

Coastal Strategy of Nampho City, Democratic People's Republic of Korea



**COASTAL STRATEGY OF NAMPHO CITY,
DEMOCRATIC PEOPLE'S REPUBLIC OF KOREA**

2004

PEOPLE'S COMMITTEE OF NAMPHO CITY

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GLOSSARY

Biodiversity – Abundance in gene resource, species and ecosystem.

Clean production – Application of continuous integrative environmental prevention strategy for manufacturing processes, products and services to ensure the increase of productivity and decrease of risks to human beings and the environment.

Ecosystem – System of biological communities co-existing and developing in a certain environment, interacting with each other and with the environment.

Ecosystem management – Management of ecosystem values and uses, recognizing the interactions with the environment and responding to signals from the ecosystem to control anthropogenic activities and uses.

Ecotourism – Tourism focusing on environmental and cultural resources and usually based on a conservation theme.

Habitat – Smallest geographical unit of shelter, characterized by a type of biological species of dominant identity suitable for the environment in the area.

Integrated Coastal Management (ICM) – A natural resource and environmental management framework which employs an

integrative, holistic approach and interactive planning process in addressing complex management issues in the coastal area.

Juche Idea – The Juche Idea represents an invariable guiding idea of the Korean revolution and a great revolutionary banner of our time. The philosophical principle of the Juche Idea centers on man, explaining his position and role in the world.

Stakeholders – Persons or enterprises who, directly or indirectly, positively or negatively, participate or relate to the activities or phenomena in the area of concern.

Sustainable development – Development that ensures the continuance of natural resource productivity and a high level of environmental quality, thereby providing for economic growth to meet the needs of the present without compromising the needs of future generations.

Wetland – Those areas that are inundated or saturated by surface or groundwater at a frequency and duration sufficient to support, and that under normal circumstances do support, a prevalence of vegetation typically adapted for life in saturated soil conditions.

ABBREVIATIONS

CPDDNC	–	City Planning and Designing Department of Nampho City
EDNC	–	Education Department of Nampho City
EPRC	–	Environmental Protection Research Center
GBCIO	–	General Bureau for Cooperation with International Organizations
ICM	–	Integrated Coastal Management
LEPDNC	–	Land and Environmental Protection Department of Nampho City
LPDDNC	–	Land Planning and Designing Department of Nampho City
LPRI	–	Land Planning Research Institute
LSONC	–	Land Supervisory Office of Nampho City
MAMDNC	–	Municipal Administration and Management Department of Nampho City
MLEP	–	Ministry of Land and Environmental Protection
MSD	–	Maritime Supervisory Department
PEMSEA	–	Global Environment Facility/United Nations Development Programme/International Maritime Organization Regional Programme on Building Partnerships in Environmental Management for the Seas of East Asia
PCHD	–	People's Committee of Hangu District
PCNC	–	People's Committee of Nampho City
PCWD	–	People's Committee of Waudu District
PMO	–	Project Management Office
RPO	–	Regional Programme Office
SHMA	–	State Hydro-meteorological Administration
SO	–	Social Organization
SRIMA	–	Scientific Research Institute for Municipal Administration
WSFRI	–	West Sea Fishery Research Institute
WSORI	–	West Sea Oceanographic Research Institute

FOREWORD

To conserve and protect the land and natural resources is of high importance in the development and prosperity of our country and motherland.

Today, when the work of building a great powerful nation is intensified and the scale of the economy becomes larger, nature steadily develops and changes, not only by its own natural law, but by the initiative and creative activity of the people.

General **Kim Jong Il** considers the successful management of land, natural resources and the living environment as important matters in modeling the whole society on the Juche Idea. He set out the policy of transforming land and the natural environment as demanded by the Juche Idea, and wisely leads its implementation.

Under the far-reaching plan on land construction by President **Kim Il Sung** and General **Kim Jong**

Il, the world-class, 8 km-long West Sea Barrage was built in the West Sea of Korea, and the great nature-remaking creations, such as the Kaechon–Lake Taesong Waterway, and the Youth Hero Highway linking Pyongyang and Nampho, have been built glorifying the age of the army-based policy. A large number of nature-remaking projects, such as the large-scale land leveling and re-zoning for the prosperous development of the country, are now underway.

