people’s participation in the process of formulating and implementing biodiversity conservation plannings.

3. Encouraging organizations and individuals to invest in and apply scientific and technological advances and traditional knowledge to the biodiversity conservation and sustainable development, and guaranteeing their lawful rights and interests.

4. Developing ecotourism in association with hunger eradication and poverty alleviation, ensuring stable livelihood for households and individuals lawfully living in conservation areas; developing in a sustainable manner buffer zones of conservation areas.

5. Promoting domestic and foreign resources for the biodiversity conservation and sustainable development”.

Article 7 of the Law on Biodiversity stipulates:

“Prohibited actions related to biodiversity:

1. Hunting, fishing and exploiting wild species in strictly protected sections of conservation areas, except for scientific research purposes; encroaching upon land, destroying landscape, deteriorating ecosystems and rearing or planting invasive alien species in conservation areas.

2. Building structures or houses in strictly protected sections of conservation areas, except works for defence and security purposes; illegally building works and houses in ecological restoration sections of conservation areas.

3. Investigating, surveying, exploring and exploiting minerals; raising cattle and poultry on a farm scale, conducting aquaculture on an industrial

scale; illegally living and polluting the environment in strictly protected sections and ecological restoration sections of conservation areas.

4. Hunting, fishing, exploiting bodily parts of, illegally killing, consuming, transporting, purchasing and selling species on the list of endangered precious and rare species prioritized for protection; illegally advertising, marketing and consuming products originated from species on the list of endangered precious and rare species prioritized for protection.

5. Illegally rearing or growing and planting or culturing wild fauna and flora species on the list of endangered precious and rare species prioritized for protection.

6. Illegally importing or releasing genetically modified organisms and genetic specimens of genetically modified organisms.

7. Importing and developing invasive alien species.

8. Illegally accessing genetic resources of species on the list of endangered precious and rare species prioritized for protection.

9. Illegally changing land use purposes in conservation areas.”

3.5.4. Law on Fisheries (2017)

The Law on Fisheries of Viet Nam is passed in 2017, being applied to Vietnamese and foreign organizations and individuals who perform fishery activities or relate to the fisheries on the mainland, islands, archipelagos, and Vietnamese waters; Vietnamese organizations and individuals operating fisheries outside Vietnamese waters.

Article 7 of the Law on Fisheries stipulates:

Article 7. Prohibited actions in fishery activities

1. Destruction of aquatic resources, aquatic ecosystem, reproductive areas, areas where offspring live and residence of aquatic species.

2. Obstruction of natural migration patterns of aquatic species.

3. Encroachment of or damage to protected zones of aquatic resource and MPAs.

4. Catching of aquatic products, aquaculture and construction and other activities that affect the living environment and aquatic resources in subdivisions under strict protection and subdivisions of ecological recovery of MPAs.

5. Illegal operation of commercial fishing vessels and other watercrafts in subdivisions under strict protection of MPAs except for force majeure.

6. *Illegal commercial fishing, failure to report and comply with regulations of law (hereinafter referred to as “illegal commercial fishing”); purchase, sale, transport, storage, preliminary processing and processing of aquatic products originating from illegal commercial fishing, aquatic products with impurities for commercial fraud purposes.*

7. *Use of banned substances or chemicals, toxins, explosives, electric impulses, electric currents, destructive methods, means and fishing tackle for extracting aquatic resources.*

8. *Use of fishing tackle for obstructing or causing damage to organizations or individuals that are engaged in fishing; anchoring or mooring vessels at places where commercial fishing tackle of organization or individuals that are engaged in fishing are located or places where other commercial fishing vessels are engaged in fishing, except for force majeure.*

9. *Throwing the fishing tackle in natural waters, except for force majeure.*

10. *Putting impurities into aquatic products for commercial frauds.*

11. *Use of antibiotics, veterinary drugs and plant protection drugs 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 Viet Nam for aquaculture.*

12. *Destruction and demolition causing damage to or encroachment of works in fishing ports and anchorages for avoiding storms; discharge of wastes into improper places in fishing ports and anchorages for avoiding storms.*

13. *Abuse of inspection, assessment of aquatic resources to cause damage to national defence, security, national interests, legal rights and interests of other organization and individuals; illegal provision and use of information and data on aquatic resources.”*

3.5.5. Law on Environmental Protection (2020)

Article 6 of the Law stipulates as follows:

“Article 6. Strictly prohibited acts in the work of environmental protection

1. Transporting, burying, filling, discharging, dumping, firing solid wastes, hazardous wastes that do not comply with the technical procedures and stipulations of laws on environmental protection.

2. *Discharging into the environment wastes water, wastes gas that is not processed to meet the environmental technical standards.*
3. *Dispersing, discharging into the environment hazardous materials, hazardous viruses that are likely to infect humans and animals, unverified microorganisms, dead animal bodies due to endemics, and other harmful factors posed to the human health, organisms and the nature.*
4. *Making noise, vibration that exceeds the allowable permits according to the environmental technical standards; discharging poisonous smoke, dust, and gas into the air*
5. *Implementing investment projects or discharging wastes when having not been qualified according to the environmental protection laws.*
6. *Importing, temporally importing, re-exporting, transshipping wastes from abroad in any forms.*
7. *Illegally importing used facilities, machines, equipment to demolish, and recycle.*
8. *Not conducting projects, measures, actions of preventing, responding and addressing environment incidents in accordance with the stipulations of the environmental protection laws and other stipulations of laws.*
9. *Hiding the acts of pollution generating, hindering, misleading information, deceiving in the work of environmental protection, which leads to bad consequences for the environment.*
10. *Producing, trading products that harm the human health, organisms and nature; producing, using materials, construction materials that contain hazardous elements exceeding the allowable permit according to the environmental technical standards.*
11. *Producing, importing, temporally importing, re-exporting, selling the materials that deteriorate the ozone layer as stated in the international treaties on the substances that deplete the ozone layer in which the Socialist Republic of Viet Nam is a treaty signatory member.*
12. *Destroying, occupying illegally natural heritage.*
13. *Destroying, encroaching works, equipment, facilities that are used for environmental protection.*
14. *Taking advantage of office titles and rights so as to perform activities in contradiction with the laws on environmental protection.”*

3.5.6. Law on inland waterway navigation (2004, amended and supplemented in 2014)

Clause 1, Article 4 of the Law on inland waterway navigation stipulates as follows::

“Principles for inland waterway navigation activities: Inland waterway navigation activities must be smooth and ensure order and safety for people, vessels, property as well as environmental protection; serve socio-economic development and contribute to preserving national defence and security and protecting national sovereignty and interests.”

Clause 1, Article 10 of the Law on inland waterway navigation:

“Planning on development of inland waterway navigation infrastructures: The planning on development of inland waterway navigation infrastructures must be based on the socio-economic strategies, river basin plannings, other related plannings and defence as well as security tasks. Branches, when formulating plannings and projects on construction of works related to inland waterway navigation, must solicit written opinions of competent State management agencies in charge of inland waterway navigation, excluding flood and storm control and dyke protection works.”

Clause 2, Article 27 of the Law on inland waterway navigation stipulates as follows::

“Establishments that build, transform and/or repair vessels: When building, transforming or repairing vessels subject to registry, the establishments must comply with the quality, technical safety standards and as well as design dossiers already approved by registry offices. In the course of building, they must be subject to inspection and supervision by registry offices regarding quality, technical safety and environmental protection standards.”

Clause 3, Article 4 of the Law on Inland Waterway Navigation stipulates as follows::

“Development of inland waterway navigation must conform to transport development master plan and ensure national defence and security.

Inland waterway navigation and transportation infrastructure facilities shall be developed toward modernity and synchrony in navigable channels, routes, ports, landing stages, management technology and cargo loading and unloading, help ensure navigation safety, natural disaster prevention and control, environmental protection and response to climate change.

The development of inland waterway transportation must be in harmony with other modes of transportation.”

Article 28 of the Law on Inland Waterway Navigation stipulates as follows::

“Imported vessels must ensure the quality, technical safety and environmental protection standards; the importation of vessels must comply with law provisions.”

Clause 9, Article 98 of the Law on inland waterway navigation:

“Contents of the state management of inland waterway navigation: To protect the environment in inland waterway navigation activities.”

3.5.7. Law on natural resources and environment of sea and island (2015)

Article 8 of the Law on Natural Resources and Environment of Sea and Islands states:

“Prohibited acts:

1. Exploitation and use of natural resources of sea and islands in opposition to law provisions;

2. Violate the planning and plans for use of sea, general planning for exploitation and sustainable use of natural resources of littoral zones approved and announced by competent state agencies;

3. Make corrupt use of fundamental investigation, scientific research, exploitation and use of natural resources of sea and islands to affect national defence and security, national interests, lawful rights and benefits of other organizations, individuals.

4. Perform activities within coastal area protection corridors as prescribed in Article 24 and on archipelago, islands, shallow areas, and sandbanks to be protected as prescribed in Clauses 2, 4, Article 41 hereof.

5. Destroy and degrade environment and ecosystem of sea and islands;

6. Plunge and empty into the sea within territorial waters of Viet Nam physical matters without permission and in opposition to law provisions;

7. Supply, exploit and use of natural resources of sea and islands in opposition to law provisions;

8. Make corrupt use of business titles and powers to break regulations on general management of natural resources and environment.”

Article 41 of the Law on Natural Resources and Environment of Sea and Islands states:

“1. Exploitation and use of natural resources in archipelago, islands are instructed in the same way as exploitation and use of natural resources in mainland as prescribed hereof and other relevant law provisions.

2. For archipelago, islands that must be protected and preserved except cases as prescribed in Clause 5 of this Article, the following activities are prohibited:

- a) Carry out new constructions; installation of facilities;*
- b) Impacts resulting in changes to topography, geomorphology and soil quality;*
- c) Activities of exploitation, excavation, backfilling, soil improvement; exploitation of minerals, underground water; bringing natural formations out of archipelago, islands;*
- d) Reclamation, felling, encroachments on vegetational cover; bringing wild plants out of archipelago, islands;*
- đ) Hunting, bringing animals out of archipelago, islands; grazing livestock, bringing alien living things on archipelago, islands;*
- e) Dump or bring waste matters on archipelago, islands;*

3. Exploitation and use of natural resources in shallow areas, sandbanks must be permitted by competent state agencies as prescribed hereof, relevant law provisions and the international agreements to which the Socialist Republic of Viet Nam is a signatory.

4. For shallow areas, sandbanks to be protected, preserved except cases as prescribed in Clause 5 of this Article, the following activities are prohibited:

- a) Carry out new constructions; installation of facilities;*
- b) Impacts resulting in changes to topography, geomorphology;*
- c) Reclamation, exploitation, excavation, backfilling, soil improvement; exploitation of minerals; bringing natural formations out of shallow areas, sandbanks;*
- d) Dump or bring waste matters on shallow areas, sandbanks.”*

Control of marine environmental pollutions is stipulated in Article 45, Article 46 and Article 47 of the Law on Natural Resources and Environment of Sea and Islands which state as follows:

“Article 45: Control of environment pollution from sea activities

1. Hazardous waste from sea activities must be collected, classified, stored, transported and treated according to regulations on environmental protection.

2. Any works, facility on the sea that are no longer used after expiration date must be dismantled and transported to mainland or dumped at sea as prescribed hereof and other relevant law provisions.

3. Owners of vehicles transporting and storing petrol, oil, chemicals, radioactive substances, toxins and other substances running the risk of sea environment emergencies must have a plan for prevention and coping with environmental emergencies, ensuring no leakage, loss and spilling.

4. Wastewater from ships, drilling rigs, and other works and facilities on the sea; oil sludge and mud containing toxic mixtures from petroleum exploration and extraction must be treated to meet technical regulations on environment before being discharged to sea.

5. Ballast water, rinses, washing water, bilge water must be treated to meet technical regulations on environment before being discharged to sea.

6. Discharge of ballast water, rinses, washing water, bilge water and other wastewater from ships is instructed in accordance with regulations of the laws on maritime, environmental protection, relevant law provisions and the international agreements to which the Socialist Republic of Viet Nam is a signatory.

7. Solid waste from ships, drilling rigs, works and other facilities on sea must be closely managed under the laws; mud dredged from navigable channels, ports must be transported to mainland or dumped at sea as prescribed hereof and relevant law provisions.

8. Ports must be equipped with a system to receive and process domestic waste, residual oil from vehicles on sea.

9. Waste floating on ocean surface or along the shores must be collected, classified and treated according to regulations on environmental protection and relevant law provisions.

Article 46: Control of sea environment pollution from mainland

1. Waste arising from production, trading and domestic activities on mainland must be treated to meet technical regulations on environment before being discharged to sea.

2. Positions of discharging treated wastewater to sea must be arranged on the basis of natural conditions of the area of discharge; factors such as dynamics, environment, ecology, biodiversity, natural resources and current conditions of exploitation and use of sea areas.

Positions of discharging wastewater to sanctuaries, beaches, famous landscapes along sea shores must be examined, considered and handled according to the laws on environmental protection.

3. Facilities performing activities of production, trading and services on shoreline areas and islands must be equipped with adequate waste treatment plant to ensure treated waste reaches technical regulations on environment; current conditions of treatment and discharge of waste to sea must be regularly reported to competent state management agencies as prescribed by the Minister of Natural Resources and Environment.

4. Pollution sources from river basins to sea must be investigated, assess and closely controlled.

Article 47: Control of cross-border sea environment pollution

1. Ministries, ministerial-level agencies, Governmental agencies, People's committees of central-affiliated coastal cities and provinces, within the scope of duties and powers, shall be responsible for conducting monitoring, early detection, prevention and notification of cross-border sea environmental pollution to the Ministry of Natural Resources and Environment.

2. The Ministry of Natural Resources and Environment as a central agency for controlling cross-border sea environment pollution shall be responsible for presiding over and cooperating with the Ministry of Foreign Affairs, the Ministry of National Defence, the Ministry of Science and Technology and relevant ministries, ministerial-level agencies, People's committees of central-affiliated coastal cities and provinces in identifying pollution sources and bringing forward handling and remedial measures.

3. The Ministry of Foreign Affairs and the Ministry of Natural Resources and Environment, within their duties and authorities, shall be responsible for cooperating with relevant countries and organizations in handling and remedying cross-border sea environmental pollution."

3.5.8. Law on Tourism (2017)

The Law on Tourism defines the resources, development of tourism products and tourism activities; rights and obligations of tourists, organizations, individuals involved in tourism business, and other organizations and individuals as well as communities relating to tourism; and state management over tourism.

Item 2, Article 4 of the Law stipulates that:

"Principles of tourism development.

“Tourism development must be attached to the conservation and promotion of the national cultural heritage and natural resources, exploitation of each locality’s advantages and improvement of regional cooperation.”

Article 6 of the Law stipulates that:

“1. Local communities may participate in and enjoy lawful benefits from tourism activities; take responsibility for preserving tourism resources and local cultural identity; and maintaining security, social order and safety and ensuring environmental protection.

2. Local communities shall be enabled to invest in tourism, restoring and promoting various forms of traditional culture, folklore arts, crafts, and local goods production in service of tourists, contributing to improvement of material and spiritual life of local peoples.”

Article 8 of the Law stipulates that:

“Protection of tourism environment

1. The tourism environment shall be protected, embellished and developed in green, clean, safe, healthy and civilized manners.

2. Ministries and ministerial agencies shall issue regulations within their competence in order to protect, enhance and develop the tourism environment.

3. The local government at all levels shall take measures to protect, enhance and develop the tourism environment in conformity with local conditions.

4. Organizations and individuals doing tourism business shall be responsible for collecting and treating wastes discharged during their business operations; alleviating negative impacts on the environment caused by their business operations; and take measures to prevent and fight against social evils during their business operations.

5. Tourists, local communities and other organizations and individuals shall be responsible for protecting and preserving landscapes, environment, national cultural identity, customs and practices, and behaving in a polite and civilized manner in order to promote the image of the country, people and tourism of Vietnam.”

Item 3, Article 8 of the Law stipulates that:

“Prohibited acts in tourism activities:

3. Damage tourism resources and environment.”

Article 17 of the Law stipulates that:

“Responsibilities for management, protection and use of tourism resources

1. The State shall introduce policies on management, protection, enhancement and proper use of tourism resources and upholding their value nationwide to develop sustainable tourism.

2. The Ministry of Culture, Sports and Tourism shall take charge and cooperate with the Ministries, ministerial agencies and the People's Committees of provinces in the management, protection, enhancement and proper use of tourism resources and upholding of their value.

3. Organizations, individuals and local communities managing tourism resources shall be responsible for protecting, investing and enhancing tourism resources, enabling tourists to visit and appreciate tourism resource values; cooperating with a competent tourism authority in protection and use of tourism resources for other economic targets.

4. Tourists, organizations and individuals doing tourism business and local communities shall be responsible for protecting tourism resources.”

3.5.9. Regulations on management, protection and promotion of Ha Long Bay

Referring to Decision No.06/2019/QĐ-UBND dated January 29, 2019 by the People's Committee of Quang Ninh province on promulgating the regulation on management, protection and promotion of the value in Ha Long Bay natural World Heritage, Article 3 stipulates as follows:

“Article 3. Acts that are not allowed to be committed

All activities in the Ha Long Bay absolutely must not violate the prohibitions as per the current legal documents: Law on cultural heritage, Law on Fisheries, Law on Inland Waterway Transportation, Law on Forest Protection and Development, Law on Tourism, Law on Biodiversity, Law on environmental protection, Law on Sea of Viet Nam, Law on resources and environment of sea and islands, Law on Residence, Law on Fees and Charges, as well as being not committed in Ha Long Bay, and Bai Tu Long Bay. Details are as follows:

1. Not allowing construction of tomb, religious and belief works; writing, drawing, painting, carving in islands, mountains, caves and other works in the heritage area of Ha Long Bay;

2. Prohibiting acts or activities that damage or destroy caves, grottoes, beaches, islands, mangrove forests, forests on soil and limestone mountains, waters within the heritage area of Ha Long Bay;

3. *Prohibiting from encroaching the biodiversity of Ha Long Bay heritage site, especially such ecosystems as: coral reef, underground rock formation, mangrove forest, tidal flat, seaweed, natural ecosystem, fauna and flora; prohibiting from hunting and exploiting animals and plants on islands, mountains and caves as well as subject to specific stipulations by the provincial authorities;*

4. *Prohibiting from exploiting stone, sand, stalactite and other minerals and construction materials;*

5. *Prohibiting from illegally exploiting and using marine resources, destroying, degrading the environment, marine and insular ecosystems;*

6. *Prohibiting from catching aquatic species on the list of banned fishing, exploitation for a definite time period, precious and rare aquatic species in danger of extinction; exploiting aquatic products smaller than the prescribed size in Ha Long Bay and other prohibited activities in accordance with the law on fisheries; preliminary processing, transporting, confining, cultivating and grazing animals, plants and aquatic species illegally on the Ha Long Bay heritage;*

7. *Prohibiting from using banned fishing gear; prohibited trades for fishing; explosives, poisons, electrical impulses, raking, digging, excavating seabed and other destructive methods; drugs, chemicals and antibiotics prohibited from use or restricted from use in aquaculture in accordance with the law;*

8. *Prohibiting from discharging garbage, dumping mud, discharging wastewater, waste gas, other hazardous wastes into Ha Long Bay and other acts against the laws on environmental protection; contravention of regulations on prevention, fighting and overcoming of environmental pollution and incidents; discharging materials into Ha Long Bay without any permits or in contradiction with the laws;*

9. *Prohibiting from providing tourism services in the event of windstorm, typhoon, unusual weather or in the cases that competent agencies give notices and do not allow to carry out; prohibiting from providing tourism services without any permits by competent agencies or organizing in undeclared areas;*

10. *Prohibiting from violating national masterplans, regional and provincial plannings, comprehensive plans of sustainable exploitation and use*

of coastal resources, marine use masterplan and planning approved and declared by the competent bodies;

11. Preventing any acts that infringe upon national security and social order and safety, regulations on the safety of inland waterway transportation, fire and explosion prevention and fighting, illegal residence in Ha Long Bay;

12. Preventing exploitation acts that deform the terrains managed in conformity with the Decision No.2412 /QĐ-TTg dated December 19, 2011 by the Prime Minister, affecting the land of defence and the defines works in Ha Long Bay; filming or photographing military areas must be allowed by the competent military agencies;

13. Prohibiting from disseminating, introducing the wrong information about heritage values of Ha Long Bay;

14. Prohibiting from illegally anchoring boats, vessels, floating houses and other facilities within the site and buffer zone of Ha Long Bay Natural World Heritage;

15. Preventing from loading, unloading, transporting, transshipping bulk cargoes that cause environmental pollution, which are banned from being transported by waterway in Ha Long Bay;

16. Not using any means of cling on cruise ships in order to buy and sell seafood and other items; preventing from discriminating against tourists, illegally taking an advantage of tourists, scrambling for tourists or alluring tourists to buy commodities or services;

17. Strictly prohibiting any acts within the protected coastal corridors of Ha Long Bay as per Article 24 and acts of exploiting and utilizing insular resources as per Article 41 of the Law on marine, insular resources and environment;

18. Preventing from using foams or materials that pollute the environment in order to erect floating bases, producing boxes, cans, etc.;

19. Prohibiting other acts and activities encroaching Ha Long Bay as per the stipulations of the laws.”

Those articles from Articles 7 to Articles 18 of this Regulation define clearly the issues related to socio-economic activities, tourism, aquaculture and fishing, waterway traffic, petrol and oil transportation and trading, cultural activities, public amusement and entertainment, filming and advertising, investment and construction activities, scientific research international

cooperation, residence and temporary residence registration in Ha Long Bay. It can be said that the aforementioned Regulation defines the activities that pose risks to Ha Long Bay, enabling organizations and individuals to supervise and protect the heritage values.

3.5.10. Regulations on management of tourism activities in the bays of Cat Ba Archipelago

Referring to the Decision No. 26/2020/QĐ-UBND dated October 2nd, 2020 of Hai Phong City People's Committee on promulgating the Regulation on tourism activities in the bays of Cat Ba Archipelago, Cat Hai District, Hai Phong City, the Article 6 stipulates that:

“Article 6. Prohibited acts

- 1. Prohibited acts are as per the Article 9 of the Law on Tourism.*
- 2. Introducing, disseminating wrong information about Vietnam cultural and historical values. Photographing, recording video at military and defence areas.*
- 3. Anchoring boats and vessels at the protected areas for coral.*
- 4. Advertising, buying, selling, and processing food derived from forest and marine organisms that are prohibited from hunting; hunting, fishing, killing, transporting, buying and selling, exploiting, vendoring parts, processed items, products that originate from endemic, rare species, threatened species listed in Vietnam Red Book and those of the world. Advertising incorrect quality, type and class of inland waterway transport means, overnight-staying boats, and other tourism services offered in the bays of Cat Ba Archipelago.*
- 5. Organizing tourism activities in the events of thunderstorms, typhoons or unusual weather (except for some tourism activities held in-door without any impacts by the weather) or in the conditions that competent agencies do not allow to do.*
- 6. Other prohibited acts are as per relevant stipulations of laws.”*

From Article 4 to Article 23 of this Regulation define clearly the issues of tourism service trading, environmental protection, management of inland waterway transport means, food catering services, shopping, sports, entertainment and related services in the bay of Cat Ba Archipelago. Presumably, the Regulation strictly governs those activities that may pose any threats to the bays and it enables organizations, individuals, and local communities to supervise and protect the heritage values.

Chapter 4

FACTORS AFFECTING HA LONG BAY - CAT BA ARCHIPELAGO

4.1. Development pressures

Both Quang Ninh and Hai Phong provinces have made great efforts to protect the values of Ha Long Bay - Cat Ba Archipelago. However, both Ha Long Bay and Cat Ba Archipelago are exposed to the issues that should be addressed as follows: development pressure, aquaculture exploitation and pollution in water body.

Socio-economic development pressure, environmental pollution and natural disasters has posed threats to the biodiversity in a various degree, which is illustrated with degradation in the ecosystems, especially coral, mangrove forest, seaweed, and marine embayment and lakes. Particularly, it is a decrease in distribution areas and density, productivity and biomass, and size of individual as well as gradual lack of ecosystem functions. Mangrove forest, coral reef, seaweed and embayment act as a shelter, and breeding ground for fish, which maintains the productivity of nearshore fishing. These degraded ecosystems have affected both coastal and offshore fishing industry. Overexploitation has deprived of a shelter for fish, causing pollution and reducing the fishing productivity of many economic species significantly. Some have increased in quantity but their quality become worse.

The following factors which have impacts on Ha Long Bay - Cat Ba Archipelago are identified in order to recognize the threats posed to the outstanding universal value as well as the integrity of the property, and measures can be taken accordingly to effectively protect it and prevent any adverse impacts.

Narrowing the area of mangrove forests due to conversion of land use purposes: In the coming years, Cat Hai District strives to maintain the population growth rate below 1%/year, but the physical rate is expected higher than the previous years. The population on the island increases, leading to an increasing demand for residential and farming land, as well as wood materials to build more houses, or use them as fuel. Meanwhile, the residential land and reserved land is limited, and the remaining land has been already used for cultivating land and forest land. The conversion of agricultural fields to residential land will make it difficult for famers, and if the forest land is converted into residential land, it may be difficult for conducting conservation activities. Therefore, it is necessary to have appropriate solutions to reduce the pressures of increasing population on the forest resources and land use.

Increasing population pressure: According to the 2020 census, the island's population is 32,350 people, of which those in the agricultural sector account for 5.7%, and the remaining 94.3% are those who work in the fields of aquaproduct raising and exploitation, tourism services, salt farming or forest product exploitation. If additional employment opportunities are not created, it will step up a demand for exploiting the forest and marine resources, making it difficult to manage and control. Challenges in unbalanced employment structure - preferred exploitation of the natural resources will lead to overexploit the biodiversity of the region of Cat Ba. Furthermore, increasing population and limitations in alternative employment structure is one of the main causes of overexploiting seafood products. For the time being, farming in floating cages occupies a large area from Ben Beo to Cat Dua, and in some closed lake. Totally 436 units have farmed in floating cages in the bays, of which there are 127 units in Lan Ha, 266 in Ben Beo, and 43 units in Cat Ba bay. The study results show that in areas of high cage density nutrient salt concentration is often on an increase and DO is at low level, which is certainly the main cause of organic pollution and algae bloom, including toxic algae. Therefore, marine and floating farming needs to be properly planned so as not to violate the core zone of Cat Ba National Park.

In Ha Long Bay, although there are no people living in the bay, it is directly affected by residents of Ha Long City. In the previous years, sea reclamation projects for the construction of new urban areas put considerable pressures on the ecological environment of Ha Long Bay, such as narrowing the tidal flats, shrinking mangrove forests.

Some pressures from illegal hunting and exploiting: Hunting of wildlife by hanging traps, nets, or guns still exists in a number of villages. During 2005-2020, tourism development will lead to the opening of more restaurants to serve seafood and specialties from forests, putting a pressure on protection and conservation of wildlife and marine rare species. Areas at a high risk of exploiting the forest resources include Viet Hai commune (located in the national park boundary), Gia Luan (where some people are hunters), Hai Son village (in Tran Chau commune), and Cat Ba town (where there is high population density). In addition, the other areas on the island are also in a threat of forest resources exploitation. Therefore, in the next coming years, management and protection of forest resources should be combined with communication and education as well as improvement of the people's life in order to minimize the pressure on the forests in the area.

Unplanned aquaculture: Floating fish cage culture and snout otter clam farming (*Lutraria rhychaena*) are potential sources of organic pollution which has an impact on the marine water environment and living organisms in the region. The main reason is that the farming has developed spontaneously with a growing number of cages in an unplanned manner and unreasonable arrangement, leading to an outbreak of fish diseases that infect other marine organisms. As clam farming requires a large volume of coral sand used as a growing medium, exploited sandy beaches and coral reefs have suffered a loss of the natural landscape as well as the coral reef ecosystem of Cat Ba as a result. This farming also affect the bay bottom structure and endemic caused by dead clams will pollute seriously the environment of this area. Apart from the clam and floating cage farming, there is a form of aquaculture in swamps and lakes (shrimps, fishes, etc.), which is another source of pollution to the living environment. Because of a switch from extensive to intensive farming, most households deliberately divide and allocate swamp and ponds without complying with the masterplans. As the irrigation system becomes worse, the water in shrimp ponds is contaminated and polluted, as a result, the farmers can no longer use them to raise shrimp. Aquaculture is a major economic sector in Cat Ba, contributing significantly to the local GDP. If no appropriate farming techniques are introduced and applied, the practice may lead to far-reaching environmental consequences.

Fishery logistics and services: One localized problem is that the use of Cat Ba Bay as the harbour and anchorage for fishing boats as the port for passenger boats may result in present and future environmental pollution in the Cat Ba Bay. Every day, there are hundreds of passenger ships and fishing boats anchoring in the bay, discharging waste, sewage, and leaked oil into the bay, which creates a local pollution to Cat Ba Bay. The number of boats has an increasing tendency, posing a potential threat of pollution which need to be planned and addressed with.

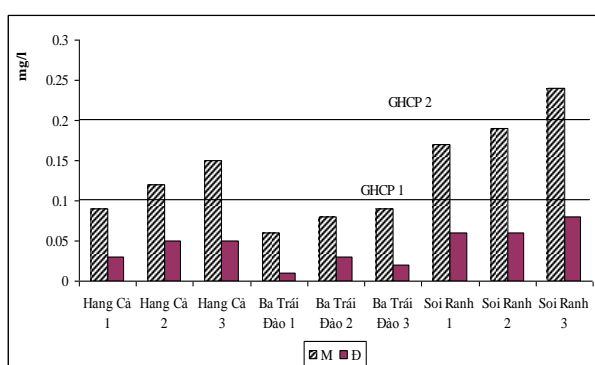
Overexploitation and destructive fishing: One of the most pressing issues is the overexploitation in coastal waters including the areas around islands. The pressure of increasing population, demand for livelihood, and the attractiveness of seafood exports have led to an increasing density of fishing boats and equipment in these near-shore coastal waters, mostly smaller boats that cannot fish farther offshore. Overexploitation happens to the species that have high commercial values, leading to a decline in quantity and biodiversity levels, and putting some of species in the threat of extinction. Some seafood species of

especially high economic values such as lobster, rockfish, and oyster are in a threat of depletion. This also occurs to the species living on the tidal flats used as food specialties, such as oyster on Cua Cai tidal flat, snout otter clam in Van Boi. In these areas, the wild species are increasingly reduced. Although the local authorities and research organizations are seeking solutions to restore these valuable resources, the results have, to-date, been below expectations.

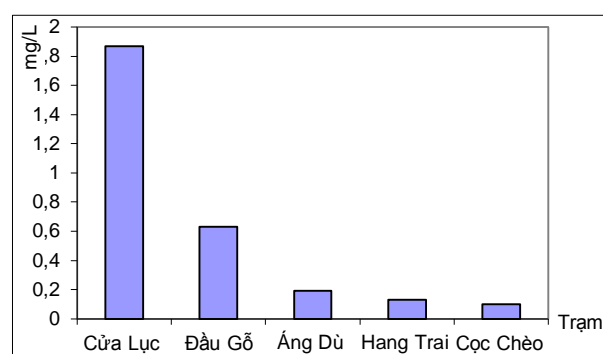
4.2. Environmental pressures

The risk of environmental pollution: Ha Long Bay- Cat Ba Archipelago waters are relatively closed and calm, and pollutants rather difficult to disperse. Accordingly, levels of pollutant accumulation in sediments and organisms are relatively high. Oil pollution is really a serious problem in the waters surrounding islands. Oil concentration tends to rise in the area near the boat harbours. Research results show that in the rainy season, oil concentration ranges from 0.15 to 0.32 mg /l, about 0.25 mg/l on the average (Chart 7, 8).

In the dry season, the oil concentration is higher than in the rainy season, ranging from 0.15 to 0.70 mg/l, and 0.32 mg/l on the average. Offshore Cat Ba areas, oil and grease concentration in water stays at 2.23 mg/l on the average, and the concentrations in the surface layer are higher than the bottom layer. Survey conducted in March, 2012 shows that the oil concentration of water in the surveyed sites ranges from 0.01 to 0.24 mg/l, in which the average level in the surface layer is 0.13 mg/l, and 0.04 mg/l in the average bottom layer. Of which, 27% (4/15 samples) of the samples exceed the allowable permits by 0.1 mg/l of oil concentrations (in the water near beaches) and there is one sample containing the oil concentrations rises beyond the allowable permits by 0.2 mg/l (for other purposes). Oil concentrations is much higher in Ha Long Bay than in Cat Ba.



Cat Ba Archipelago



Ha Long Bay

Chart 7, 8. Oil content in the marine waters of Ha Long Bay - Cat Ba Archipelago

Generally, the surrounding waters are not polluted by organic and solid wastes. But in observed sites near the residential areas and tourism zones such as Cat Ba Bay, organic pollution and solid wastes have been found, including plastic bags, domestic wastes, bottles, cans, etc., although garbage collection is regularly carried out. As a result nutrient concentrations are locally high. Eutrophication related to excessive nutrients such as phosphorus, nitrogen, organic matter arising from waste, agriculture, especially the food industry and aquaculture is a potential risk. Excessive and unplanned floating cage farming may cause infectious diseases and red tides of toxic algae. Pollution of noise, heat and light is also present in some caves where tourists are received.

In order to assess the water quality in Lan Ha area and the impact on the area's aquatic life, the environmental risk quotient (RQ) has been used, being the ratio between values of measured parameters and allowable limit values according to the quality standards applied to aquaculture in Viet Nam and, where Viet Nam does not have such standards as per the standards of the ASEAN-Canadian Cooperation Program on marine science. Below, the status of marine environment in the region is presented. Risk quotient ratios (RQ) of the environmental parameters in the region of Lan Ha Bay are illustrated through the following:

- Salt nutrients: in the dry season RQ coefficient = 0.53, in the rainy season RQ = 0.55, and the entire year RQ = 0.55 < 0.75, thus the water environment is safe in terms of total nutrient load. However, RQ of nitrite is more than 1, so organisms are affected adversely by nitrite.

- RQ of oil concentration in Cat Ba area is rather high, RQ = 1.85 > 1, thus water environment is hazardous to organisms because of oil contamination, in which the dry season are 1.5 times higher than the rainy season.

- For heavy metals (Cu, Pb, Zn and Fe), the average RQ equals 0.91 > 0.75, so the regional environment may be polluted by these metals as well, which then impacts on the life of the organisms.

The risk of water turbidity: Surrounding waters, especially in the southeast of Cat Ba and Ha Long Bay is turbid, shallow and muddy on the bottom, which is a major risk seriously impacting the biodiversity. Average annual TSS (Total Suspended Solids) concentration on 72% of analyzed samples exceeds the allowable limits as per Viet Nam standards for water on coral reefs. In this area, the concentration of TSS is measured at 45 milligrams/litre in the surface layer and 50 mg/l in the bottom layer. Deposition rate of sediment is also

determined about 170 – 315 mg/cm² per day. In Ha Long Bay, about 72% of the samples analyzed exceeded the permitted thresholds for coral reef waters (> 10mg/l) and over 60% of the samples exceeded thresholds with beach water. High water turbidity in water leads to dirty water, killing corals, and reducing the primary productivity of phytoplankton due to restricted photosynthesis.

4.3. Natural disasters and risk preparedness

The ecology and natural environment in Ha Long Bay - Cat Ba Archipelago are in a relatively stable state. However, coastal hazards due to climate change are on an increase, leading to severe consequences for the economy, livelihood, environment, and biodiversity. These hazards include gradual or extraordinary changes such as sea level rise, storms, hurricanes, heavy rain, erosion, and sediment. In Ha Long Bay - Cat Ba Archipelago, erosion and sedimentation is not as serious as in other places, but it has negative consequences for the biodiversity such as turbidity. Most of the factors arise in-situ, but there are some that have an impact from afar, for example, Hoa Binh Dam, Cat Hai Channel or from global events that cross over the territorial boundaries such as global warming, sea level rise, or the El-Nino phenomenon lasting from 1997 to 1998. During the 1997-1998 El-Nino, coral bleaching occurred in Cat Ba and Long Chau area, probably due to high temperature, turbidity, freshwater and environmental pollution. Because of the area's foggy weather, and because of the many limestone islands, complex channels, and presence of ports nearby with a high density of vessels, Ha Long Bay - Cat Ba Archipelago is a place where a large number of vessel collisions happened, often causing oil and chemical spills. In fact, there were a number of vessel collisions or capsized, for example, the case of My Dinh Ship which capsized in late 2004.

Measures to prevent natural disasters are of a major concern to the central government and local authorities in Viet Nam. Disaster Prevention Committee has been established from the central to grassroots levels. Equipment and facilities are always ready for emergency. Dyke protection teams have been set up and ready when the problems occur. The Rescue and Search Committee is ready to support them in rescue operations, and dealing with oil spills at sea. Response preparedness for climate change of Viet Nam is being built up for each province and city. And rescuers of Cat Ba are annually trained.

4.4. Tourism pressures

The statistics also indicate that every year Cat Ba Islands receives many people to go sight-seeing and study. The main tourism activities are mountain climbing, kayaking, sight-seeing, studying, or tour around Lan Ha Bay. The

number of visitors was only 115,000 people coming to the island in 2000, but in 2005, it rose to 435,000 and now it is 1,203,000 arrivals (2011), in 2019 is approximately 2 million arrivals, is estimated 1,451,150 arrivals in 2020.

The number of tourists in Ha Long Bay is much higher with 3,500,000 arrivals in 2019 and 1,413,440 arrivals in 2020. According to the Decision No.4088/2015/QĐ-UBND dated 21/12/2015 by the People's Committee of Quang Ninh Province promulgating the Regulation on management of cruise ships operating on Ha Long Bay, Ha Long Bay has 5 tourist routes through 28 places, including:

- **Route 1:** Bai Chay Tourist Port - Van Canh Park: Thien Cung - Dau Go - Dinh Huong - Trong Mai

- **Route 2:** Bai Chay Tourist Port - Caves Park: Soi Sim, Ti top - Sung Sot- Me Cung - Bo Nau - Luon - Trong - Trinh Nu - Dong Tien.

- **Route 3:** Bai Chay Tourist Boat Port - Marine Cultural Conservation Centre - Cua Van Floating Cultural Centre - Tien Ong - Ba Ham Lake - Ba Men Temple - Ang Du.

- **Route 4:** Bai Chay Tourist Port - Marine Entertainment Centre - Co Cave - Thay Cave - Cong Do - Cap La - Vong Vieng - Tung Ang - Cong Do Ecozone - Hon Xep Park.

- **Route 5:** Bai Chay Tourist Port - Gia Luan, Cat Ba - Hai Phong : Cho Da - Ba Hang Cave - Dinh Huong, Trong Mai (Ga Choi), Gia Luan - Tuan Chau.