Many grand monumental edifices have been built everywhere. The area of cultivated land is expanding and mountains are getting greener, so profitable flora and fauna and marine resources are growing in number.

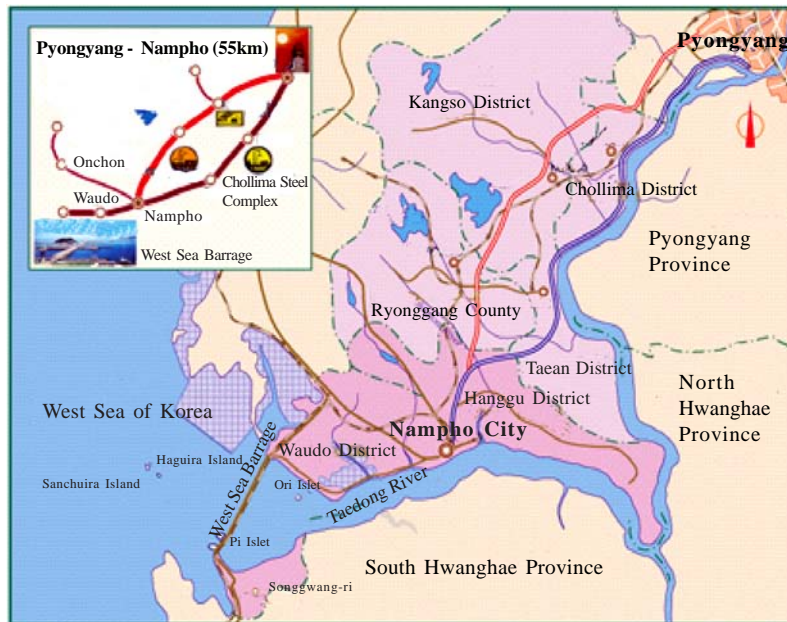


Figure 1. Map of Nampho, DPR Korea

The Juche Idea established a man-centered outlook on the world by throwing a fresh light on the essential characteristics of man and his position and role in the world.

It had already been known that the world consists of material, and changes and develops as a result of the motion of material. The Juche Idea gives a new world outlook by answering the question of who is the master that dominates nature and society, and where is the force that transforms them. That the world is dominated and reshaped by man is a new viewpoint on the world in relation to man.

The Juche Idea shows a new viewpoint and attitude to the world, on the basis of man's position and role as master of the world.

Man is the most powerful being in the world, and man alone is capable of transforming the world. It is man and none other that requires its transformation and performs this work. Man acts upon and transforms the world as he desires, drawing on the objective laws. The world is changed for the benefit of man only by his energetic activity.

As a result of the improvement of cities, villages, roads, rivers, streams and coastal areas, our country is now turning into an earthly paradise, where the living condition is good for the people. Today, we are taking the responsibility of building Nampho as a beautiful and cultural port city by linking the city with Pyongyang, following the behest of the President and the teachings of the General. Our heavy yet honorable task is to manage Nampho coast in harmony with the environment, which has been recently changed after the construction of the West Sea Barrage, and to build Nampho so as to contribute to the construction of a powerful socialist nation.

The coastal area of Nampho City, DPR Korea, was selected as one of six national ICM demonstration sites of the GEF/UNDP/IMO Regional Programme on Building Partnerships in Environmental Management for the Seas of East Asia (PEMSEA). The Preparing and Initiating Stages (Stage 1 and 2) of the ICM project have already been accomplished and the Developing Stage (Stage 3) is now underway. In order to realize the idea of General **Kim Jong Il** on the construction of Nampho City, the integrated coastal strategy has been formulated focusing on the coastal area of Nampho (Hanggu and Waudu districts) as a National ICM Demonstration Site.

The goal/objective of the Coastal Strategy of Nampho City is to develop and utilize land and coastal resources rationally as required by the Juche Idea and build the area into an enchanted socialist land better to live in by the people adhering to sustainable development practices based on the principle of conserving the environment.

The purpose of the Coastal Strategy is to manage and develop the coast in an integrated and comprehensive way, and at the same time protect the environment. The Strategy prescribes the development prospects in accordance with the principles and vision of integrated coastal management (ICM), by providing cooperative directions for the development and management of the coast to the stakeholders.



ICM Program Development and Implementation Cycle

ICM is a management system of natural resources and environment in the coastal area, which employs integrated, holistic and interactive approaches.

Nampho City, DPR Korea, has been selected as one of six national ICM Demonstration Sites under the GEF/UNDP/IMO Regional Programme on Building Partnerships in Environmental Management for the Seas of East Asia (PEMSEA). With the signing of the Memorandum of Agreement between IMO and General Bureau for Cooperation with International Organizations (GBCIO), the project was officially launched on 8 September 2000.

The Project is now entering into the Developing Stage of the ICM Program Development and Implementation Cycle. The development of a Coastal Strategy is a major achievement of the project. The objective of the Coastal Strategy is to provide stakeholders with a common vision and framework for action in developing and managing their shared coastal area.

The Coastal Strategy describes the overview, socioeconomic and cultural values of the site, the state of its coastal environment, the development strategies and the issues arising in its development and environmental protection. The important consideration is to achieve economic development, and to advance the protection, development, and management of the site systematically in accordance with the requirements of sustainable development, not only for the present, but also for future generations. We are sure that if we can follow this way we can achieve more success in the socioeconomic development and environmental protection within the coastal area of Nampho City.

The Strategy was formulated directly by the relevant officials of the People's Committee of Nampho City (PCNC), the Department of Land and Environmental Protection (LEPDNC), PCNC, the People's Committee of Hangu and Waudu districts (PCHD and PCWD), and experts of the West Sea Oceanographic Research Institute (WSORI), the Land Planning and Designing Department of Nampho City (LPDDNC), the City Planning and Designing Department of Nampho City (CPDDNC) and the West Sea Fishery Institute (WSFRI). It was developed through several consultation workshops with the active cooperation of officials from scientific research institutes, factories and enterprises of the city.

The consultation workshops for the development of the coastal strategy were held four times.

Date:	Place:	Activity:
12 - 14 September 2001	WSORI	Training on the Methodology of Developing the Coastal Strategy
12 - 13 December 2001	WSORI	Hangu District Consultation Workshop
13 - 14 December 2001	WSORI	Waudu District Consultation Workshop
10 - 11 June 2002	WSORI	Area-wide Consultation Workshop

ACKNOWLEDGMENT

We would like to acknowledge the support of the Land Planning Research Institute whose enthusiasm in sharing their knowledge, experience and views during the consultation process has stimulated dynamic and productive discussion.

We are also pleased to acknowledge the special support of the coordinators during the process of coastal strategy development, which resulted in the successful completion of the document.

We are paying our gratitude to the various national and local experts from different agencies and institutions for their willingness to provide their expert opinions on important issues.

Thanks also goes to the officials of the General Bureau for Cooperation with International Organizations (GBCIO) and Hanggu and Waudu districts for their active support in successfully conducting several consultation workshops for the development of the coastal strategy.

Especially, we are grateful to the GEF/UNDP/IMO Regional Programme on Building Partnerships in Environmental Management for the Seas of East Asia (PEMSEA) for its support in completing this document.