According to the statistics of the Management Board of Ha Long Bay, in 2020, Ha Long Bay has 490 active cruise ships, including passenger ships and overnight boats, kayaks and rowing boats. The quality of boats is increasing to meet the needs of visiting Ha Long Bay by domestic and foreign tourists. The number of boats transporting tourists has increased sharply in recent years. Annually, vessels are classified according to the Regulation on management of cruise ships' activities in Ha Long Bay, issued under the Decision No. 4117/2005/QĐ-UBND dated November 3, 2005 by the People's Committee of Quang Ninh province. The number of standard and high-quality tourist ships (2 star, 3 star) increased rapidly. The environmental protection of Ha Long Bay for tourism boats is well focused. All cruise ships operating in the Bay have sewage and waste collection equipment as required. Bai Chay Tourist Port has built and guided the ships to implement regulations on environmental protection in the port area, arranged for cruise ship owners to sign contracts for anchoring, picking up and dropping passengers, which stipulated the responsibility to

ensure the hygiene of Ha Long Bay during the journey to visit the bay, issued diary book for monitoring environmental sanitation for cruise ships. At the end of the ship's journey, the crew hand over the waste to the port and this must be signed by the port's sanitation personnel. Garbage at the port is collected at the place specified and contract with INDEVCO company to be transported to the processing place. However, the community awareness about protecting the ecological environment of Ha Long Bay is still limited, there are still tourists or crew members throwing waste into the sea, and no ships collect wastewater of ships themselves. Besides, there is a lack of modern equipment in waste treatment, waste treatment location is not suitable.

The number of visitors may continue to increase in the coming years in the case of Ha Long Bay - Cat Ba Archipelago is recognized as World Natural Heritage. This is the opportunity to further promote the images of the most beautiful islands in Viet Nam in the eyes of friends around the world. An increase in the number of tourists will lead to the increase in other service industries, as well as more jobs for the local people.

The tourism capacity of Cat Ba has so far made significant achievements. In 2011, there were 148 tourist accommodation establishments in the district, of which 24 establishments were from 1 to 3 stars. In April 2019, Cat Ba area has a total of 226 accommodation establishments, with 4,340 rooms and 8,190 beds; of which 36 tourist accommodation establishments have been assessed and classified and rated (4 stars: 01 establishment, 3 stars: 02 establishments, 2 stars: 13 establishments, 1 star: 20 establishments); The total number of tourist transport vehicles in the area is 240 (cars and 115 electric cars; 125 tourist boats, of which: 64 high quality 3 star standard cruise ships, serving guests staying overnight on the bay, 61 sightseeing cruise ships). In addition, there are about 500 kayaks serving tourists explore the bays in Cat Ba. The total number of employees working in the tourism industry is over 5,000 people, capable of serving more than 3 million visitors. The total number of employees in the tourism industry is over 3,000, capable of serving 3 million visitors.

According to the statistics, Ha Long city has thousands of hotels and many small accommodation units. Big hotels open their own restaurants to serve tourist. With the present capacity, Ha Long can receive and accommodate about 3 - 5 million arrivals each year. Because of profit and the curiosity of visitors, local people could hunt birds, rare animals for sale, souvenirs, or took visitors to encroach protected area. In addition to these issues, the expansion of tourism in

Ha Long Bay - Cat Ba Archipelago also means promoting increased traffic and social services in the protected area. This is a real pressure as all these issues will affect the tranquillity and stability needed for birds and wildlife. Therefore, in the coming time, the Management Board of Cat Ba Archipelago, and Ha Long Bay should work closely with local levels and agencies to manage and protect forest resources and other resources in the nominated property. Ecotourism activities such as scuba diving, bay sightseeing, if not well managed will affect coral reefs, tidal creatures, etc. The high concentration of tourists can cause organic pollution, pollution of domestic waste, especially solid waste such as nylon bags, plastic discharged directly into the sea will pollute the environment.

The below table shows the factors having impacts on the nominated property (Table 2).

Table 2. Main factors of environmental degradation impacting the fauna and flora

No.	Factors of environmental degradation	Forecasted impacts
1	Land use conversion	Reducing mangrove forests, sandy beaches, tropical forests
2	Increasing population	Causing environment pollution, increasing exploitation of forest and marine resources
3	Impacts from illegal hunting and exploitation	Impacting the biodiversity
4	Unplanned aquaculture	Causing environment pollution, destroying habitats
5	Fishery logistics and services	Causing oil pollution in water
6	Unplanned aquaculture	Impacting biodiversity, esp. rare species
7	Risks of destructive and overexploitation fishing	Reducing biodiversity, esp. breeding and variety sources
8	Environment pollution risks	Causing oil pollution, deteriorating environment
9	Fishery logistics and services	Impacting mainly coral reefs

4.5. Pressures from inhabitants living in the core and buffer zones

According to the 2020 census, the total population of Cat Ba Archipelago is 32,350 people living in the area, of which the number of people in the

agricultural sector is 9,265 accounting for 5.7% of total island population, and the remaining 94.3% in aquaculture, tourism services, salt farming and forestry production. The inhabitants who live inside the boundary of the nominated property are calculated to be 210 persons in an area of 33,670 ha. The persons in the nominated property belongs to Viet Hai Commune, which is an old commune in Cat Ba Island. Due to living in the wild area over many generations, they are very friendly with the environment and have the awareness to protect it. People in the buffer zone are 6,209 persons on 13,000 ha.

In Ha Long, the population is 330,839 people in 2020, with 93,098 households, having the average density is 874 person per km², of which 1,672 people living in 03 residential areas in the heritage site, including:

- Ba Hang residential area: there are 02 clusters: Ba Hang and Hoa Cuong.
- Cua Van residential area has 03 clusters: Bo Nau - Sung Sot, Cua Van, Cong Tau.
- Vong Vieng residential area has 4 points: Vong Vieng, Cap La, Cong Dam, Van Gio.

To date, all households have been resettled on the mainland, no longer living on the bay. But the possible returning to the old places on the Bay may happen in the future. Therefore, there should be a plan for stabilizing the livelihoods and avoiding environmental pollution for these people.

Chapter 5

PROPOSED TARGETS AND POLICIES FOR THE MANAGEMENT AND PROTECTION OF THE PROPERTY FROM THE IMPACTING FACTORS

5.1. Management of development pressures

- Planning the aquaproduct raising areas in a suitable manner without affecting the ecology and environment, tourism routes and destinations, waterway channel as well as national security and defence;
- Managing, supervising enterprises, households to whom sea surface is allocated in order to raise aquaproducts in the bays, ensuring to comply with the plans and decisions on sea surface allocation for aquaproduct raising;
- Planning prohibited areas of fishing sea organisms;
- Preparing a comprehensive plan for operating tourism services in the property, in which it defines clearly locations, service areas, types of service, facilities needed to be invested in or supplement, management models, service pricing, etc,;
- Conducting check and control of markets, handling violations against regulation on price quoting, quality of tourism services as well as those committed by organizations, individuals who performs business activities in the bays, which affect the business environment within the property.

5.2. Management of environmental pressures

- Organizing the collection and transportation ashore 100 percentage of wastes at the attractions, accommodations and in the bay.
- Monitoring 100 percentage of the waste volume discharged by tourist vessels that must be taken ashore for treatment;
- Issuing local environmental norms for domestic and industrial wastewater in accordance with EU standards, as well as regulations on management of sea encroachment and waste disposal activities;
- Providing regulations on management of sea encroachment activities, waste dumping activities;
- Guiding, supervising the installation of domestic wastewater treatment equipment in cruise ships;
- Monitoring water environment periodically 04 times/year;
- Establishing environmental norms on domestic and industrial waste water in compliance with the EU standards;

- Renovating and upgrading the wastewater treatment system of Ha Long city and Cat Ba island;
- Organizing environmental protection programs and movements in socio-political agencies, organizations, pupils, students, armed forces and enterprises in Ha Long city, and Cat Hai district; doing environmental cleaning under such programs as "Green Sunday", "Saturday volunteering";
- Implementing the solutions outlined in the annual climate change response plan in respective of the heritage values protection;
- Establishing coastal protection corridors in accordance with the Law on Marine and Island Environment Resources in order to conserve ecosystems, maintain service values of ecosystems and natural landscapes in coastal zones, minimize coastal erosion, and respond to climate change, and sea level rise.

5.3. Management of natural disasters

- Developing a plan for prevention from natural disaster, fire and explosion, search and rescue to ensure safety for tourists, including plans in response to a number of common natural disasters, accidents, including mobilizing forces and means in response to natural disasters and accidents.
- Organizing training and drills for a number of specific accident situations to improve the capacity and professionalism of the rescue force and assigning specific tasks to relevant units and individuals;
- Reviewing and supplementing means and equipment in service of prevention and control from natural disaster, fire and explosion, search and rescue etc. to serve warnings and information;
- Strengthening the natural disaster prevention steering agency and assigning specific responsibilities to each member;
- Regularly inspecting and testing the fire prevention and fighting plan on site for cruise ships so as to help improve the initiative, sense of responsibility and professional skills in handling accidents at sea;
- Promoting and disseminating information to organizations, individuals and fishermen's relatives so as to strictly observe the regulations on fire prevention and fighting, forest fire prevention, regulations on the management of weapons, explosives and fire, using fire to hunt animals, burning votive, burning trash in areas near the foot of the mountain causing forest fires;
- Promptly detecting and rectifying shortcomings and deficiency in the fire prevention and fighting and take timely remedy measures.

5.4. Management of tourism pressures

5.4.1. Management of tourism activities

- Promoting and raising the awareness of organizations and individuals who are doing business and providing services in the bay about the observation of regulations on commercial civilization, food hygiene and safety;
- Promoting and raising the awareness of vehicle owners, captains, crew members and people working on cruise ships about the implementation of regulations applicable to cruise ships and inland waterway traffic;
- Promoting and raising the awareness of organizations, business individuals, people of all classes, and tourists about protecting and behaving in a friendly manner towards the heritage;
- Upgrading the Global Positioning System (GPS) and Geographic Information System (GIS) so as to monitor and manage cruise ship operations and socio-economic activities in the heritage area;
- Providing a set of standard documents for tour guides who will disseminate information and guidelines at the heritage site;
- Developing educational programs about the heritage area in high schools;
- Investing in an automatic narration system at tourist attractions, and tourist boats staying overnight on the bays;
- Designing tours to connect routes and tourist attractions in the heritage area with other tourist destinations in Quang Ninh province, Hai Phong city and neighbouring provinces (Ha Noi - Nam Dinh - Ninh Binh).

5.4.2. Management of tourism ships, ports and wharfs

- Preparing a plan to improve the quality and management of cruise fleets operating on the bay, in which a specific roadmap is developed to gradually reduce the number of cruise ships and accommodation vessel on the bay to minimize the impact on ecology and marine environment;
- Formulating ship designs to ensure aesthetics, high technical safety and effective exploitation; proposing a process and criteria for prioritizing the selection of new cruise ships construction that must be modern, beautiful designs, suitable to the bay landscape, ensure higher standards of technical safety, aesthetics, environmental protection, fire prevention and other basic service conditions in conform of international standards;
- Checking, reviewing and installing additional equipment for fire prevention and fighting, rescue, rules, signs, buoys, signal buoys, loudspeaker

systems; signs, boards, signal buoys for inland waterways must be synchronous, modern at the ports, the tourist wharf and destination ports on the mainland.

5.5. Management of population pressures

The targets of this management is aimed at ensuring the population development under control, population increase within the limits of carrying capacity of both natural and social environments of the property, thus the natural and cultural values of the property is protected sustainably. Accordingly, it is necessary to implement specific policies as follows:

- Introducing a regulation about labour and population movement, especially immigration into Cat Ba Archipelago; about control and restriction of free labourers, specifically mobile labour force operating on the marine surface; allowing labourers to work upon the consent of the competent authorities;
- Restructuring the employment and labour force through policies relating to labour, employment, and income; encouraging to expand businesses relating to the ecology, reducing businesses of exploiting the natural resources or posing a risks to the environment;
- Reallocating the population in the areas sensitive to environment and move them into other areas through making physical benefit stimulus policies, creating more jobs and incomes;
- Signing an agreement with the inhabitants on the management and protection of the property.

5.6. Some general measures of management and protection

5.6.1. Enhancing the state management

In doing it well, the management boards, who play a main role of protection and direct management of the property, shall act on behalf of the People's Committees of Quang Ninh Province and Hai Phong City to manage, conserve and develop the heritage values, working as a coordinating focus on and supervising the implementation of related activities within the property. The Boards shall take the main responsibility and coordinate with relevant departments and agencies at the central and local levels in carrying out assigned tasks.

5.6.2. Completing the legal system and regulations on the heritage management

The Central Government and Quang Ninh province, Hai Phong city have issued many legal documents on heritage management and conservation. In the coming time, aiming at sustainably protecting the outstanding universal value and integrity of the nominated property Ha Long Bay - Cat Ba Archipelago, it is

necessary to add stipulations and regulations on conservation and development of rare and precious animal and plant species, aquaculture and fisheries, environment, tourism services, animal husbandry, forest protection and development, etc. Accordingly, the property managing agencies of Hai Phong City shall prepare and submit to Hai Phong City People's Committee a regulation on management, protection and promotion of Cat Ba Archipelago in consultation with the regulation on management, protection and promotion of the World Natural Heritage Ha Long Bay passed by Quang Ninh Province People's Committee under the Decision No. 06/2019/QĐ-UBND dated January 29th, 2019.

5.6.3. Planning economic activities in an agreement with the protection of the outstanding universal value of the property

Legal documents on strict protection of the world heritage site must be absolutely observed. Thereby, aquaproduct raising in Lan Ha Bay should be continued to reduce and streamline. Tourism service facilities shall be planned in an appropriate manner without affecting the heritage values. The quantity of boats and ships, tourism wharfs and fishing boats also need to be planned suitably. Forest planting, husbandry, aquaproduct raising in the buffer zones shall be conducted in a way that they have little impact on the ecological environment.

5.6.4. Conducting tourism services and ecotourism

It is necessary to conduct tourism services in the property in order to support the conservation work, and stimulate tourism development in the transitional areas as per the plans. Tourism development does not always go together with the conservation but it supports conserving in the most effective way and bring economic benefits to local communities. Equal benefit sharing shall help conserve and promote the property sustainably. However, it is very important to select right tourism forms which do no harm to the living environment. The number of tourist arrivals should be considered and calculated in an agreement with the carrying capacity of the property.

5.6.5. Encouraging participation of the rural areas in making action plans

It is of vital important to encourage and mobilize local inhabitants, particularly those living in rural areas to participating in protecting and developing the ecological resources. The role and benefits of conservation should be promoted and learnt by the local communities. Working teams are founded to identify needs and issues related to the locals, based on which action

plans shall be made for each village/commune, helping them gathering resources and funding the economic development, satisfying the needs of the inhabitants and consequently reducing the pressures on using resources in the areas where they are living. Among these action plans, Cat Ba Langur Conservation Project needs to be maintained and expanded to various villages in the key areas of the property.

5.6.6. Preparing resettlement and job training programs

Some people who have resided in the key areas like Viet Hai village, and Hai Son hamlet, Tran Chau commune that own high biodiversity values, shall be planned to resettle in the new residential areas, switch their jobs and change household's economic activities. It will help improving their livelihood. This process takes place as planned when local people, the management, international experts of Cat Ba Langur Conservation Projects and other rare species protection activities are involved and cooperated concertedly. Similarly, fishing villages in Ha Long Bay need to be put under more control and prevented from resettling in the bay.

5.6.7. Delivering conservation education

Education about environmental protection, conservation, and development shall be focused and conducted in the schools located within the property. It targets at raising the awareness of the locals about the geological, morphological and biological diversification of the property. Shared benefits, defined rights and obligations help reducing the human pressures on the key areas, especially the core zone of the property.

5.6.8. Training staff at the heritage site

Training is provided for the research and management staff in the property in order to raise their awareness, enhance their skills and knowledge about the property. Local labourers are prioritized to be recruited and trained on site. The labourers who work directly in the property shall act as a link to the promotion and education activities. Some major subjects need to be focused including geology, biology, planning management, environment management, tourist guiding, research and community development.

5.6.9. Expanding economic activities in adjacent areas to stabilize the livelihoods of local people

It is necessary to create a variety of employments such as offshore fishing, or aquaculture outside the nominated property. Special attention should be paid to raising the capacity of ecotourism activities for neighbouring communities in such as Do Son and Bai Tu Long. It is likely to train them to do extra handicraft

jobs so as to generate more incomes. Tourism development in the adjacent areas will minimize the negative impact of tourism on Ha Long Bay - Cat Ba Archipelago.

5.6.10. Strengthening scientific research activities

Environmental monitoring activities, and restoration of ecological values should be regularly implemented. National and international scientific and non-governmental organizations will support these activities.

National scientific research institutions who participate in scientific research include Institute of Marine Resources and Environment, National Marine Environmental Monitoring Station, Research Institute of Marine Fishes, Institute of Ecology and Biological Resources, University of Science, etc.

Relevant international agencies and experts shall be involved in the study of heritage values, including international organizations such as WWF, IUCN, UNESCO, agencies from countries such as the United States, France, the Netherlands, Canada, Germany, Britain, China, Russia, Poland, and other ASEAN countries.

5.6.11. Tightening the management of investment in the property

State management agencies who base on the locations whose property belong to their competency actively coordinate in managing investment programs and projects in accordance with the provisions of Vietnamese laws and the World Heritage Convention.

5.6.12. Raising people's awareness of heritage protection

In bringing the legal provisions into practice, mobilizing each citizen to work side by side with state management agencies in the protection of the heritage, the work of law dissemination and property conservation and promotion to local people is very important and needed to be conducted regularly and continuously.

Chapter 6

MONITORING

6.1. Key indicators for measuring state of conservation

Key indicators have been chosen as the measure of the state of conservation of the whole property. They indicate the periodicity of the review of these indicators and the location where the records are kept. They could be representative of an important aspect of the property and relate as closely as possible to the Statement of Outstanding Universal Value. These indicators include the following:

6.1.1. Conservation status of the integrity of limestone islands, caves, marine lakes, and beaches in the property

Limestone islands, caves, marine lakes, and beaches is one unity which creates the integrity of the property. Protection of the integrity of Limestone islands, caves, marine lakes, and beaches is of importance to assess the protection and conservation status of the property.

The system of limestone islands, caves, marine lakes, and beaches continues to be recorded in dossiers in order to manage and serve sustainable tourism requirements, putting an end to exploitation of rock, sand and organisms in caves, islands and beaches.

6.1.2. Area and coverage of rainforests on limestone mountains and islands

It is a need to monitor area and coverage of rainforests on limestone mountains and islands, especially primitive rainforest left in Cat Ba Island in 1,045.2ha, accounting for 5.80% of the total forest vegetation area.

6.1.3. Area and coverage of mangrove forests

Coastal estuaries offer a favourable environment for mangrove to develop and form forests, which is of typical to the tropical countries. Mangrove forest is a good indicator of coastal environmental changes and impacts on the environment. Communities of seaweed, attaching organisms, sea migratory birds and fish well adapt themselves to this environment.

6.1.4. Changes in rare species

Cat Ba Archipelago is a high biodiversity centre that have 4,910 terrestrial and marine animals and plants, in which up to 198 species are listed in IUCN Red List. The indicator of changes in rare species is focused on Cat Ba Langur that bears global rare value as well as the species recorded in IUCN Red List.

6.1.5. Coral reef

Coral reef is a natural entity living on the sea bottom that have animal origin, in which reef building coral and *Corallinealgae* plays an important role. The reef building coral always require a stable environment with adaptable temperature of 16 - 36⁰C (optimally 25-30⁰C), adaptable salinity of 27-40‰ (optimally 34-36‰), clear and clean water, and hard bottoms. Therefore, the reefs are only distributed in tropical shallow waters, far away from the estuaries that are turbid and less saline. It is an important characteristic and it shows the water quality and biodiversity degree of water body.