The People's Committee of Nampho City



Mr. Ri Do Hyun
Chairman,
People's Committee of Nampho City



OVERVIEW OF
NAMPHO COASTAL AREA

OVERVIEW OF NAMPHO CITY

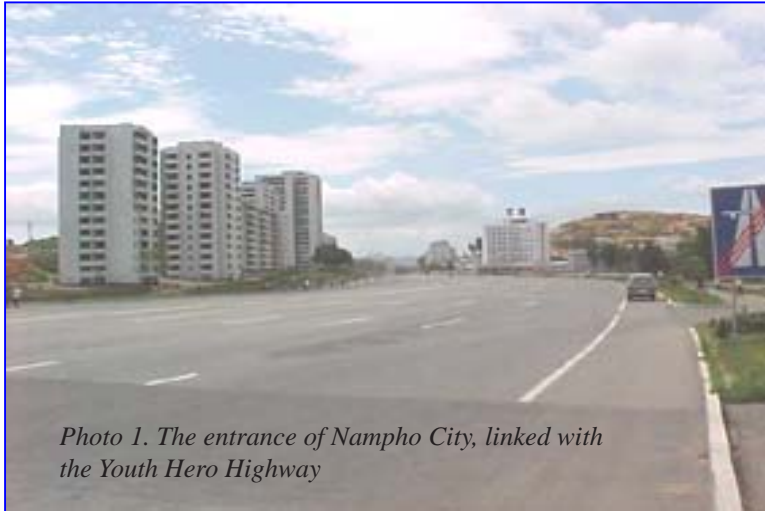


Photo 1. The entrance of Nampho City, linked with the Youth Hero Highway

The project site covers an area of 467.8 km², including coastal land of 252.8 km² from Doji-dong, Hangu District to West Sea Barrage area including Ryongnam-dong, Waudu District, Nampho City. The water area of 215 km² extends from Taedong River in front of Doji-dong to the sea-side of West Sea Barrage extending 10 km. The freshwater area is 144 km² and the seawater area is 71 km². The total length of the coastline is 127 km, 55 km of which is alongside the length of Taedong River.

The site borders Unchon and Unryul counties, South Hwanghae Province in the opposite side of Taedong River and the sea area. Outside of the West Sea Barrage, it borders Unryul County, South Hwanghae Province, and Onchon County, South Pyongan Province.

1. Location and Territory

The Democratic People's Republic of Korea is situated in Northeast Asia. It borders with China and Russia in the north through Amrok and Tuman Rivers. It is a beautiful country washed by seas in both sides: the East Sea of Korea and the West Sea of Korea.

Nampho, the cultural port city, is located in the coast of the West Sea of the Democratic People's Republic of Korea. It is the gateway to Pyongyang, the capital of the country, located about 100 ri (42.216 km) away southwest of Pyongyang.

Hangu and Waudu districts have been selected as ICM project site among five districts and one county (Chollima, Kangso, Taeon, Hangu and Waudu districts and Ryonggang County) of Nampho City.

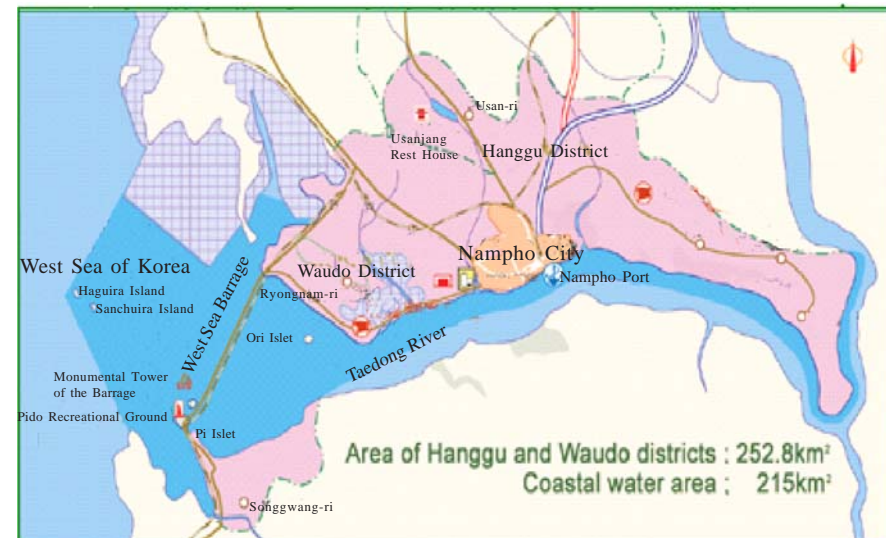


Figure 2. Boundary of National ICM Demonstration Site in Nampho, DPR Korea

2. History of Nampho

During the Koryo Dynasty, Nampho City was called Gangsohyon. At the end of the Ri Dynasty, it was referred to as Jinnampo of South Pyongan Province, and in 1910 as Jinnampobu. From 1950 it is called by its present name.

Before the liberation of Korea from the Japanese imperialists' colonial rule, Nampho City was a small fishing village, but now under the wise leadership of President **Kim Il Sung**, it has developed into a modern industrial city with a world-class international port and a cultural/recreational center for working people.

In November 1945 right after the liberation, the President personally visited this city. During his visit, he made a speech, that "as the country is liberated, then we must build a prosperous new Fatherland by our own hands and live happily with nothing to envy in the world," which thus gave confidence and courage to the people.

Thereafter, he gave on-the-spot guidance on several occasions and about 200 detailed teachings on the direction and method of city construction, though he was busy leading the revolution and construction of the whole country.

General **Kim Jong Il** personally initiated and wisely led the construction of the West Sea Barrage, which has an important significance in building the city as a cultural port city and in improving the living standard of Nampho citizens. He also illuminated the direction and methods for the development of the city through several on-the-spot guidance to the city.

He acquainted himself with the fact that several contaminated factories, such as Nampho Refinery, Nampho Glass Factory and Nampho

Electrode Factory, built during the Japanese occupation, were infecting the living environment and health of the residents and took measures to remove the source of contamination, although the country's economic condition was very difficult. Under his wise leadership, the city was turned into a better cultural city for people to live in.

The history of Nampho City is the history of benevolent love, in which the city has been developed under the deep concern of President **Kim Il Sung** and General **Kim Jong Il**.

3. Natural and Geographical Conditions

Generally, the ground elevation of the city increases from the north to the south and from the west to the east. The ranges of Mt. Osok are stretched out in the west part of the city, bordering Onchon County. The highest peak is Guksa Peak (506 m). As one goes to the coast of Taedong River, the elevation gets lower, thus the central part of the city is 3-4.5 m above-sea level and the lowest part is only 2 m above-sea level. The average height of the city is 5 m above-sea level.

There are 10 islands and islets in the coastal area such as Wau, Gadok, Ap, Zebi, Onjong, Ilchul and Buam.

There are 1,000 hectares of tideland within the coast of the West Sea. The tideland is usually developed and used as land for reed, salt and food production, and a reservoir for water.

The climate of the site is warm with a low level of precipitation. The average annual temperature site is 10.1°C, the highest temperature in South Pyongan Province. The average temperature in January is –

6.5°C. In August, it is 24.3°C, which provides good conditions for crop cultivation. The average annual precipitation is 840 mm with 61 percent of the annual precipitation occurring from June to August. Compared to other regions, the site is characterized such that during the spring season, dry weather continues with a little rainfall.

The site is suitable for salt production as the sunshine illumination rate (57%) is high and the amount of evaporation is higher than the precipitation. The first frost date is about October 21 and the last one is about April 17. Often the northwestern wind blows in spring and winter, and southeastern wind in summer and autumn.

The Taedong River, and Samhwa, So and Kum tributaries, are found within the project site. The Hupho stream is found in the center of the city. The river and streams are significant to the life of city residents, city construction, and the development of industry and transportation.

4. Demography

The site is located in the lower part of Taedong River. The climate is warm and the land is fertile. It is good for fishing, so people have lived here from olden times. A discovered stone axe and knife provide evidence of the remains of people of the New Stone Age.