So far, there have been identified 247 coral species. Of which, hard coral Scleractinia has 220 species, 13 families, as well as other 11 coral species belonging to organ pipe coral Stolonifera, soft coral Alcyonaria, horn Gorgonacea. Monitoring of the species composition and coverage of coral will provide good data of turbidity, and freshening of water body as well as the sea quality in the property.

6.1.6. Mosaic of attaching organisms on rock tidal flats

Attaching organisms on rock tidal flats are those sea animals that indicate the health of tidal ecosystem. The results obtained in recent years show that the mosaic of attaching organisms on rock tidal flat express the biological abundance and diversification of Ha Long Bay - Cat Ba Archipelago seas. In these mosaics other animals co-live such as crab, crawling snail or other attaching species like rock oyster.

6.1.7. Soft bottom ecosystem

It includes the large part of sea bottom (excluding coral reefs) and the above water. It is the main source of sea products. Important organisms include plankton and bottom animals. These groups are an important indicator of the diversification of soft bottom ecosystem.

6.1.8. Breeding sources

The monitoring of breeding grounds provides indicators of the recovery of resources, and marine biodiversity in the property. The research results about fish eggs and fingerlings in the property show that many breeding fish and marine species are distributed in this area. They defines 2 distinct breeding ground, both located in the Southeast of Cat Ba Island. The former has its coordinates at 20⁰40' N and 107⁰5' E, and the latter at 20⁰32 N and 107⁰15' E.

6.1.9. Quality of water and living environment of the property

Sea water in Ha Long Bay - Cat Ba Archipelago has the characteristic of average salinity, clarity, and bear the common feature of coastal water body.

The water has rich content of nutrient salts in which the nutrient salts increase in the rainy season higher than the dry season. DO is rather high, which is suitable for the development of fauna and flora. However, attention should be paid to some pollutant actors in the sea water of Ha Long Bay - Cat Ba Archipelago such as oil (in the surface layer), and heavy metals (zinc). If these actors cause pollution in the long time, it may impact the growth and development of organisms living in the ecosystems and influence the biodiversity of the entire area.

It is necessary to ensure the water quality in the coastal zones should be within the allowable permit according to the environmental standard of Viet Nam (QCVN10:2008/BTNMT).

6.1.10. Solid wastes

They include domestic and plastic wastes discharged by tourists in the bays. Strict monitoring of solid wastes and plastic wastes (including microplastics) shall help assessing the impacts made by living activities and tourism on the property.

6.1.11. Archaeological relics in the property

All archaeological relics in the property should be absolutely protected as well as put typical sites in scientific records. It is necessary to establish a data system to manage, conserve them and introduce some typical archaeological sites to tourists.

Besides, some other indicators can be used to assess the conservation status of the property, including the number of rock destroying cases, land levelling, exploitation of sand and organisms, the number of infringements to coral reef, the number of illegal hunting and exploiting forestry resources, volume of collected wastes, etc.

Table 3. Indicators of the conservation status

Indicator	Period	Main responsibilities for monitoring
Conservation status of the integrity of limestone islands, caves, marine lakes, and beaches in the property	Annually	<ul style="list-style-type: none"> - Ha Long Bay Management Board - Cat Ba Bays Management Board - Department of Natural Resources and Environment of Quang Ninh Province and Hai Phong City
Area and coverage of rainforests on limestone mountains and islands	Biannually	<ul style="list-style-type: none"> - Ha Long Bay Management Board - Cat Ba National Park Management Board - Cat Ba Bays Management Board

Indicator	Period	Main responsibilities for monitoring
		- Department of Natural Resources and Environment of Quang Ninh Province and Hai Phong City
Area and coverage of mangrove forests	Biannually	- Department of Natural Resources and Environment of Quang Ninh Province and Hai Phong City - Ha Long Bay Management Board - Cat Ba National Park Management Board
Changes in rare species	Biannually	- Ha Long Bay Management Board - Cat Ba National Park Management Board - IMER - Department of Natural Resources and Environment of Quang Ninh Province and Hai Phong City
Changes of Cat Ba Langur population (7 distribution areas)	Biannually	- Cat Ba National Park Management Board - Cat Ba Bays Management Board
Changes of number of coral reef species	Biannually	- Ha Long Bay Management Board - Cat Ba National Park Management Board - Cat Ba Bays Management Board - IMER - Department of Natural Resources and Environment of Quang Ninh Province and Hai Phong City
Mosaic of attaching organisms on rock tidal flats	Biannually	- Ha Long Bay Management Board - Cat Ba National Park Management Board - Cat Ba Bays Management Board - IMER
Soft bottom ecosystem	Biannually	- Ha Long Bay Management Board - Cat Ba National Park Management Board - Cat Ba Bays Management Board - IMER
Breeding sources	Biannually	- Ha Long Bay Management Board - Cat Ba National Park Management

Indicator	Period	Main responsibilities for monitoring
		Board - Cat Ba Bays Management Board - IMER
Quality of water and living environment of the property (seawater temperature, salinity, pH, turbidity, DO, NO ₂ , heavy metals (particularly copper, lead, zinc, mercury), oil in seawater, etc.)	Every six months	- Ha Long Bay Management Board - Cat Ba National Park Management Board - Cat Ba Bays Management Board - IMER - Department of Natural Resources and Environment of Quang Ninh Province and Hai Phong City
Solid wastes	Annually	- Ha Long Bay Management Board - Cat Ba National Park Management Board - Cat Ba Bays Management Board - Department of Natural Resources and Environment of Quang Ninh Province and Hai Phong City
Archaeological relics in the property	Annually	- Ha Long Bay Management Board - Cat Ba National Park Management Board - Department of Culture and Sports of Quang Ninh Province and Hai Phong City - Department of Cultural Heritage
Number of tourist, impacts	Every six months	- Ha Long Bay Management Board - Cat Ba National Park Management Board - Department of Culture and Sports of Quang Ninh Province and Hai Phong City - Department of Cultural Heritage
Population and people's life in the property	Annually	- Ha Long Bay Management Board - Cat Ba National Park Management Board - Department of Culture and Sports of Quang Ninh Province and Hai Phong City - Department of Cultural Heritage
Urban development, construction of	Annually	- Ha Long Bay Management Board - Cat Ba Archipelago Natural Heritage

Indicator	Period	Main responsibilities for monitoring
infrastructure and number of construction projects in the property		Management Board - The People's Committees of Ha Long City and Cat Hai District - Department of Culture and Sports of Quang Ninh Province and Hai Phong City - Department of Cultural Heritage
Number of tourist boats and volume of collected wastes and waste water	Annually	- Ha Long Bay Management Board - Cat Ba Bays Management Board - The People's Committees of Ha Long City and Cat Hai District - Department of Natural Resources and Environment of Quang Ninh Province and Hai Phong City
Population and people's life in the property	Annually	- Ha Long Bay Management Board - Cat Ba National Park Management Board - Department of Culture and Sports of Quang Ninh Province and Hai Phong City - Department of Cultural Heritage
Ecotourism development	Annually	- Ha Long Bay Management Board - Cat Ba Archipelago Natural Heritage Management Board - The People's Committees of Ha Long City and Cat Hai District - Department of Tourism of Quang Ninh Province and Hai Phong City
Active participation of communities in conserving and promoting the heritage values in a sustainable manner	Annually	- Ha Long Bay Management Board - Cat Ba Archipelago Natural Heritage Management Board - The People's Committees of Ha Long City and Cat Hai District - Department of Culture and Sports of Quang Ninh Province and Hai Phong City

6.2. Administrative arrangements for monitoring the property

According to Decree No.109/2017/NĐ-CP dated September 21, 2017 of the Government on the protection and management of world natural and cultural heritage in Viet Nam, relevant legal normative documents and the decisions issued by the People's Committee of Quang Ninh Province and Hai Phong City,

as well as the actual situations of the property management, the administrative arrangements for monitoring the property are decentralized as follows:

- The Government performs the uniform state management of the nominated property.

- Ministry of Culture, Sports and Tourism, a government's agency, is responsible before the Government for exercising the uniform state management of the nominated property.

- Ministry of Agriculture and Rural Development, Ministry of Natural Resources and Environment, Ministry of Construction, Ministry of Planning and Investment within their tasks and competencies take the responsibilities for coordinating with Ministry of Culture, Sports and Tourism in exercising the state management of the nominated property according to the laws.

- National Cultural Heritage Council, and Viet Nam National Committee for UNESCO exercise the uniform state management of the nominated property.

- The agencies that take the responsibilities at the provincial level for Quang Ninh Province include the People's Committee, Department of Culture and Sports, Department of Natural Resources and Environment, Department of Agriculture and Rural Development.

- The agency takes direct responsibility for the management and monitoring of Ha Long Bay is Ha Long Bay Management Board.

- The agencies that take the responsibilities at the provincial level for Hai Phong City include the People's Committee, Department of Culture and Sports, Department of Natural Resources and Environment, Department of Agriculture and Rural Development.

- The agency takes direct responsibility for the management and monitoring of Cat Ba Archipelago include Cat Ba Archipelago Natural Heritage Management Board (Cat Ba National Park, Cat Ba World Biosphere Reserve, and Cat Ba Bay Management Board).

- Communities at the ward level within the property can participate in supervising the management of resources in the areas where they live.

- Organizations that participate in monitoring includes IMER, Viet Nam Institute of Science and Technology, and Institute of Ecology and Biological Resources.

Chapter 7

MANAGEMENT AND PROTECTION OF THE PROPERTY

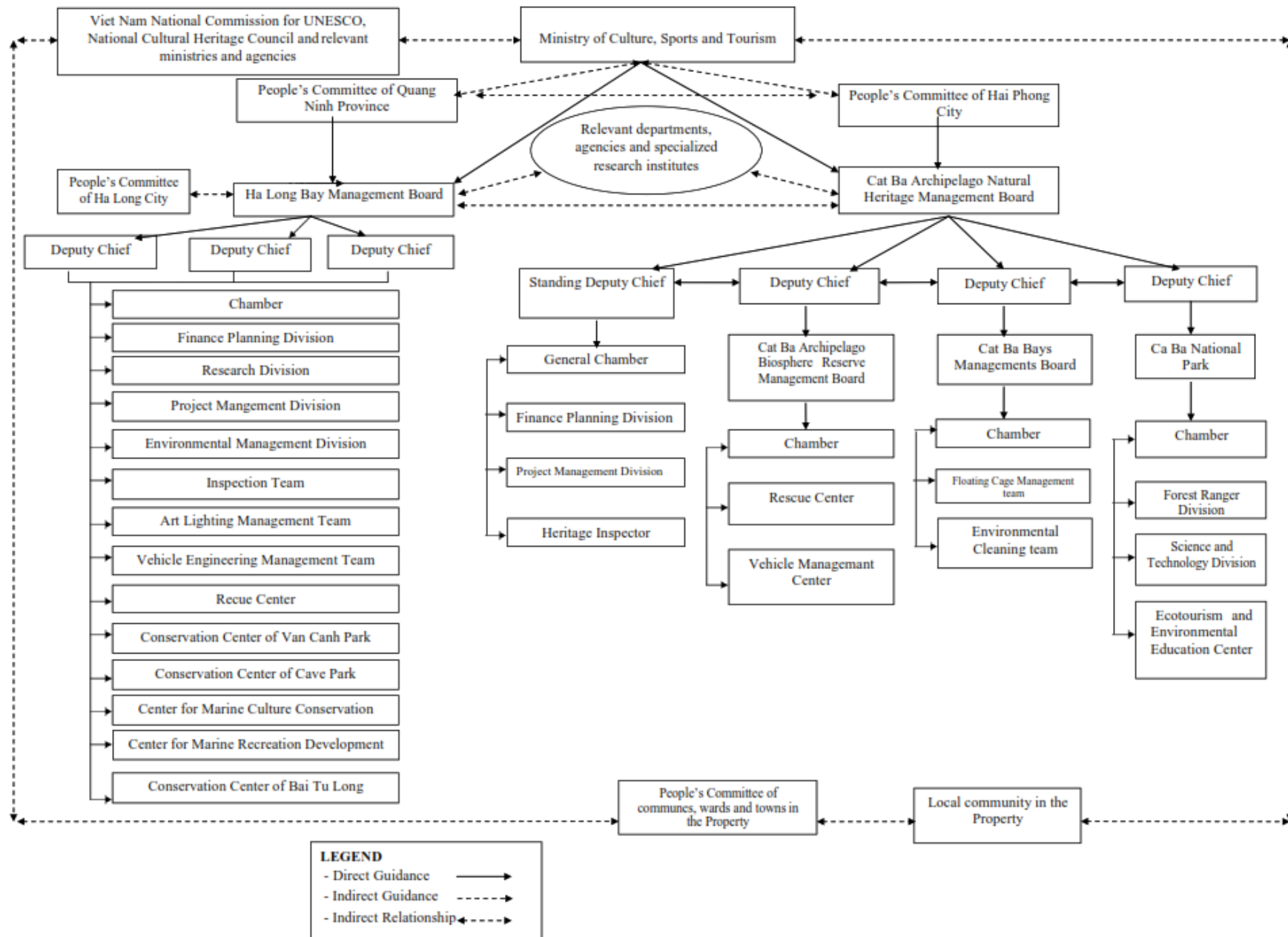
7.1. Management and protection of Ha Long Bay - Cat Ba Archipelago

The management plan of Ha Long Bay - Cat Ba Archipelago aims at enable the state management agencies, local communities and stakeholders including outside partners to participating in sustainably managing, protecting and using the heritage values as well as safeguarding the ecological environment, and biodiversity in order to serve the socio-economic development cause of the localities.

Ha Long Bay - Cat Ba Archipelago is influenced by various factors of which the objects of resources under this management plan relate to relevant departments and agencies, localities and communities. Therefore, it is implemented based on a disciplinary mechanism as well as a general coordinating mechanism so as to harmonize and reduce the conflict of interest among departments, agencies, and communities that exploit and use the heritage values.

An effective heritage management model presented in the Chart 9 is proposed to apply for Ha Long Bay - Cat Ba Archipelago, which is based on the real management situations and the stipulations as per the Decree No.109/2017/NĐ-CP dated September 21, 2017 of the Government on the protection and management of world natural and cultural heritage in Viet Nam, as well as related legal normative documents and decisions by the People's Committees of Quang Ninh Province and Hai Phong City.

Chart 9. Organizational structure of managing and protecting the property Ha Long Bay - Cat Ba Archipelago



7.1.1. Ha Long Bay Management Board

After the Decree No.109/2017/NĐ-CP dated September 21, 2017 of the Government on the protection and management of world natural and cultural heritage in Viet Nam is issued, Quang Ninh Province People's Committee has passed the Decision No.4768/QĐ-UBND dated December 7, 2017 defining the function, responsibility, authority and organizational structure of the Ha Long Bay Management Board of which Article 2 – tasks, authority, and organizational structure is basically applied according to Article 16 of the Decree No. 109/2017/NĐ-CP. Details are as follows:

“1. Setting up and implementing short, medium and long-term world heritage protection and management plans after having been approved by the competent authorities.

2. Conducting periodic monitoring of world heritage conservation status in conformity with the regulations, timely preventing infringement of the heritage and reporting to the competent agencies on the risks of adversely impact on the world heritage.

3. Implementing investment projects on preservation, restoration, conservation and promotion of world heritage values.

4. Organizing or co-organizing propaganda, display, exhibition and introduction about the world heritage; researching, collecting, documenting, storing materials on the heritage and the heritage values in order to serve the work of preservation, restoration, rehabilitation, embellishment; preserving, researching and collecting geological, animal and plant specimens at the world heritage; and mobile displaying and exhibiting outside the World Heritage site; performing, promoting intangible cultural heritage values associated with the world heritage.

5. Applying science and technology into world heritage protection, preservation, restoration and embellishment; conservation of geological, geomorphological and aesthetic values; preserving and developing flora and fauna to keep maintaining the biodiversity value of world heritage; organizing natural disaster prevention and fighting, seek and rescue, collection and treatment of wastes, protection and prevention of harmful agents to the environment and water sources at the world heritage site; helping improving the life of communities; researching and proposing processes and norms of preservation, restoration, and promotion of world heritage values.

6. Reporting and gathering data of historical and cultural values of Ha Long Bay in order to set up programs and presentations about the culture value

of World Natural Heritage to tourists paying visits to the site; organizing or co-organizing tourism services for tourist to pay a visit, research, study or enjoy recreation at the world heritage sites; assessing the impacts of tourism activities on the world heritage and devising solutions to minimizing the impacts on the Outstanding Universal Value of the world heritage.

7. Selling tickets and collecting entrance and service fees; managing and utilizing revenues in conformity with the provisions of law; at the same time, basing on the real situations from time to time to adjust suitable fee scheme in conformity with the provisions of law.

8. Organizing propaganda and promotion to raise awareness and attract participation of the communities in the protection and management of the world heritage.

9. Participating in the management, cooperation and supervision of investment, environmental protection, conservation and development of organisms in the world heritage sites and the coastal zone of the world heritage sites; coordinating with relevant agencies in examining and supervising socio-economic activities in the heritage sites and buffer zones.

10. Coordinating with relevant agencies in examining and submitting to competent agencies for approval socio-economic development plans, projects and programs in the heritage sites and buffer zones in accordance with current regulations; disseminating information, discussions and collecting community's opinions about socio-economic development masterplans, projects and program relating to the world heritage.

11. Conducting international cooperation programs.

12. Preparing periodical and irregular reports in accordance with the regulations.

13. Performing management of organizational structure, staffing, civil workers, officers, and employees in conform with the provisions of law and decentralization authorities; preparing and implementing training plans to enhance professional skills of civil workers, officers, and employees under the administration.

14. Managing finance, assets in conform with the current regulations.

15. Performing other tasks and duties assigned by the Provincial People's Committee in conformity with the regulations.”

The organizational structure and staffing of the Ha Long Bay Management Board is specified as follows:

1. Leadership of the Board:

a) It consists of one chairperson and not more than 3 vice-chair

Chairperson is held concurrently by the Chairperson of Ha Long City People's Committee, who acts as a head of the Ha Long Bay Management Board, taking responsibilities before the Chairperson of the Provincial People's Committee and before the laws for all operations of the Board.

b) Vice-chairs support the Chairperson, being in charge of some working fields that belong to the functions and tasks of the Board and being assigned by the Chairperson. Vice-chairs take responsibilities before the Chairperson and before the laws for their assignments.

c) Appointment, dismissal, sending, rotating at work, building as future leaders, and training of Chairperson and Vicechairs is decided by Quang Ninh Province People's Committee according to the working regulation of the Provincial Party and current stipulations of law on officers' management.

2. Functional divisions and units

Presently, Ha Long Bay Management Board has 10 functional divisions and units, staffed with 286 officers and employees, including:

- Office
- Planning - financial division
- Profession - research division
- Technics, embellishment and restoration division
- Search and Rescue division in Ha Long Bay
- Inspection and violation handling team
- Conservation centre I
- Conservation centre II
- Conservation centre III
- Centre for tourism guiding and operating in Ha Long Bay.

The chairperson of the Board has a duty of defining specifically the functions, tasks and coordinating relationships of functional divisions and units of the Board as well as issuing a working regulation, and responsibilities and rights of the Chairperson and Vicechairs.

7.1.2. Cat Ba Archipelago Natural Heritage Management Board

As per the Decision No.714/QĐ-UBND dated April 1, 2014 by the People's Committee of Hai Phong city on the consolidation of Cat Ba Archipelago Natural Heritage Management Board, it stipulates that Cat Ba Archipelago Natural Heritage Management Board belongs to Hai Phong City People's Committee, has its legal status and an official stamp, and is headed by

a Vice chair of Hai Phong City People's Committee who acts as Chairperson of the Board.