The coastal area, which used to be only a small fishing village, is now turned

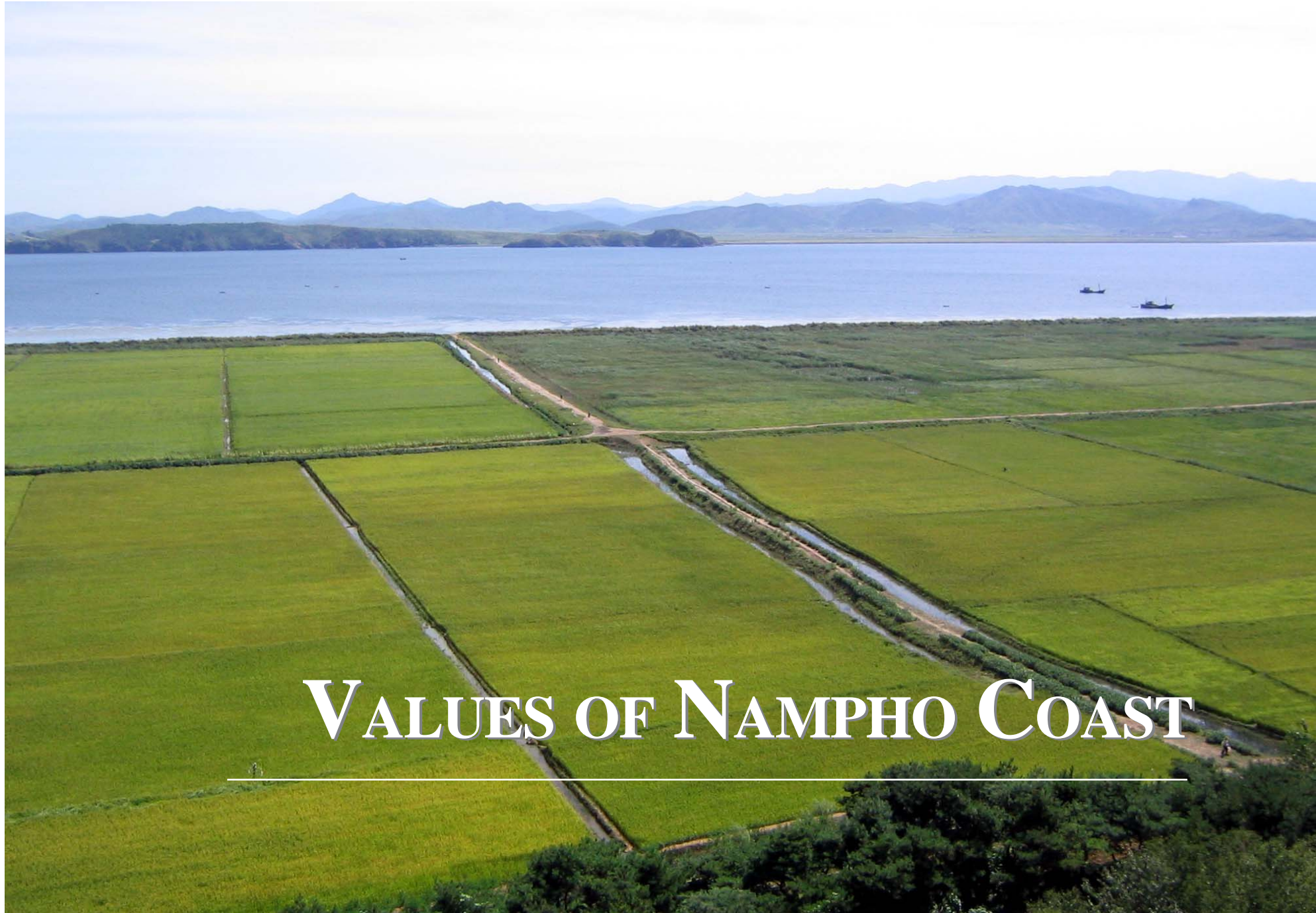
into an industrial, cultural and port city, and thus the population has increased rapidly and the composition has improved.

The residents are now composed of workers, officials and cooperative farmers. Among them, the workers and officials make up 92 percent of the total population. Urban population occupies 90 percent and rural population takes only 10 percent.

There are about 324,000 residents in the area (2000). Of this number, 173,000 residents live in Hanggu District and 151,000 in Waudu District. The population density is 1,281 person/km². The annual growth of population per year within the demonstration site is 1.8 percent since 1998.

Table 1. Increase in population.

Population (10 thousand)	1998	2000
	17	Hanggu District
16		
15		
Increase in Population within the Nampho Demonstration Site		



VALUES OF NAMPHO COAST

VALUES OF NAMPHO COAST

Under the far-reaching plan of the Republic on the development of Nampho City as a beautiful port city, the Youth Hero Highway was built connecting Pyongyang with Nampho. This enabled Pyongyang and Nampho to grow into a big city system, and today, the value of the site is further enhanced.

1. Historical and Cultural Values

A. Revolutionary Sites

There are several revolutionary sites permeated with glorious revolutionary achievements of President **Kim Il Sung**, General **Kim Jong Il** and Comrade Kim Jong Suk, an anti-Japanese war woman hero. There is also a revolutionary site associated with the feats of Kim Hyong Jik, an outstanding leader of the anti-Japanese national liberation movement in our country.

Nampho, as an area of significance in the historical development of our country is permeated with shining revolutionary achievements, where the President created the spirit of Chongsan-ri, the method of Chongsan-ri and the Taean work system. It is the historic place where the West Sea Barrage, the grand monumental structure of the Juche Era, was built. Nampho area is permeated with the immortal revolutionary activities of General **Kim Jong Il**.