It consists the following organizations under its competence:

- Cat Ba National Park,
- Cat Ba Biosphere Reserve Management Board,
- Cat Ba Bay Management Board.

The task of Cat Ba Archipelago Natural Heritage Management Board is to implement the assignments of managing Cat Ba Biosphere Reserve, Cat Ba National Park and the bays of Cat Ba Archipelago according to the stipulations of Hai Phong City People's Committee, advising Hai Phong City People's Committee to perform tasks related to the preparation of nomination dossier of Cat Ba Archipelago.

7.1.2.1. Cat Ba National Park

Cat Ba National Park is established on March 31st, 1986 as per the Decision No.79/CT by the Ministers Council (presently Government). Over years of development, it has staff of 81 employees, in which the forest ranger unit is staffed with 60, accounting for the majority and 21 in its functional divisions. The Board and local authorities have made great achievement in terms of natural conservation as well as organizing the tourism activities and assisting socio-economic development in the buffer zone.

The functions, responsibilities, rights, and organizational structure of Cat Ba National Park are specified in the Decision No.1876/QĐ-UBND dated July 24, 2017 of the Hai Phong City People's Committee, including taking the functions of conservation and reserves, species-habitat conservation, landscape protection, special-use forests protection and development, preservation and promotion of special nature values, ecosystems, biodiversity, biological genetic resources, historical and cultural relics, scientific research; providing forest environment services, coordinating with local authorities and competent agencies in state management of forest and marine resources of the Cat Ba National Park and Cat Ba Archipelago World Biosphere Reserve.

Responsibilities and rights of Cat Ba National Park include the following:

- + Managing, protecting, conserving and developing natural resources of forests and the sea; natural ecosystems, landscapes and environments of special-use forests and marine areas controlled by the Cat Ba National Park;
- + Scientific research, storage and conservation of endangered, precious, rare, terrestrial and aquatic genetic resources;

- + Admitting organism individuals from sources, providing treatment and rehabilitation for the individuals, release the individuals in the natural habitats; supplying breeds and veterinary services to the organizations and individuals who raise the animals in a sustainable manner in accordance with the law;

- + Organizing propagandas and educating the public about the law on protection of forest and marine environmental resources, nature conservation and biodiversity;

- + Organizing scientific research services and international cooperation on the protection, conservation and rescue of wildlife in combination with providing ecotourism and environmental services in the National Park;

- + Conserving the landscape within the park in order to assist scientific research, ecotourism, and environmental education;

- + Organizing and developing eco-tourism activities in order to improve the life of the local people;

- + Disseminating information, educating and raising awareness of the tourists and communities about environmental conservation and environment; doing promotion and marketing so as to attract tourists;

- + Directly participating in fire prevention and fighting in case of the forest fire incident; participating in natural disaster prevention, and rescue, etc.

7.1.2.2. Cat Ba Archipelago Biosphere Reserve Management Board

The functions and tasks of Cat Ba Archipelago Biosphere Reserve Management Board are defined as per the Decision No. 3232/QĐ-UBND dated October 22nd, 2020 of Hai Phong City People's Committee on the consolidated organizational structure of Cat Ba Biosphere Reserve Management Board. Details are as follows:

- Coordinating in educating in order to raise the awareness of the communities about nature conservation; implementing specific action programs of natural and cultural heritage conservation within the biosphere reserve; coordinating with competent agencies in handling violations and encroachment of natural resources and cultural heritage in the Biosphere Reserve;

- Mobilizing and receiving international and national resources in order to implement programs, projects and activities targeting at the sustainable conservation and development of Cat Ba Archipelago Biosphere Reserve in accordance with the laws;

- Cooperating with international and national organization as well as receiving scientific research projects within the Biosphere Reserve in accordance with the laws;

- Advising the Chairperson of Hai Phong City People's Committee to direct the instructions, coordinating with relevant departments and agencies, local authority, organizations, individuals and communities relating to the Biosphere Reserve;

- Preparing programs and plans for managing the Biosphere Reserve, and implementing after obtaining the approval of competent agencies;

- Making objectives and solutions to sustainably resources of the Biosphere Reserve, including land, water, organism, ecosystems, natural and cultural heritage.

7.1.2.3. Cat Ba Archipelago Bay Management Board (Cat Ba Bay Management Board)

Cat Ba Bay Management Board is established under the Decision No.462/QĐ-UBND dated April 29, 2010 of the People's Committee of Cat Hai district, having three main functions:

- *Managing and planning aquaculture floating houses in the bays:*

- + Cat Ba Bay Management Board coordinates with relevant departments and agencies including Cat Ba Border Post, Cat Ba Town People's Committee, Cat Ba National Park, and Cat Hai District Division of Agriculture and Rural Development in promoting and encouraging the local people to implement the guidelines on management, planning, and rearrangement of anchoring sites for fishing floating cages in the bays, neither build nor expand the cages as well as keeping clean the marine ecological environment; preparing detailed mapping of cage locations and rearrangement at 10 planned sites including Vung Trau Dam, Bu Nau, Ben Beo, Van Boi, Tai Keo, Van Ha, Hon Rua, Tra Bau, Ang Ke and Hon Thoi Quyt;

- + Moving aquaculture floating cages to new anchorage sites in accordance with the regulations, and rearranging aquaculture floating cages in rows within stated distances;

- + Advising Cat Hai People's Committee to establish a joint working team in order to pay patrol, control, and prevent transportation of bamboo, sand, and floating materials which are used to expand or build new cages or a series of cages as well as sending these materials to geoclam raising areas;

- + Checking registration certificates issued to aquaproduct raising cages;

- + Preparing a regulation on managing aquaproduct raising in the bays of Cat Ba Archipelago.

- *Keeping the environment clean; collecting garbage in the bays;*

To implement the Decision No.762/ QĐ-UBND dated July 5th, 2010 by Cat Hai District People's Committee regarding the mobilization of social resources for environmental hygiene in Lan Ha Bay, Cat Ba Bay Management Board is responsible for arranging staff and facilities to collect wastes from cages, boats and ship in the bays; picking up freely floating wastes on the bays at one time per day; and signing a commitment with owners of boats, ships and cages to keeping clean the environment.

- Collecting entrance fees to the Lan Ha Bay:

To implement the Decision No. 950/QĐ-UBND by Hai Phong City People's Committee regarding the collection of entrance fees at historical and cultural relics and beauty spots, and the instruction by Cat Hai District People's Committee, commencing from July 8th, 2010, Cat Ba Bay Management Board tickets a visit to the beauty spots in Lan Ha bay. Ticket offices are located at the wharfs like Ben Beo, fishing port of Cat Ba, Gia Luan and But Day floating station.

7.2. Consolidation of agencies assigned to manage and use the heritage

As mention in the paragraph 7.1.1. regarding Ha Long Bay Management Board, after the Decree No.109/2017/NĐ-CP dated September 21, 2017 of the Government on the protection and management of world natural and cultural heritage in Viet Nam is effected, Quang Ninh Province has issued the Decision No.4768/QĐ-UBND dated December 7, 2017 defining the function, responsibility, authority and organizational structure of the Ha Long Bay Management Board, of which Article 2 – tasks, authority, and organizational structure is basically applied according to Article 16 of the Decree No. 109/2017/NĐ-CP. The Board has 14 functional divisions and units under its control. This model has been applied and run effectively in a large management field, relating to various agencies and organizations, as the case in Ha Long Bay. In the coming time, it is a need to evaluate and add extra functions and tasks to the Board so as to manage effectively and efficiently the special use forests in Ha Long Bay as well as Ha Long Bay tourism zones and Ha Long Bay Protected Areas, enabling the Board to maximize the usage of existing resources and become a focal agency that can manage comprehensively all the operating fields within the world heritage site.

In respect of Cat Ba Archipelago Natural Heritage Management Board (at its core, National Park, Biosphere Reserve and Bays Management Board), it is necessary to report the competent bodies allowing to prepare and submit a

proposal for the consolidation of Cat Ba Archipelago Natural Heritage Management Board in terms of organizational structure, functions, and assignments, based on Article 15 and Article 16 of the Decree No. 109/2017/NĐ-CP of the Government. Detailed quotations are as follows:

“Article 15. Agencies assigned to manage and use world heritage

1. Agencies that are assigned to manage and use world heritage take responsibility for directly conserve the world heritage in a comprehensive manner, are established, reorganized or dissolved according to the stipulations by the Government on establishment, reorganization and dissolution of public career units.

2. Consolidating organizational structure of the agencies that are assigned to manage and use world heritage needs to be based on types, values, sizes and conservation requirements of the world heritage; ensuring a streamlined structure so as to implement fully or part of the following functions: protecting relics; doing scientific research; renovating relics; doing chemical preservation, restoring and repairing objects; renovating landscapes and controlling environments, and monitoring water sources; protecting forest resources, aqua-resources, geology and geomorphology; rescuing, conserving and developing organisms; being in charge of forest range and fisheries resources surveillance; doing narration and education; performing museum work and managing libraries; organizing art performances and representations of intangible cultural heritage; establishing communications, external relations; advocating conservation works and project management; cooperating with communities; and developing sustainable tourism, and providing tourism services and tourism promotion.”

“Article 16. Tasks and obligations of agencies assigned to manage and use world heritage

1. Preparing and implementing proposals or projects of conserving and managing world heritage in the short, mid or long terms after they are approved by the competent bodies;

2. Monitoring periodically conservation status of world heritage as per Article 5 of this Decree, timely preventing any encroachments on the world heritage and reporting to the competent bodies the threats of what affects badly the world heritage;

3. Implementing programs, plans, and investment projects in the field of conservation, renovation and rehabilitation of the world heritage;

4. *Organizing or jointly organizing propagandas, information dissemination, introduction and promotion of the world heritage; studying, collecting, preparing documentation of and setting up an archive of the materials related to relevant tangible and intangible cultures so as to serve the works of conservation, renovation, rehabilitation and embellishment of the world heritage; preserving, studying, collecting relic objects, antiquities, national treasures, samples of geology, plants and animals at the world heritage sites as well as displaying, exhibiting or organizing mobile exhibitions outside the world heritage sites; organizing shows, making introductions to intangible culture attached to the world heritage;*

5. *Applying technological advances into the works of conservation, renovation, rehabilitation and embellishment of the world heritage; conserving geological, morphological and aesthetic values; conserving and developing fauna and flora so as to maintain biodiversity of the world heritage sites; making response to natural disasters, doing search and rescue, collecting and treating wastes, preventing harming factors that affect badly environments and water sources at the world heritage sites; helping enhance the life of communities; participating in studies and research, and recommending procedures and norms of conservation, renovation, rehabilitation and promotion of the world heritage;*

6. *Guiding, providing narration or explanation for visitors at the world heritage sites; organizing or jointly organizing tourism activities for the public audiences to pay visits, research, learn or enjoy at the world heritage sites; appraising tourism impacts on the world heritage and proposing solutions to mitigate impacts, if any, on the outstanding universal values of world heritage;*

7. *Organizing ticket sales, collecting visiting fees and service fees; managing and using revenues according to the law stipulations;*

8. *Preparing and implementing plans of training and improvements in professions of public and civil servants, and employees;*

9. *Raising awareness of and promoting participation of communities in protecting and managing the world heritage;*

10. *Participating in managing, coordinating and supervising investment activities, environmental protection, and organism conservation and development within the world heritage sites and their buffer zones; coordinating with relevant departments and agencies in examining and supervising socio-economic activities in the world heritage sites and their buffer zones;*

11. Coordinating with relevant departments and agencies in appraising plannings, projects and programs of socio-economic development in the world heritage sites and their buffer zones, and submitting them to the competent bodies for approval according to the current law stipulations; organizing information dissemination, discussions and collection of communities' opinions on plannings, projects and programs of socio-economic development related to the world heritage;

12. Organizing and implementing international cooperation programs;

13. Making reports about the implementations of world heritage conservation and management on a periodical and ad hoc basis to the provincial People's Committees or ministries and agencies assigned to directly control and manage the world heritage, Vietnam's National Committee for UNESCO, and Ministry of Culture, Sports and Tourism;

14. Conducting other commissions assigned by the competent bodies.

Article 22. Transitional provision

Within 3 years of the validity date of this Decree, the provincial People's Committees, and the ministries and agencies that are assigned to directly control and manage the world heritage are responsible for preparing and approving proposals of consolidating organizational structure, functions, tasks and obligations of the agencies assigned to manage and use existing world heritage as per Articles 15 and 16 of this Decree."

Chapter 8

VISION OF THE MANAGEMENT PLAN AND ACTION PLAN FOR THE PERIOD 2021 - 2025

8.1. Vision of the management plan towards 2040

The values and attributes of outstanding universal values of Ha Long Bay - Cat Ba Archipelago are monitored periodically and kept intact in accordance with the international commitments and Vietnamese laws as well as in a state of climate change preparedness. The seawater quality of Ha Long Bay - Cat Ba Archipelago and the surrounding areas continues to be monitored periodically, ensuring to meet the national seawater quality standards. Socio-economic activities are properly managed by the legal tools and supervised by modern technology. The buffer zone of the property is developed in harmony with the natural landscape/seascape, in which types of ecotourism will be promoted and become a series of international standard tourism service products. Ha Long Bay - Cat Ba Archipelago continues to offer a foundation and become a nucleus of comprehensive and sustainable development in Quang Ninh Province and Hai Phong City.

8.2. Action plans for the period 2021 - 2025

8.2.1. Protecting the landscapes and seascapes and outstanding universal values of Ha Long Bay - Cat Ba Archipelago

- Systemizing the records of rock islands, caves, cultural and historical relics, archaeological sites to serve the tourism management, promotion and development;
- Establishing an overall plan to prevent, combat and overcome the phenomena of subsidence, landslide, and landslides in the limestone islands in the sea; taking measures to prevent erosion and landslides of some islands at risk of collapsing by offering solutions of dyke construction, breakwater embankments, concrete pillars, and staking of gabions that reinforce island foots and reduce the seawater corrosion;
- Delineating the areas of high biodiversity values in order to protect ecosystems, maintain breeding sources (corals, mangrove forests); implementing strictly protection measures for the delineated areas;
- Supplying machines and equipment for monitoring and supervising marine biodiversity; building mobile monitoring stations to measure the quality of marine ecosystems; taking and analyzing samples;
- Conserving and reproducing coral and mangrove ecosystems at some locations in the bays;

- Promoting the participation of local organizations and communities, in which a model of sustainable aquaproduct raising attached to responsible tourism is applied;
- Preparing proposals for seasonal and regional fishing in order to limit the overexploitation of aquatic resources;
- Making specific plannings on management and protection of special-use forests for the limestone mountain vegetation in the heritage site.

8.2.2. *Managing tourism activities*

- Promoting and raising the awareness of organizations and individuals who are doing business and providing services in the bay about the observation of regulations on commercial civilization, food hygiene and safety;
- Promoting and raising the awareness of vehicle owners, captains, crew members and people working on cruise ships about the implementation of regulations applicable to cruise ships and inland waterway traffic;
- Promoting and raising the awareness of organizations, business individuals, people of all classes, and tourists about protecting and behaving in a friendly manner towards the heritage;
- Upgrading the Global Positioning System (GPS) and Geographic Information System (GIS) so as to monitor and manage cruise ship operations and socio-economic activities in the heritage area;
- Providing a set of standard documents for tour guides who will disseminate information and guidelines at the heritage site;
- Developing educational programs about the heritage area in high schools;
- Investing in an automatic narration system at tourist attractions, and tourist boats staying overnight on the bays;
- Designing tours to connect routes and tourist attractions in the heritage area with other tourist destinations in Quang Ninh province, Hai Phong city and neighbouring provinces (Ha Noi - Nam Dinh - Ninh Binh).

8.2.3. *Managing cruise ships, ports, and tourist wharf*

- Preparing a plan to improve the quality and management of cruise fleets operating on the bay, in which a specific roadmap is developed to gradually reduce the number of cruise ships and accommodation vessel on the bay to minimize the impact on ecology and marine environment;
- Formulating ship designs to ensure aesthetics, high technical safety and effective exploitation; proposing a process and criteria for prioritizing the selection of new cruise ships construction that must be modern, beautiful

designs, suitable to the bay landscape, ensure higher standards of technical safety, aesthetics, environmental protection, fire prevention and other basic service conditions in conform of international standards;

- Checking, reviewing and installing additional equipment for fire prevention and fighting, rescue, rules, signs, buoys, signal buoys, loudspeaker systems; signs, boards, signal buoys for inland waterways must be synchronous, modern at the ports, the tourist wharf and destination ports on the mainland.

8.2.4. Managing aquaproduct farming, fishing, trading and investment projects

- Planning the aquaculture area in a reasonable way without making any impacts on the ecological environment, channels, tourist attractions, waterways and national security;

- Managing and supervising businesses and households to whom are allocated sea surface for aquaculture in the bays in compliance with the planning and the decisions of allocating sea surface for aquaculture;

- Planning areas where fishing is prohibited;

- Developing a plan to organize and exploit overall tourism services in the heritage area, which specifying location, service area, type of service, invested facilities, control systems of pricing and services, etc.

- Inspecting and controlling markets, handling violations to the regulations on price listing, quality of tourism service as well as violations by organizations and individuals doing business in the bays that affect the tourism business environment in the heritage area.

8.2.5. Protecting ecological environment

- Organizing the collection and transportation ashore 100 percentage of wastes at the attractions, accommodations and in the bay.

- Monitoring 100 percentage of the waste volume discharged by tourist vessels that must be taken ashore for treatment;

- Issuing local environmental norms for domestic and industrial wastewater in accordance with EU standards, as well as regulations on management of sea encroachment and waste disposal activities;

- Providing regulations on management of sea encroachment activities, waste dumping activities;

- Guiding, supervising the installation of domestic wastewater treatment equipment in cruise ships;

- Monitoring water environment periodically 04 times/year;

- Establishing environmental norms on domestic and industrial waste water in compliance with the EU standards;
- Renovating and upgrading the wastewater treatment system of Ha Long city and Cat Ba island;
- Organizing environmental protection programs and movements in socio-political agencies, organizations, pupils, students, armed forces and enterprises in Ha Long city, and Cat Hai district; doing environmental cleaning under such programs as "Green Sunday", "Saturday volunteering";
- Implementing the solutions outlined in the annual climate change response plan in respect of the heritage values protection;
- Establishing coastal protection corridors in accordance with the Law on Marine and Island Environment Resources in order to conserve ecosystems, maintain service values of ecosystems and natural landscapes in coastal zones, minimize coastal erosion, and respond to climate change, and sea level rise.

8.2.6. Preventing natural disasters, fire, explosion, rescue, ensuring safety for tourists

- Developing a plan for prevention from natural disaster, fire and explosion, search and rescue to ensure safety for tourists, including plans in response to a number of common natural disasters, accidents, including mobilizing forces and means in response to natural disasters and accidents.
- Organizing training and drills for a number of specific accident situations to improve the capacity and professionalism of the rescue force and assigning specific tasks to relevant units and individuals;
- Reviewing and supplementing means and equipment in service of prevention and control from natural disaster, fire and explosion, search and rescue etc. to serve warnings and information;
- Strengthening the natural disaster prevention steering agency and assigning specific responsibilities to each member;
- Regularly inspecting and testing the fire prevention and fighting plan on site for cruise ships so as to help improve the initiative, sense of responsibility and professional skills in handling accidents at sea;
- Promoting and disseminating information to organizations, individuals and fishermen's relatives so as to strictly observe the regulations on fire prevention and fighting, forest fire prevention, regulations on the management of weapons, explosives and fire, using fire to hunt animals, burning votive, burning trash in areas near the foot of the mountain causing forest fires.;

- Promptly detecting and rectifying shortcomings and deficiency in the fire prevention and fighting and take timely remedy measures.