The President personally visited Nampho City in November 1945, showed the road for the construction of Nampho City and aroused the people in building a new democratic Korea. He personally selected a site to build Pyongyang Institute, and together



Photo 2. Bronze Statue of President Kim Il Sung

with Kim Jong Suk, participated in the opening ceremony of the Institute, making a historical speech. He gave several on-the-spot guidance to the Institute, as well as to the factories, enterprises and villages, including the Ship-Repairing Station, Nampho Refinery, Nampho Port, Nampho Fishery Station and Waudu Pleasure Ground. On several occasions, General Kim Jong Il assisted the President during these guidance trips, thus permeating Nampho with immortal revolutionary activities.

There are Malchui and Kuksa Peak revolutionary sites, where Kim Hyong Jik, the outstanding leader of the anti-Japanese national liberation movement in the country, conducted revolutionary activities.



Photo 3. The Revolutionary Site

B. Historical Remains and Relics

There are historical remains and relics of the New Stone Age such as a stone tomb of Mt. Sokchon and several tombs and mountain fortresses including Kangso Three Tombs and Star Tomb of Waudo, mural tombs belonging to the period of Koguryo Dynasty. Kangso Three Tombs consist of a big tomb, a middle one and a small one, which were made of stone and earth. These are the tombs of the Kings of the Koguryo Dynasty. In the big and middle tombs, there are magnificent mural paintings based on the theme of four guardians.

There is an inner road and a coffin compartment room in the Star Tomb of Sinryong-ri, Waudo District. Its ceiling is paralleled in the style of

triangular support. Paintings of a human figure, a landscape and four guardians can be seen in the tomb.

There is the Hunting Tomb in Hwado-ri and Kapsin Tomb in Sinryong-ri, Waudo District. The inside of the tombs are similar with the mural tombs, but there are no guardians painted in Kapsin Tomb and the ceiling of an inner compartment is vaulted.

In addition, there is the Lotus Tomb in Taesong-ri and mural tombs of Koguryo Dynasty in Susan-ri, Phosandong and Dokhungdong.

There is a mountain fortress of Koguryo Dynasty built in accordance with the geographical feature on Mt. Osok. The perimeter of the fortress is about 24 km, the height from a gorge is 9 m and from a ridge is about 5 m. The fortress is erected with quadrangular pyramid-style stones.

For natural monumental resources, there are rare plants, a well-known mineral spring and the Ryonggang Wave Mark, which is of significance in geological study.

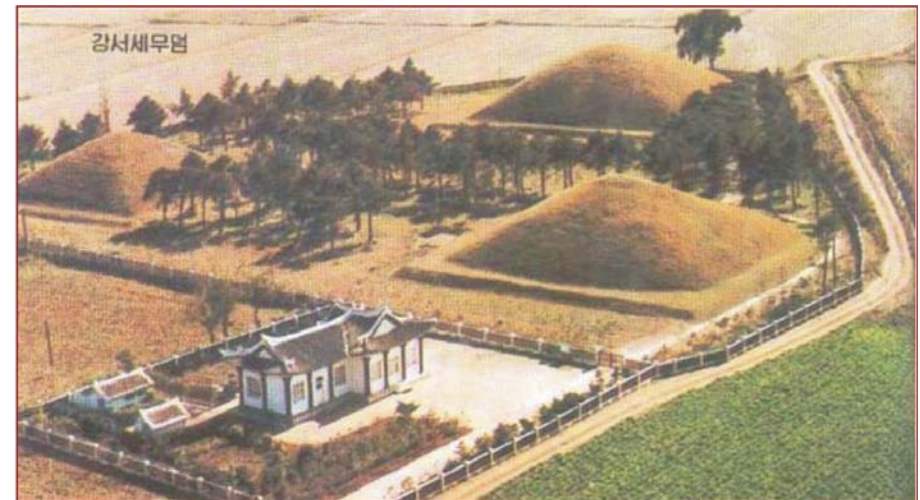


Photo 4. Kangso Three Tombs, the Historical Remains of the Koguryo Dynasty

The Kangson Poplar is situated in a place where the President made a historical speech, in today's Chollima Steel Complex, just after the cease-fire on August 3, 1953. The height of the tree is 25 m, the perimeter of the bottom is 3.7 m and the diameter of the tree branches are 13-21 m.