8.2.7. Human resource development

- Training specialized staff about marine conservation, environmental management; professional inspection and sanction against violations, professional tour guide, narrator, tourism management, fishery, geomorphology.
- Organizing professional tourism training for captains, crew members, cruise ship service staff, entertainment services in the bay.

8.3. Projects on value preservation, embellishment and promotion in the heritage nominated property of Ha Long Bay - Cat Ba Archipelago

8.2.1. Projects implemented in Ha Long Bay

- Renovating, upgrading the infrastructures, combating the degradation and collapse of Ga Choi island, the caves of Thien Cung, Dau Go, Thien Long, Ba Hang, Hoa Cuong, Ti Top island, Sung Sot cave, Me Cung, Bo Nau cave, Luon cave, Trinh Nu cave, Ho Dong Tien cave, Tung Sau lagoon, Cua Van, Ang Du lake, Co cave, Thay cave, Cap La cave Vung Vieng, Cong Do, and Tam Cung cave;
- Renovating, embellishing the archaeological sites in Tien Ong cave, Ba Men goddess temple, and Ba Ham lake;

Specific tasks and projects are presented in Annex 1 and Annex 2 of this Management Plan.

8.2.2. Projects implemented in Cat Ba Archipelago

- Project of coastal forest restoration and development in Cat Ba archipelago, Hai Phong city in the period of 2016 - 2020 (Decision No.2850/QĐ-UBND dated October 31, 2018 of the People's Committee of Hai Phong city);
- Cat Ba National Park Conservation Project funded by the Zoological Society for the Conservation of Species and Populations of Munich city - Federal Republic of Germany from September 2000;
- Project on building a general conservation method of Cat Ba Langur funded by Fauna & Flora International organization from April 2014;
- Project on building a cooperative relationship to enhance adaptability to climate change of the Vietnam Coastal Biosphere Reserve and locally managed marine protected areas in 03 communes in the buffer zone of Cat National Park;
- Project "Building an invitro production model of Ginseng Areca tree (*Curculigo orchioides*) and experimental planting in Cat Ba National Park";

- Subject "Research and propose measures to conserve Cat Ba geckos (*Goniurosaurus catbaensis*) in Cat Ba National Park";

- Subject "Research on building community models for conservation and rational use of biodiversity resources in Cat Ba Archipelago Biosphere Reserve";

- + Project on genetic conservation of Cat Ba chamois;

- + Project on coral reefs conservation and development in Cat Ba.

8.4. Funding

8.4.1. Sources

- The central state budget;

- Local state budget;

- Sources for recurrent expenditures of the career units;

- Revenues of visiting tickets in Ha Long Bay and Cat Ba Archipelago;

- Revenues from service provision

- Sources mobilized from inhabitants and aids;

- Other legal revenues.

8.4.2. For the assignments of agencies and localities:

They shall spend their recurrent expenditures funded by the State Budget when carrying out the assignments.

8.4.3. For investment projects:

Agencies and departments prepare an investment plan every years, reporting investment projects in Ha Long Bay (Quang Ninh Province) to Quang Ninh City People's Committee and investment projects in Cat Ba Archipelago (Hai Phong City) to Hai Phong City People's Committee for evaluation and approval in accordance with the Public Investment Law and relevant stipulations of laws.

8.5. Updating the Management Plan

This management plan will be re-evaluated and revised for the next 5-year period. Revision and amendment of the plan shall be analyzed carefully based on the actual requirements and new knowledge. These revisions and amendments are consulted among related stakeholders before submitted to the competent bodies for approval.

Chapter 9

IMPLEMENTATION

The property Ha Long Bay - Cat Ba Archipelago is influenced by various factors and related to many departments and agencies at the central and local levels as well as private companies and communities. Therefore, the management plan should be implemented in a concerted and synchronous manner, which is based on an interdisciplinary coordination mechanism in order to harmonize and mitigate the conflicts of interest among the departments, agencies and communities while protecting, exploiting and using the heritage values.

Accordingly, it is of vital importance to coordinate with the departments and agencies at the central and local levels, organizations, enterprises and communities during the implementation, helping make this management plan effective and efficient.

9.1. Roles of the central departments and agencies, the People's Committees of Quang Ninh Province and Hai Phong City

Roles and responsibilities of each organization are defined as per the Decision No. 109/2017/NĐ-CP dated September 21, 2017 of the Government on the protection and management of world natural and cultural heritage in Viet Nam. Details are as follows:

9.1.1. Ministry of Culture, Sports and Tourism

Ministry of Culture, Sports and Tourism takes responsibilities before the Government for exercising uniform state management over the world heritage in the followings:

1. Appraising and approving world heritage management plans, and world heritage protection regulations as stated in Article 9 and Article 14 of this Decree;
2. Appraising tasks of world heritage master plans, general plannings of world heritage, proposals, projects, feasibility studies, and as-built drawings for conservation, renovation, rehabilitation and embellishment of world heritage, as well as of projects of renovation and construction works outside heritage areas and buffer zones of heritage areas which threaten the outstanding universal values of world heritage in accordance with the laws on cultural heritage and related law stipulations;
3. Agreeing upon adjustment of world heritage areas and buffer zones of world heritage areas upon the request of the Chairman of provincial People's Committee or heads of ministries and agencies assigned to directly manage

world heritage, submitting its proposal to Prime Minister who will approve and then send a request to UNESCO;

4. Directing and organizing information dissemination about legal normative documents relating to protection and management of world heritage;

5. Taking main responsibility and coordinating with Vietnam National Commission for UNESCO in the following:

a) Dealing with recommendations of the World Heritage Committee and the World Heritage Centre and consultative bodies of the World Heritage Centre;

b) Implementing the guidelines and policies of UNESCO regarding world heritage across the world and in Vietnam;

c) Carrying out the obligations of the member of the World Heritage Committee in its elected term and the member of UNESCO consultative bodies in the field of world heritage;

d) Directing the agencies who are assigned to manage and use world heritage make periodical reports on the implementation of the World Heritage Convention.

- Carrying out inspection and examine the obedience of the laws on world heritage protection and management; imposing administrative penalties as per its competence relating to world heritage protection and management.

9.1.2. Ministries and related ministerial agencies

9.1.2.1. Ministry of Agriculture and Rural Development:

- Directing the implementation of state management of agriculture, forestry and fisheries in the world heritage sites and their buffer zones in accordance with relevant stipulations of laws;

- Coordinating with the Ministry of Culture, Sports and Tourism in guiding the implementation of world heritage masterplans in case the world heritage sites and buffer zones are part or the whole of special use forests and/or marine protected areas.

9.1.2.2. Ministry of Natural Resources and Environment:

- Directing the implementation of state management of environmental protection, biodiversity, geology, and mining at the world heritage sites and buffer zones in accordance with relevant stipulations of laws;

- Taking the main responsibility and coordinating with the Ministry of Culture, Sports and Tourism in approving environment impact assessments of projects implemented within the world heritage sites and buffer zones in accordance with relevant stipulations of laws.

- Coordinating with the Ministry of Culture, Sports and Tourism in guiding the implementation of world heritage masterplans in case the world heritage sites and buffer zones are part or the whole of marine protected areas.

9.1.2.3. Ministry of Construction: Coordinating with the Ministry of Culture, Sports and Tourism in evaluating tasks of preparing world heritage masterplans and general planning projects.

9.1.2.4. Ministry of Planning and Investment:

- Taking the main responsibility and coordinating with the Ministry of Finance, Ministry of Culture, Sports and Tourism in balancing and identifying total capital investment funded by the State Budget for world heritage masterplans before submitting to the Prime Minister for approval;

- Taking the main responsibility and coordinating with the Ministry of Finance, Ministry of Culture, Sports and Tourism in balancing and laying out the fundings for world heritage masterplans before submitting to the Prime Minister for approval in accordance with the stipulations of Public Investment Law and Law on the State Budget;

- Coordinating with the Ministry of Culture, Sports and Tourism in evaluating world heritage masterplans and general planning projects.

9.1.2.5. Ministry of Finance:

- Coordinating with Ministry of Planning and Investment, Ministry of Culture, Sports and Tourism in balancing and identifying total capital investment funded by the State Budget for world heritage masterplans before submitting to the Prime Minister for approval;

- Laying out capital for preparing and implementing the tasks of world heritage masterplans approved by the Prime Minister in accordance with the stipulations of Law on State Budget;

- Coordinating with Ministry of Culture, Sports and Tourism in evaluating world heritage masterplans and general planning projects.

9.1.2.6. Other related ministries and ministerial agencies:

Other related ministries and ministerial agencies within their competence and authority, take responsibilities and coordinate with Ministry of Culture, Sports and Tourism in exercising the state management over world heritage in accordance with the laws.

9.1.3. National Cultural Heritage Council

- Providing consultations on scientific issues relating to preparation and implementation of world heritage master plans, world heritage management

plans upon the request of the Prime Minister or Ministry of Culture, Sports and Tourism;

- Coordinating in examining the implementation of commitments to international conventions on world heritage protection and management at the request of Ministry of Culture, Sports and Tourism;

- Implementing other tasks relating to world heritage in accordance with the Regulation on organizational structure and operations of the National Cultural Heritage Council.

9.1.4. Vietnam National Commission for UNESCO

According to the Decision No. 194/QĐ-TTg dated January 30th, 2011 by the Prime Minister on strengthening the Vietnam National Commission for UNESCO, the Commission functions as an advisory institution to the Prime Minister in his direction and coordination of UNESCO-related activities of ministries, ministerial-level agencies, government agencies, People's Committees of provinces and centrally-administered cities.

The Vietnam National Commission for UNESCO will coordinate with Ministry of Culture, Sports and Tourism, National Heritage Council, the People's Committees of Quang Ninh Province and Hai Phong City in exercising the state management over the property.

It will advise, support and assist Ha Long Bay Management Board and Cat Ba Archipelago Natural Heritage Management Board with technical expertise and orientation of the Board's activities in accordance with the norms of UNESCO, as well as coordinating with the departments and agencies at the central and local levels in managing, and supervising the implementation of the management plan, and acting as a link between the management boards and international organizations, particularly UNESCO.

9.1.5. The People's Committees of Quang Ninh Province and Hai Phong City

- Issuing within the competence and organizing the implementation of legal normative documents on world heritage management and protection in the locality;

- Preparing, approving world heritage management plans; preparing, approving world heritage protection mechanisms;

- Organizing the implementation of world heritage masterplans, management plans and protection regulations at the directions of Ministry of Culture, Sports and Tourism and relevant departments and agencies;

- Organizing the dossier preparation for the adjustments of world heritage areas and buffer zones, sending to Ministry of Culture, Sports and Tourism for evaluation before submitting to the Prime Minister and appealing to UNESCO;
- Directing and organizing information dissemination, promotion, inspection, and check of the observation of legal documents regarding the management and protection of the world heritage; preventing and handling organizations and individuals who violate the world heritage while performing socio-economic activities within the world heritage sites and buffer zones;
- Managing and spending investment sources on the world heritage management and protection to reach the objectives, effectiveness and efficiency, preventing from loss; allocating revenues for the world heritage management and protection;
- Mobilizing resources to implement component projects under the world heritage masterplans, and management plans;
- Deciding to establish a world heritage conservation fund in accordance with the stipulations of the Government regarding organizational structure and operation of Social Fund, Charity Fund in order to attract fundings and contributions of organization and individuals from home and abroad;
- Coordinating with other state management agencies at the central and local levels in promoting and introducing the world heritage;
- Requesting competent bodies to solve any disputes as to policies of world heritage management and protection;
- Sending every quarter a writing report on the previous year's implementation results of world heritage masterplans, and management plans, and proposing the next plans to Ministry of Culture, Sports and Tourism, Ministry of Planning and Investment, Ministry of Finance, and relevant departments and agencies;
- Provincial chairperson takes the responsibility before the Prime Minister for managing and protecting the world heritage within the locality and in accordance with the laws.

9.2. Roles of departments and agencies in Quang Ninh Province

9.2.1. Ha Long Bay Management Board:

- Taking the main responsibility for the assignments presented in Annex I of the Decision issued by Quang Ninh Province regarding the approval of the World Natural Heritage Ha Long Bay Management Plan for the period 2021-2025, with a vision towards 2040;

- Advising preparing, supplementing and completing the legal document system on managing, protecting and promoting Ha Long Bay;
- Advising and recommending Quang Ninh Province People's Committee the principles of implementing projects needed to meet the objectives of the Management Plan;
- Implementing efficiently the Decision No. 3363/QĐ-UBND dated August 31st, 2020 by Quang Ninh Province People's Committee on approving the establishment of special use forest in protection of the landscapes of Ha Long Bay, Quang Ninh Province;
- Speeding up, supervising, collecting, evaluating and reporting periodically to Quang Ninh People's Committee about the task outcomes of local agencies assigned according to the Management Plan.

9.2.2. Departments and agencies belonging to Quang Ninh Province People's Committee:

- Implementing the assignments as per the Regulation on managing, protecting and promoting World Natural Heritage Ha Long Bay attached to the Decision No. 06/2019/QĐ-UBND dated January 29th, 2019 of Quang Ninh Province People's Committee;
- Implementing the assignments as per Annex I attached to the Decision issued by Quang Ninh Province People's Committee on approving the World Natural Heritage Ha Long Bay Management Plan for the period 2021-2025, with a vision towards 2040, as well as coordinating with Ha Long Bay Management Board in implementing the following:

9.2.2.1. Quang Ninh Province Department of Transportation

- Advising the plannings of port system, tourist wharf and operating areas for facilities used for aquatic entertainment activities;
- Coordinating with Ha Long City People's Committee in continuing to implement the proposal of replacing wooden boats with boats built with metal or equivalence;
- Studying, proposing a proposal for mitigating impacts on the landscapes derived from loading, discharging, transshipping cargoes at Cua Dua; studying proposals for managing and reducing the operation of inland waterway routes which cut across the core zone of Ha Long Bay heritage site.

9.2.2.2. Quang Ninh Province Department of Natural resources and Environment

- Supervising and coordinating in checking, handling violations against the environment committed by the projects done in and around Ha Long Bay;

- Taking the main responsibility and coordinating with relevant departments and agencies in preparing and managing the records of marine and insular resources as per the Circular No. 18/2016/TT-BTNMT dated July 25th, 2016 by Ministry of Natural Resources and Environment.

9.2.2.3. Quang Ninh Province Department of Culture, Sports and Tourism

- Coordinating with Ha Long Bay Management Board in listing and preparing scientific dossier for management, protection and narration of historical relics and archaeological sites in Ha Long Bay;

- Advising issuing policies and mechanisms about the management of Ha Long Bay;

- Taking the main responsibility and coordinating with Ha Long Bay Management Board and relevant departments and agencies in assisting the organizations of Hai Phong City to prepare and complete the nomination dossier of Ha Long Bay - Cat Ba Archipelago.

9.2.2.4. Quang Ninh Province Department of Tourism

- Advising to declare tourism areas of Ha Long Bay;

- Implementing efficiently the comprehensive proposal for management and development of marine and insular tourism products in Ha Long Bay, Bai Tu Long Bay, Van Don and Co To;

- Coordinating with Ha Long Bay Management Board and related departments and agencies in preparing a regulation on management of tourism activities in Ha Long Bay; coordinating in establishing a tourist centre in Ha Long Bay;

- Studying, proposing a stimulus mechanism for tourist boats to participate in and use eco-brand 'Green Mast' system and meet the requirements of international green branding.

9.2.2.5. Quang Ninh Province Department of Agriculture and Rural Development

- Managing, supervising enterprises and households to whom sea surface is allocated in order to raise aquaproducts in the bays; coordinating with relevant departments and agencies in checking, supervising, handling violations against related stipulations of law on fisheries;

- Coordinating with Ha Long Bay Management Board in making fishing leisure activities become a tourism product in Ha Long Bay.

9.2.2.6. Quang Ninh Province Department of Planning and Investment:
Evaluating investment project within its competence and as per the

decentralization; guiding, checking, supervising capital management according to the laws.

9.2.2.7. *Quang Ninh Province Department of Finance:* Advising capital layouts from the State Budget in order to implement programs and projects of managing, conserving and promoting Ha Long Bay.

9.2.2.8. *Quang Ninh Province Department of Industry and Commerce and Department of Market Surveillance*

- Taking the main responsibility and coordinating with relevant departments and agencies in strengthening market surveillance of the organizations and individuals performing business services in Ha Long Bay, promptly and strictly handling acts of fraud, unreasonable price increase, sales of fake goods and goods below the food safety standard;

- Coordinating with Ha Long Bay Management Board in introducing specimen contracts used for service trading in Ha Long Bay.

9.2.2.9. *Quang Ninh Province Department of Construction:* Coordinating with Department of Culture, Sports and Tourism in exercising the state management over the renovation, embellishment done within Zone I (the world heritage site) and construction activities in Zone II (buffer zone) of Ha Long Bay.

9.2.2.10. *Quang Ninh Province Department of Science and Technology*

- Taking the main responsibility for evaluating technologies applied to the heritage management and conservation in accordance with the laws;

- Coordinating with Ha Long Bay Management Board in conducting scientific research of the World Natural Heritage Ha Long Bay.

9.2.2.11. *Quang Ninh Province Department of Education and Training:* Completing and introducing education programs on heritage conservation of Ha Long Bay to schools in accordance with the education programs issued by Ministry of Education and Training.

9.2.2.12. *Quang Ninh Province Department of Information and Communication*

- Giving directions to press and mass media to promote and raise the awareness of communities about protection and promotion of the heritage value;

- Taking the main responsibility and coordinating with Ha Long Bay Management Board and relevant departments and agencies in enhancing the information dissemination on mass media about heritage values, roles and responsibilities of organizations and individuals related to the management and protection of Ha Long Bay;

- Advising on digital technology applied in the management, conservation and promotion of Ha Long Bay.

9.2.2.13. *Quang Ninh Province Department of Home Affairs:* Advising Quang Ninh Province People's Committee to consolidate, innovate the organizational structure of Ha Long Bay Management Board; training, enhancing the capacity of officers and staff involved in the heritage management and conservation.

9.2.2.14. *Quang Ninh Province Department of Public Security*

- Taking the main responsibility and coordinating with Ha Long Bay Management Board and relevant departments and agencies in ensuring the social order and security, strictly penalizing violations against the social order and security in Ha Long Bay;

- Disseminating information and guidelines for organizations and enterprises to strictly observe the law stipulations of fire prevention and fighting; coordinating in handling and dealing with fire cases incurred in the bay.

9.2.2.15. *Quang Ninh Province military headquarter:*

Organizing and enhancing operations of a permanent interdisciplinary working team for search and rescue in Ha Long Bay as per the Decision No. 1292/QĐ-UBND dated July 8th, 2014 by Quang Ninh Province People's Committee.

9.2.2.16. *Quang Ninh Province Border Guards:*

Directing operation units to coordinate with Ha Long Bay Management Board in paying patrols, controlling, supervising in Ha Long Bay within their competence and based on a coordinating regulation.

9.2.2.17. *Ha Long City People's Committee*

- Taking the main responsibility for implementing a plan on enhancing the capacity building and management of tourist boat fleet operating in Ha Long Bay and Bai Tu Long Bay;

- Advising on planning anchorage sites for means of transport, and fishing facilities outside the buffer zone of Ha Long Bay; effectively conducting the plan on fishery areas outside the absolutely protected area of Ha Long Bay, and the detailed masterplan of Ha Long City;

- Fulfilling the water environment improvement project for Ha Long City funded by the Japanese Government ODA; coordinating with related departments and agencies in checking extensively and proposing a solution for

enhancing waste collecting and treatment systems in urban areas, and industrial zones in Ha Long City;

- Continuing to organize programs and movements of protecting the environment of Ha Long Bay and coastal areas by the bay.

9.2.2.18. The People's Committees of Cam Pha City, Quang Yen Town, and Van Don District

- Coordinating with Quang Ninh Province Department of Tourism in surveying, establishing tourism products, routes and destinations in Bai Tu Long Bay;

- Coordinating with Ha Long Bay Management Board in checking, handling violations against the protection of Ha Long Bay, which are constituted in the areas under one's competence;

- Making investment in domestic waste water collecting and treatment systems in urban areas.

9.2.2.19. Quang Ninh Province Tourism Association

- Giving guidelines to its member branch of tourism boats/vessels and other members, assisting and giving advice to enterprises, business households to build and develop tourism products, and traditional craft items with the participation of local people;

- Coordinating with relevant departments and agencies in promoting and advertising the tourism products in Ha Long Bay;

- Coordinating with relevant departments and agencies in checking and supervising the law implementation by enterprises and business households during the production and development of tourism products, which is involved by the local people.

9.2.2.20. Quang Ninh Province Cooperative Union

- Giving directions to its members to promote, advise, assist individuals, households, businesses and labourers in developing various tourism products, traditional crafts, and at the same time attracting the participation of local people in tourism product development;

- Coordinating with relevant departments and agencies in introducing and promoting tourism products, traditional craft, and locally specific products in Ha Long Bay;

- Coordinating with relevant departments and agencies in checking and supervising the law implementation by enterprises, business households and labourers during the production and development of tourism products.

9.2.2.21. Requesting Quang Ninh Province Communication Centre:

- Maintaining operating a special column on website to disseminate the information on management and protection of Ha Long Bay as well as legal documents on heritage protection;

- Organizing a movement in which all people are encouraged to protect the heritage, landscapes/seascapes, as well as ensuring the security and social order for the property.

9.2.2.22. Requesting political and social organization in Quang Ninh Province:

Political and social organizations (Fatherland Front, Youth Union, Women Union, Veteran Association and other organizations) participate in supervising and checking the implementation of the Management Plan; encouraging local communities, and members to get involved in the conservation and promotion of Ha Long Bay.

9.2.3. Enterprises operating in Ha Long Bay, Ha Long City

9.2.3.1. Vietnam Coal and Mineral Group: Continuing to implement solutions for the environmental protection; effectively and efficiently operating coal waste water treatment system, and automatic environment monitoring system.

9.2.3.2. Owners of ports and wharfs, investors operating in and around the coast of Ha Long Bay

- Implementing investment projects in accordance with the masterplans on conservation and promotion of Ha Long Bay approved the competent and in accordance with the laws;

- Ensuring the safety, and security at the ports and wharfs; collecting and treating wastes from anchored boats and vessels within the port or wharf water area in accordance with the laws.

9.2.3.3. Organizations, enterprises operating in Ha Long Bay

- Organizations and enterprises who perform business services and other trading activities in Ha Long Bay are allowed to only carry out the activities that they are allowed by the competent bodies to do at stated locations, observing the current laws regarding production, trading, commerce as well as the law stipulations on tourism service management, and the Regulation on management, protection and promotion of World Natural Heritage Ha Long Bay, ensuring security, environmental hygiene, and transportation safety;

- Promoting and enhancing the awareness of staff and employees about the Regulation on management, protection and promotion of World Natural

Heritage Ha Long Bay as well as stipulations and rules related to the operations of tourism boats/vessels, commercial civilization, tourist safety and social order.

9.3. Roles of departments and agencies in Hai Phong City

9.3.1. Cat Ba Archipelago Natural Heritage Management Board

- Raising the awareness of and promoting the participation of communities in managing and protecting Cat Ba Archipelago;
- Implementing international cooperation programs in Cat Ba Archipelago;
 - Making periodical and random reports on the protection and management of Cat Ba Archipelago and submitting to Hai Phong City People's Committee, Ministry of Culture, Sports and Tourism, Vietnam National Commission for UNESCO, and related ministries and agencies;
 - Preparing and implementing training programs on improving knowledge and professional skills for civil servants, officers, and employees;
 - Participating in joint venture and cooperation management, supervising investment activities, environmental protection, conservation and development of organisms in Cat Ba Archipelago; coordinating with relevant departments and agencies in checking, supervising socio-economic activities within the property;
 - Coordinating with Ha Long Bay Management Board in preparing, implementing policies, mechanisms, programs, and solutions of management and promotion of Ha Long Bay - Cat Ba Archipelago in accordance with the laws;
 - Coordinating with relevant departments and agencies in evaluating and submitting socio-economic development plannings, projects, and programs in Cat Ba Archipelago to the competent bodies for approval; disseminating information, discussing, and collecting the public opinions about socio-economic development plannings, projects, and programs related to the property;
 - Organizing or cooperate to organize the promotion and introduction of Cat Ba Archipelago; studying, collecting, recording, storing related materials of intangible and tangible cultural heritage so as to serve the work of storage, renovation, restoration and embellishment in Cat Ba Archipelago; storing, studying and collecting relic antiquities, national treasures, specimens of geology, animals and plants, and put on display or in mobile exhibitions outside the property; organizing performance, introduction of intangible culture attached to the property;

- Carrying out other tasks as per the Decision No. 714/QĐ-UBND dated April 1st, 2014 by Hai Phong City People's Committee regarding the consolidation of Cat Ba Archipelago Management Board.

9.3.2. Cat Ba National Park

- Managing, protecting, conserving and developing the natural resources of forest and sea; protecting and developing natural ecosystems, landscapes and seascapes, environments of special use forest and marine areas that are managed by the Park;

- Conducting scientific research, storage, and conservation of genetic sources of wild and rare animals and plants, both terrestrial and marine, which are threatened or in danger of extinction;

- Receiving organism individuals from various sources; treating, rehabilitating their functions and releasing into the natural habitats; providing plant varieties, veterinary services for organizations and individuals to raise animals and develop in a sustainable manner in accordance with the laws;

- Delivering education programs on the laws on protection of forest resources, natural environment and biodiversity;

- Conducting scientific research and cooperating with international partners on protection, conservation and rescue of wild animals, organizing it together with ecotourism activities and environmental services in the Park;

- Preserving the landscapes of the Park for the purpose of scientific research, ecotourism and environmental education;

- Establishing and developing ecotourism activities in order to improve socio-economic life of local people;

- Promoting, delivering environmental education programs, and raising the awareness of tourists and communities about the natural and environment conservation;

- Directly taking part in fighting and preventing from fire in the event of fire cases; participating in addressing and responding to natural disasters, search and rescue, etc.;

- Implementing other tasks as per the Decision No. 1876/QĐ-UBND dated July 24th, 2017 by Hai Phong City People's Committee regarding the consolidation in terms of functions, tasks, rights and organizational structure of Cat Ba National Park.

9.3.3. Cat Ba Archipelago Biosphere Reserve Management Board

- Coordinating in delivering educational programs so as to enhance the awareness of communities about nature conservation, implementing specific

action plans on the nature conservation and cultural heritage in the Biosphere Reserve; coordinating with relevant departments and agencies in handling violations and encroachments against the natural resources and cultural heritage in the Biosphere Reserve;

- Mobilizing, receiving the resources from home and abroad to implement programs, projects and activities for sustainable conservation and development of Cat Ba Archipelago Biosphere Reserve;

- Forming a joint venture or cooperation agreement with international and national organizations to receive and conduct scientific research in the Biosphere Reserve in accordance with the laws;

- Implementing other tasks as per the Decision No. 3232/QĐ-UBND dated October 22nd, 2020 by Hai Phong City People's Committee regarding the consolidation of Cat Ba Archipelago Biosphere Reserve Management Board.

9.3.4. Cat Ba Bay Management Board

- Joining in interdisciplinary working teams to pay patrols, control and prevent any acts of transporting bamboo, sand, wood, and floating materials that are used to expand, or build new aquaprodukt raising cages and geoclam raising areas;

- Checking the issuance of registration certificates for aquaprodukt raising cages or a series of cages;

- Keeping the environmental hygiene, collecting wastes in the bays of Cat Ba Archipelago;

- Collecting fees of visits to beauty spots in Lan Ha Bay;

- Implementing other tasks as per the Decision No. 462/QĐ-UBND dated April 29th, 2010 by Cat Hai District People's Committee regarding the establishment of Cat Ba Bay Management Board.

9.3.5. Departments and agencies belonging to Hai Phong City People's Committee

9.3.5.1. Hai Phong City Department of Culture and Sports

- Coordinating with Cat Ba Archipelago Natural Heritage Management Board, and Cat Hai District People's Committee in promoting and disseminating legal documents regarding the protection and management of Cat Ba Archipelago; preparing planning projects and masterplans on conservation and promotion of Cat Ba Archipelago;

- Inspecting, checking the observance of legal documents regarding the protection and management of Cat Ba Archipelago; handling violations against the heritage according to its competence.

9.3.5.2. Hai Phong City Department of Agriculture and Rural Development

- Taking the main responsibility and coordinating with Cat Hai District People's Committee, Cat Ba Archipelago Natural Heritage Management Board in implementing plans on fishery resources management and development, fishing prohibited areas; preparing specific plans on fishery development integrated with the heritage conservation and promotion;

- Giving guidelines and check the observance of legal documents regarding aquaproduct raising, replanting of mangrove forests, protective forests, etc.

- Coordinating with relevant departments and agencies in checking, supervising and handling violations against fisheries.

9.3.5.3. Hai Phong City Department of Natural resources and Environment

- Coordinating in checking and handling violations against the environment committed by organizations or project owners in Cat Ba Archipelago;

- Advising to establish mechanisms and policies in order to attract investors particularly in the environment and heritage protection;

- Taking the main responsibility and coordinating with relevant departments and agencies in preparing and keeping records of marine and insular resources, and sea level rise;

- Preparing local environment norms of domestic and industrial waste water in accordance with EU standards;

- Coordinating with Cat Ba Archipelago Natural Heritage Management Board, Cat Hai District People's Committee in providing information and guidelines for organizations and individuals to observe the legal documents, plannings, plans of the environmental protection in Cat Ba Archipelago.

9.3.5.4. Hai Phong City Department of Construction

- Exercising the state management over construction activities in Cat Ba Archipelago;

- Evaluating, guiding and checking the implementation of legal documents relating to construction projects, water supply and drain infrastructure, wastes and waste water treatment in Cat Ba Archipelago;

- Coordinating with Hai Phong City Department of Culture and Sports, Cat Hai District People's Committee, and relevant departments and agencies in checking, supervising construction activities in Cat Ba Archipelago.

9.3.5.5. Hai Phong City Department of Transportation

- Issuing licences of, declaring ports, wharfs, anchorage sites, routes and channels in accordance with the laws; checking and supervising the safety and technical conditions of tourist boats/vessels, anchorage sites, inland waterway routes and channels and other related works;

- Directing Hai Phong City inland waterway port authority to manage issuance of departure licences for boats and vessels in accordance with the laws;

- Taking the main responsibility, guiding, evaluating, issuing diplomas and certificates for operators of boats/vessels and water transport vehicles that qualify their participation in tourism activities; organizing examinations and recognizing the results of examination upon request of issuance, reissuance of professional diplomas and certificates and basic safety training certificates in accordance with the laws;

- Disseminating information and educating crew members to observe the law stipulations on inland waterway transport and passenger carrying in the bays of Cat Ba Archipelago; promoting legal documents of inland waterway transport and educating organizations and individuals who participate in tourism services in the bays;

- Taking the main responsibility for granting number plates of passenger carrying vehicles operating in the bays of Cat Ba Archipelago after consulting Department of Tourism, Department of Health Care, Department of Public Security of Hai Phong City, and Cat Hai District People's Committee about security, safety, minimum requirements of business trading and ability to satisfy, and anchorage locations; particularly accommodation boats/vessels needed to be approved by the competent bodies in terms of abilities to satisfying the requirement of overnight-staying anchorage locations in the bays.

9.3.5.6. Hai Phong City Department of Science and Technology

- Coordinating with Cat Hai District People's Committee, and Cat Ba Archipelago Natural Heritage Management Board in advising Hai Phong People's Committee to apply science and technologies into the heritage management, in which GPS, GIS and VHF is installed in order to supervise activities in Cat Ba Archipelago;

- Coordinating with Cat Hai District People's Committee, and Cat Ba Archipelago Natural Heritage Management Board in disseminating information, guiding organizations and individuals to participate in scientific research which shall be done to serve the needs of environmental protection; proposing

solutions to encourage organizations and individuals to participate in scientific research activities for the purpose of heritage protection.

9.3.5.7. Hai Phong City Department of Industry and Commerce

- Coordinating with relevant departments and agencies in disseminating information and raising the awareness of organizations and individuals who doing business in Cat Ba Archipelago to observe the stipulations on commercial civilization and food safety;

- Checking, handling trade violations committed in the bays of Cat Ba Archipelago.

9.3.5.8. Hai Phong City Department of Education and Training and Youth Union

- Taking the main responsibilities for educational programs on Cat Ba Archipelago heritage at all levels of school in Cat Hai District, in an integration with dissemination of information about protecting Cat Ba Archipelago;

- Providing guidelines and directing youth organizations and members, schools at Cat Hai District to actively participate in the promotion and protection of Cat Ba Archipelago.

9.3.5.9. Hai Phong City Department of Planning and Investment

- Proposing solutions of capital layouts to implement the Management Plan as scheduled and as per the approval decision;

- Conducting the function of evaluation of investment projects, verifying investment balance sheet according to its competence and decentralized authority; guiding, checking and supervising capital management as per the laws.

9.3.5.10. Hai Phong City Department of Public Security

- Taking the main responsibility, coordinating with Cat Hai District People's Committee and relevant departments and agencies in ensuring the security and social order, handling violations against the security and social order in Cat Ba Archipelago;

- Taking the main responsibility, coordinating with Department of Tourism in studying to establish tourism police in order to strictly handle violations against tourism business environment.

9.3.5.11. Hai Phong City Department of Tourism

- Disseminating information, promotion and guidelines to tourism businesses about the protection and promotion of beauty spots, tourism destinations, and relics in Cat Ba Archipelago;

- Checking the environmental protection activities in the field of tourism in the bays of Cat Ba Archipelago; handling or requesting relevant departments and agencies to handle violations as per the laws;
- Coordinating in monitoring tourism environment in tourism areas, and destinations in the bays of Cat Ba Archipelago; timely detecting environmental pollution, degradation and disaster as well as violations against the tourism environment; handling or requesting relevant departments and agencies to handle violations as per the laws;
- Taking the main responsibility, coordinating with relevant departments and agencies in evaluating and declaring tourism service areas in the bays of Cat Ba Archipelago; evaluating and declaring classification of tourism accommodation facilities and service trading premises that meet the standards to serve tourists in the bays of Cat Ba Archipelago;
- Coordinating in checking, handling violations committed in tourism service trading in accordance with the law;
- Taking the main responsibility, coordinating with relevant departments and agencies in training, enhancing tourism professional skills for staff and those who get involved in tourism services;
- Taking the main responsibility, coordinating with relevant departments and agencies in supervising tourism service quality;
- Coordinating with relevant departments and agencies in checking, supervising the security and social order, environmental hygiene during the tourism operations in the bay of Cat Ba Archipelago.

9.3.5.12. Hai Phong City Department of Home Affairs:

Advising Hai Phong City People's Committee to consolidate and renovate the heritage organizational structure; training and enhancing the capacity of heritage management and protection staff.

9.3.5.13. Hai Phong Military Headquarter

- Coordinating with other relevant forces in enhancing the management of, checking passenger carrying vehicles in terms of observance of the laws on the safety of inland waterway transportation, handling overcapacity, inadequate passenger carrying safety and prevention and fight of fire and explosion as well as lack of legal documents on passengers and vehicles;
- Coordinating closely with the local authorities and functional organizations in the locality in promoting and delivering legal education programs on the safety of inland waterway transportation, especially the

stipulations of passenger carrying vehicles, boats, high-speed tourism ferries, entertainment facilities and floating restaurants in the area;

- Coordinating with the search and rescue forces in the areas that belong to its authority; actively coordinating with relevant departments and agencies in handling incidents occurred to tourism activities in the bays of Cat Ba Archipelago.

9.3.5.14. Hai Phong Fire Prevention and Fighting Police Division

- Exercising the state management over the fire prevention and fighting in Cat Ba Archipelago; taking the main responsibility, checking and supervising the implementation of stipulations on the fire prevention and fighting in tourism services performed by organizations and enterprises in Cat Ba Archipelago;

- Preparing specific guidelines for passenger carrying businesses in the bays of Cat Ba Archipelago to observe the requirements and solutions of the fire and explosion prevention and fighting for tourism boats/vessels;

- Disseminating information and guidelines to organizations and businesses, having them strictly obey the law stipulations on the fire prevention and fighting in Cat Ba Archipelago.

9.3.5.15. Cat Hai District People's Committee

- Disseminating information and guidelines to tourism organizations and businesses in Cat Ba Archipelago, having them strictly obey the law stipulations;

- Taking the main responsibility for preparing and guiding the implementation of management regulations on service areas, and types of tourism services in the bays of Cat Ba Archipelago;

- Coordinating with relevant departments and agencies in implementing the security and social order, and environmental hygiene; directing, giving information to tourism organizations and businesses who shall sign an environmental protection commitment, performing their financial obligations as per the laws, and ensuring the security and safety of transportation; at the same time taking the main responsibility and coordinating with relevant departments and agencies in checking, supervising and handling violations committed by tourism organizations and individuals in the bay;

- Exercising the state management according to its authority over the entire tourism activities and passenger carrying service in the bays of Cat Ba Archipelago in accordance with the laws, except for the management responsibilities of Hai Phong City Department of Transportation;

- Managing and preparing safety requirements, enabling tourists and boats/vessels to arrive at, depart from the tourism destinations, and anchorage sites in the bays of Cat Ba Archipelago;
- Protecting the landscapes/seascapes, and environment of the bays; checking, supervising the environmental hygiene at tourism service areas;
- Operating communication system in 24 hours for tourism boats/vessels at the permanent communication channel managed by Hai Phong Inland Waterway Port Authority;
- Acting as a permanent office for search and rescue; taking the main responsibility and coordinating with relevant departments and agencies in handling incidents incurred in the bays of Cat Ba Archipelago; arranging vehicles for the search and rescue;
- Recommending Hai Phong City People's Committee to make planning of anchorage sites for overnight staying boats/vessels in the bay of Cat Ba Archipelago; organizing the collection of garbage at tourism destinations, anchorage sites and the waters that are assigned to managed according to the laws;
- Organizing and coordinating with relevant departments and agencies in managing, checking, detecting and handling violations against ticketing at the bays, as well as any acts that harm the environment, landscapes/seascapes of the bays in Cat Ba Archipelago;
- Giving instructions to communes, towns that border with Quang Ninh Province to enhance administrative boundary management; preparing for solutions and preventing any violations by organizations and individuals against tourism activities;
- Directing Cat Ba Archipelago Natural Heritage Management Board to implement the collection and pick-up of wastes at the beauty spots, and anchorage sites; signing a waste collection contract with waterway vehicles when needed; taking the main responsibility for preparing a management regulation of tourism destinations and anchorage sites for overnight staying boats/vessels and other tourism types operating in the bays of Cat Ba Archipelago; taking responsibilities for providing tickets, collecting visiting fees, and overnight-staying charges for those boats/vessels anchor overnight in the bays of Cat Ba Archipelago;
- Giving instructions to the communes, towns of Cat Hai District
- + to guide the implementation of environmental protection in tourism service according to the competence; disseminating information to local

communities about the responsibility for protecting and promoting the heritage values;

- + to detect and handle according to the competence violations against the environmental protection or report to the next higher-level state environmental management bodies.

9.3.5.16. Hai Phong Tourism Association

- Assisting, giving consultation to businesses and households in Cat Ba Archipelago to create and develop tourism products, and traditional craft items with the participation of local people in order to provide for tourists;

- Coordinating with relevant departments and agencies in promoting and advertising Cat Ba tourism products;

- Coordinating with relevant departments and agencies in checking, supervising the law observance of businesses and households during the production and development of tourism products, with the participation of the local people.

9.3.5.17. Hai Phong Cooperative Union

- Giving directions to its members to promote, advise, assist individuals, households, businesses and labourers in developing various tourism products, traditional crafts, and at the same time attracting the participation of local people in tourism product development;

- Coordinating with relevant departments and agencies in introducing and promoting tourism products, traditional craft, and locally specific products;

- Coordinating with relevant departments and agencies in checking and supervising the law observance by enterprises, business households and labourers during the production and development of tourism products.

9.3.5.18. Requesting Hai Phong City Communication Centre:

- Maintaining operating a special column on website to disseminate the information on management and protection of Cat Ba Archipelago as well as legal documents on heritage protection;

- Organizing a movement in which all people are encouraged to protect the heritage, landscapes/seascapes, as well as ensuring the security and social order for the property.

9.3.5.19. Requesting political and social organizations in Hai Phong City:

Political and social organizations (Fatherland Front, Youth Union, Women Union, Veteran Association and other organizations) participate in supervising and checking the implementation of the Management Plan;

encouraging local communities, and members to get involved in the conservation and promotion of Cat Ba Archipelago.

9.3.6. Enterprises operating in Cat Ba Archipelago

9.3.6.1. Owners of ports and wharfs, investors operating in Cat Ba Island:

Ensuring the security and social order at ports and wharfs managed by them; organizing collection and treatment of wastes from boats/vessels anchored within the water around ports managed by them in accordance with the laws.

9.3.6.2. Organizations, enterprises operating in Cat Ba Archipelago

- Organizations and enterprises who perform business services and other trading activities in Cat Ba Archipelago are allowed to only carry out the activities that they are allowed by the competent bodies to do at stated locations, observing the current laws regarding production, trading, commerce as well as management regulations on tourism service, ensuring security, environmental hygiene, and transportation safety;

- Promoting and enhancing the awareness of staff and employees about the relevant regulations and rules related to the operations of tourism boats/vessels, landscape/seascape protection, biodiversity, tourism service environment, commercial civilization, tourist safety and social order.

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ANNEXES

ANNEX 1 LIST OF TASKS AND SOLUTIONS FOR MANAGEMENT, PROTECTION AND PROMOTION OF WORLD NATURAL HERITAGE HA LONG BAY - CAT BA ARCHIPELAGO FOR THE PERIOD OF 2020 - 2025 (FOR QUANG NINH PROVINCE)

(Adopted under the Management Plan of World Natural Heritage Ha Long Bay for the period of 2021 - 2025, with a vision towards 2040)

No.	Tasks	Agency taking the main responsibility	Agencies coordinated	Time of implementation and completion
I	HA LONG BAY HERITAGE MANAGEMENT			
1	Preparing and implementing the Management Plan of management, protection and development of World Natural Heritage Ha Long Bay for the period 2012-2030, with a vision towards 2050	Ha Long Bay Management Board	DPI and relevant agencies of Quang Ninh Province	2021
2	Establishing Ha Long Bay Tourism Zone, Ha Long Bay Nature Conservation Area	Ha Long Bay Management Board	Department of Tourism, DoNRE and related agencies of Quang Ninh Province	2021
3	Consolidating, renovating the heritage organizational structure	Quang Ninh Province Department of Home Affairs	Ha Long Bay Management Board	2021
4	Posting on site boundary marks at the protected areas of the Property	Ha Long Bay Management Board	Related agencies of Quang Ninh Province	2021
5	Preparing solutions to managing tourism in Ha Long Bay	Ha Long Bay Management Board	Department of Tourism and related agencies of Quang Ninh Province	2022
6	Preparing database on tourism resources, tourists and tourism services	Ha Long Bay Management Board	Department of Tourism and related agencies	2022

No.	Tasks	Agency taking the main responsibility	Agencies coordinated	Time of implementation and completion
			of Quang Ninh Province	
7	Periodically monitoring the landscape/seascape aesthetic values, geological and morphological values, biodiversity, cultural and historical values, and seawater quality in Ha Long Bay	Ha Long Bay Management Board	Related agencies and localities of Quang Ninh Province	Annually
8	Monitoring periodically and from time to time the seawater quality in Ha Long Bay	DoNRE tỉnh Quảng Ninh	Ha Long Bay Management Board	Annually
9	Applying automatic narration about Ha Long Bay, digitalizing the database of management, protection and promotion of Ha Long Bay	Ha Long Bay Management Board	Sở TT-TT and related agencies of Quang Ninh Province	2025
II	HA LONG BAY HERITAGE CONSERVATION			
1	Listing, making scientific records of distribution maps, solutions to management and protection of historical relics and archeological sites in Ha Long Bay	Ha Long Bay Management Board	Department of Culture and Sports and related agencies of Quang Ninh Province	2025
2	Delineating, protecting coral reef that have a coverage of 30% and up	Ha Long Bay Management Board	IMER	2020-2025
3	Delineating, protecting 10.34ha of mangrove forest in Zone I (the heritage site); preparing solutions for protecting the mangrove forest ecosystem in coastal areas of Ha Long Bay	Ha Long Bay Management Board	Related agencies and localities	2020-2025
4	Listing, identifying, collecting the entire intangible cultural values of Ha Long Bay; selecting typical values to develop tourism products	Ha Long Bay Management Board	Department of Culture and Sports and related agencies of Quang Ninh Province	2021-2022

No.	Tasks	Agency taking the main responsibility	Agencies coordinated	Time of implementation and completion
5	Restoring the fishing villages of Cua Van and Vong Vieng; completing the infrastructure and functions of the floating cultural centre of Cua Van; building some traditional mast vessels	Ha Long Bay Management Board	Department of Culture and Sports and related agencies of Quang Ninh Province	2021-2022
6	Preparing and including the dossier of Ba Men Temple, Ha Long Bay into the List of relics, monuments and festivals of Quang Ninh Province	Ha Long City People's Committee	Related agencies of Quang Ninh Province	2022
7	Preparing the plannings of aquaproduct raising, and fishing prohibited areas in Ha Long Bay; developing fisheries for the purpose of tourism services	Quang Ninh Province Department of Agriculture and Rural Development	Ha Long Bay Management Board, Ha Long City People's Committee	2021-2022
8	Establishing Ha Long Bay Heritage Fund	Ha Long Bay Management Board	Department of Home Affairs and related agencies of Quang Ninh Province	2025
9	Investing in waste water treatment station in the areas of Ha Phong, Ha Khau, Viet Hung, Dai Yen and Hoanh Bo	Ha Long City People's Committee	Related agencies of Quang Ninh Province	2021-2025
10	Investing in domestic waste water treatment station in Cam Pha city, and Van Don district	Cam Pha City People's Committee, Van Don District People's Committee	Related agencies of Quang Ninh Province	2021-2025
III	HA LONG BAY HERITAGE PROMOTION			
1	Evaluating and declaring the tourism carrying capacity of Ha Long Bay	Ha Long Bay Management Board	Related agencies of Quang Ninh Province	2021 - 2022

No.	Tasks	Agency taking the main responsibility	Agencies coordinated	Time of implementation and completion
2	Preparing a comprehensive proposal for tourism service development in Ha Long Bay	Ha Long Bay Management Board	Department of Tourism and related agencies of Quang Ninh Province	2025
3	Establishing a tourist centre in Ha Long Bay	Ha Long Bay Management Board	Department of Tourism and related agencies of Quang Ninh Province	2025
4	Replacing tourism wooden boats presently running in Ha Long Bay with boats built with metal or equivalence	Ha Long City People's Committee	Department of Transportation and related agencies of Quang Ninh Province	2020- 2025
5	Establishing new, specific and themed tourism products	Ha Long Bay Management Board	Department of Tourism, Department of Culture and Sports tỉnh Quảng Ninh, Ha Long City People's Committee	2020-2025
6	Organizing the exploitation of tourism products using adventure tourism vessels/cruise ships	Ha Long Bay Management Board	Department of Tourism, Department of Culture and Sports tỉnh Quảng Ninh, Ha Long City People's Committee	2021-2022
7	Organizing touring routes connecting Ha Long Bay and the nature conservation area Dong Son – Ky Thuong	Quang Ninh Province Department of Tourism	Ha Long City People's Committee, Department of Culture and Sports tỉnh Quảng Ninh, Ha Long Bay Management	2025

No.	Tasks	Agency taking the main responsibility	Agencies coordinated	Time of implementation and completion
			Board	
8	Organizing coastal touring routes combined with traditional folklore performance under a reality performing stage project themed with 'Dreaming of Ha Long'	Ha Long Bay Management Board	Department of Culture and Sports, Department of Tourism tỉnh Quảng Ninh, Ha Long City People's Committee	2021
9	Conducting the project 'Three heritage One destination' which include the destinations of Ha Long Bay (Viet Nam), Luang Prabang (Laos) and Ban Chiang (Thailand)	Quang Ninh Province Department of Tourism	Related agencies of Quang Ninh Province	2021-2025
IV	ADVERTISING, PROMOTION AND COMMUNITY-BASED EDUCATION			
1	Organizing the promotion activities about Ha Long Bay integrated with tourism, trade promotion programs, exhibitions, international and national workshops	Quang Ninh Province Department of Tourism	Ha Long Bay Management Board and related agencies of Quang Ninh Province	Annually
2	Introducing education programs about Ha Long Bay heritage conservation to all levels of school	Quang Ninh Province Department of Education and Training	Ha Long Bay Management Board, the People's Committees located in Quang Ninh Province	Annually
3	Preparing plans of heritage promotion, and education for communities about the protection, conservation and promotion of Ha Long Bay	Ha Long Bay Management Board	Related agencies of Quang Ninh Province	Annually
V	CHECKING, SUPERVISING AND VIOLATIONS			
1	Closely checking and supervising construction projects and socio-economic	Ha Long Bay Management Board	Department of Construction, Ha Long City	Regularly

No.	Tasks	Agency taking the main responsibility	Agencies coordinated	Time of implementation and completion
	activities in Zone I, Zone II and coastal areas of Ha Long Bay		People's Committee and related agencies of Quang Ninh Province	
2	Checking, supervising acts of exploiting illegally fisheries, animals and plants, buying and selling threatened wild animals, and releasing invasive in Ha Long Bay	Ha Long Bay Management Board	Department of Agriculture and Rural Development and related agencies of Quang Ninh Province	Regularly/periodically
3	Checking, supervising pollution generating sources in Ha Long Bay; preventing, reducing plastic wastes	Ha Long Bay Management Board	Sở NN&PTNT and related agencies of Quang Ninh Province	Regularly
4	Checking, inspecting travel tourism activities and guides; checking and handling violations against the regulations on tourism environment	Department of Tourism tỉnh Quảng Ninh	Sở Công Thương tỉnh Quảng Ninh, Ha Long City People's Committee	Regularly/periodically
5	Checking, supervising and handling violations against the regulations on security and social order for Ha Long Bay	Ha Long Bay Management Board	Công an tỉnh, Ha Long City People's Committee and related agencies of Quang Ninh Province	Regularly
6	Checking, supervising tourism organizations, passenger carrying businesses, their observance of the regulations on fire prevention and fighting, safety of vehicles	Quang Ninh Province Department of Public Security	Ha Long Bay Management Board, Ha Long City People's Committee	Regularly
VI	NATURAL DISASTER RESPONSE AND CLIMATE CHANGE PREPAREDNESS			
1	Preparing and implementing the plans on climate change preparedness, response to oil spill; prevention and fighting	Ha Long Bay Management	DoNRE and related agencies of Quang Ninh	Annually

No.	Tasks	Agency taking the main responsibility	Agencies coordinated	Time of implementation and completion
	against natural disasters, fire, explosion, and search and rescue in Ha Long Bay	Board	Province	
2	Organizing training courses, and demonstration of simulated situations of preventing and fighting against natural disaster, and search and rescue in Ha Long Bay	Quang Ninh Province Military Headquarter	Related agencies of Quang Ninh Province	Annually
VII	HUMAN RESOURCE DEVELOPMENT			
1	Organizing periodical examinations, training and re-training of tourist guides in Ha Long Bay	Ha Long Bay Management Board	Quang Ninh Province Department of Tourism	Annually
2		Quang Ninh Province Department of Home Affairs	Ha Long Bay Management Board and related agencies of Quang Ninh Province	Annually
3	Delivering professional programs to captains, crew members, and employees working in tourist boats/vessels, and guides	Department of Tourism tỉnh Quảng Ninh	Related agencies of Quang Ninh Province	Annually
4	Organizing professional training courses on search and rescue, fire prevention and fighting for organizations and individuals operating in Ha Long Bay	Fire prevention and fighting police division of Quang Ninh Province	Ha Long Bay Management Board and related agencies of Quang Ninh Province	Annually

ANNEX 2
LIST OF INVESTMENT PROJECTS FOR MANAGEMENT,
CONSERVATION AND PROMOTION OF HA LONG BAY – CAT BA
ARCHIPELAGO FOR THE PERIOD OF 2020 - 2025

(Adopted under the Management Plan of World Natural Heritage Ha Long Bay for the period of 2021 – 2025, with a vision towards 2040)

No.	Project	Agency taking the main responsibility	Agencies coordinated	Time of implementation
I	Projects for conservation, renovation and embellishment			
1	Renovating, combating degradation and collapse of Ga Choi Island	Ha Long Bay Management Board	Related agencies of Quang Ninh Province	2021- 2022
2	Restoring cultural values of fishing villages in Ha Long Bay; establishing some photographing sites, icon of Ha Long Bay as well as founding ‘living museum’ that introduces the images of ‘Ha Long now and then’	Ha Long Bay Management Board	Related agencies of Quang Ninh Province	2022- 2023
3	Renovating, embellishing the infrastructure of Ti Top island	Ha Long Bay Management Board	Related agencies of Quang Ninh Province	2022
4	Renovating, embellishing the infrastructure of Mê Cung cave	Ha Long Bay Management Board	Related agencies of Quang Ninh Province	2022
5	Renovating, embellishing the infrastructure of Ba Men Goddess Temple, and Ba Hầm Lake	Ha Long Bay Management Board	Related agencies of Quang Ninh Province	2022
6	Renovating, embellishing the infrastructure of Thầy cave	Ha Long Bay Management Board	Related agencies of Quang Ninh Province	2022
7	Renovating, embellishing the infrastructure of Trà Giới island	Ha Long Bay Management Board	Related agencies of Quang Ninh Province	2022
8	Renovating, embellishing the infrastructure of Trống cave	Ha Long Bay Management Board	Related agencies of Quang Ninh	2023

No.	Project	Agency taking the main responsibility	Agencies coordinated	Time of implementation
			Province	
9	Renovating, embellishing the infrastructure of Trinh Nữ cave	Ha Long Bay Management Board	Related agencies of Quang Ninh Province	2023
10	Renovating, embellishing the infrastructure of cave and lake Hồ Động Tiên	Ha Long Bay Management Board	Related agencies of Quang Ninh Province	2023
11	Renovating, embellishing the infrastructure of Lờm Bò island	Ha Long Bay Management Board	Related agencies of Quang Ninh Province	2023
12	Renovating, embellishing the infrastructure of Cỏ island and cave	Ha Long Bay Management Board	Related agencies of Quang Ninh Province	2023
13	Renovating, embellishing the infrastructure of Tiên Ông cave	Ha Long Bay Management Board	Related agencies of Quang Ninh Province	2024
14	Renovating, embellishing the infrastructure of Bò Nâu cave	Ha Long Bay Management Board	Related agencies of Quang Ninh Province	2024
15	Renovating, embellishing the infrastructure of Áng Dù Lake	Ha Long Bay Management Board	Related agencies of Quang Ninh Province	2024
16	Renovating, embellishing the infrastructure of Cặp La cave	Ha Long Bay Management Board	Related agencies of Quang Ninh Province	2024
17	Renovating, embellishing the infrastructure of sand beaches at Cọc Chèo island, Hà lagoon, Lưỡi Liềm island, Quyển Rồng island, Trà Sắn island, Chanh island, etc.	Ha Long Bay Management Board	Related agencies of Quang Ninh Province	2022 - 2025
II	Projects for heritage management			
1	Renovating signposts at the islands of Thiên Cung, Đầu Gỗ, Sừng Sốt, etc.	Ha Long Bay Management Board	Related agencies of Quang Ninh	2021

No.	Project	Agency taking the main responsibility	Agencies coordinated	Time of implementation
			Province	
2	Posting boundary marks for Zone I (the heritage site)	Ha Long Bay Management Board	Related agencies of Quang Ninh Province	2022
3	Installing domestic waste water treatment facilities at tourist destination in Ha Long Bay	Ha Long Bay Management Board	Related agencies of Quang Ninh Province	2021- 2023
4	Constructing office, kitchen, dining room, and toilets from floating composite system for the operations of Ha Long Bay Management Board	Ha Long Bay Management Board	Related agencies of Quang Ninh Province	2021- 2023
5	Constructing floating wharfs combined with management posts at tourism service areas of ferries, and kayak rowing in Ha Long Bay (namely, <i>Luồn cave; Hồ Động Tiên lake - Trống cave; Trinh Nữ island; Tùng Sâu lagoon; Cửa Vạn; Cống Đỏ; Cỏ cave; Thầy cave; Bọ Hung island; Ba Hầm Lake; Cống Dầm</i>)	Ha Long Bay Management Board	Related agencies of Quang Ninh Province	2021- 2025
6	Constructing floating wharfs combined with management posts at three anchorage sites for luxurious cruise ships (<i>in the areas of Đầu Bê island, Hà lagoon, Xếp island</i>)	Ha Long Bay Management Board	Related agencies of Quang Ninh Province	2021-2022
III	Project for heritage management facilities			
1	Conducting major repair in the cycle of 5 years of facilities of carrying staff and paying patrols in Ha Long Bay	Ha Long Bay Management Board	Related agencies of Quang Ninh Province	2021- 2025
2	Investing, doing maintenance, repairing and managing signal buoy system in Ha Long Bay	Ha Long Bay Management Board	Related agencies of Quang Ninh Province	2021- 2025
3	Repairing the broadcasting		Related	

No.	Project	Agency taking the main responsibility	Agencies coordinated	Time of implementation
	system in the sites of Thiên Cung, Đầu Gỗ, Ti Tốp, Sừng Sốt, Cửa Vạn	Ha Long Bay Management Board	agencies of Quang Ninh Province	2022
4	Procuring boats/vessels carrying staff of the Board from shore to working stations	Ha Long Bay Management Board	Related agencies of Quang Ninh Province	2024
B	PROJECTS CONDUCTED IN ZONE II (BUFFER ZONE)			
1	Tuan Chau International Tourism Zone	Investor	Related agencies of Quang Ninh Province	2020- 2025
2	Bai Chay Tourism Zone and International Port of Hòn Gai	Investor	Related agencies of Quang Ninh Province	2020- 2025
3	Wharfs for cruise ships at the site No.3	Investor	Related agencies of Quang Ninh Province	2021- 2025
4	Reality performing stage at the site No.3	Investor	Related agencies of Quang Ninh Province	2021- 2025
5	Road along the sea from Ha Long – Cam Pha	Transport Facilities Management Board	Related agencies of Quang Ninh Province	2020- 2021