Usanjang Zelokova is situated in the front yard of Usanjang Rest Home, Usan-ri, Hangu District. The height of the tree is 19 m, bottom perimeter 5 m, and the bottom diameter is 1.6 m. The diameter of the umbrella-shaped round tree branch 18 m, length of a leaf ranges 6-14 cm,



Photo 5. Korean Folk Dance

and its width 2-5 cm. The President appreciated the look of the tree and instructed them to care for it well.

The Ryonggang Wave Mark is situated in a layer of Mt. Hanpong, Kuomsan-ri, Hangu District. The section of layer consists of gray color sandstone, branch stone and marl. The length of the mark is 3-7 m. The study of the layer of Wave Mark proves that it had been a vast basin 130,000,000 years ago. This is a valuable material that can make clear the history of geological development in our country.

In addition, there are Kangso mineral spring site, chestnut tree of Susan-ri, a kind of lucent tree of Taeon, a black-naped oriole of Hwado-ri, and the breeding site and habitat of winter-birds in the West Sea Barrage.

C. Education and Culture

Under the wise leadership and great care of President **Kim Il Sung** and respected General **Kim Jong Il**, the material and cultural life of our people is increasing endlessly and social benefits of the State are upgrading day after day.

There are eight universities, such as the University of Agriculture, University of Fishery, University of Education, University of Metal, Medical University, and Teacher's Training College, five factory colleges, six special schools and about 100 middle schools. The State provides social expenses in about 1,000 kindergartens and nurseries.

There are several research and designing institutes, such as the West Sea Oceanographic Research Institute and Fishery Research Institute, and cultural bases such as the City Theater and a modern sport village. There are plenty of people's hospitals, sanatoriums, rest homes, children's camps, pleasure parks and fishing places.

2. Natural Values

The site has favorable natural conditions for the development of the national economy.

After the liberation, nature-remaking projects, such as afforestation, water conservancy embankment, road arrangement, and land rezoning, have been in the site, under the long-term plan of the government. As a result, its economic potential has been further strengthened and is being used for the production activity and cultural recreation of the working people.

A. Water Resources

In the Nampho coastal area, the annual precipitation is 880-980 mm. Fourteen percent of the annual precipitation comes from the March to May precipitation, 62 percent from the June to August precipitation, 19 percent from the September to November precipitation, 5 percent from the December to February precipitation. The water volume of Samhwa Stream is 3,100 m³/km² and that of So Stream is 3,200 m³/km².

There are no large rivers except Taedong River in Nampho coastal area, but there are several streams with short flow-span such as Bongsan River, Inhang Stream, Hwado Stream, which flow to Taedong River. The annual stream-net density is 0.49 m/km² and the basin width is 2.4-6 km².

Several large water reservoirs, such as Lake Taesong, Ryongho Reservoir and Myonghak Reservoir, were built in this area.

Mineral water can be found in Yaksu-ri of Kangso District, Kumsan-ri of Hanggu District and other areas. Kangso mineral water is famous for its medicinal effect so it is widely served in other areas.

These water resources are widely used for the national economic development, including the improvement of people's livelihood, power industry, irrigation, drinking water, river transport and freshwater fish breeding.

Underground water, which can be divided into water that flows out of cracks in rocks broken by natural forces and water that is found in coal mine areas and underground caves, exert effects upon the water resources of the stream by limiting the groundwater outflow. Thus, the rate of using underground water is lower than other areas.

There are no hydroelectric power stations using the river directly because of the small amount of water resources coming from the river. Water for irrigation, as well as for residential and industrial use, depends on reservoirs and water pump stations.

In Nampho coastal area, there are a lot of facilities that use the Taedong River Reservoir, which was formed by the construction of the West Sea Barrage, for irrigation and industrial purposes.

B. Biodiversity

■ Protection Area

As a breeding place, it places second for the Hwado-ri nightingale.

In the forest around Sandong reservoir in Namsamyon, Kuksa-peak, there live several nightingale couples.

The natural resources of our country are very beautiful, because there are a lot of birds such as the nightingale, which is very beautiful, and warbles. The President gave instructions for these birds to be protected.

Following this instruction, the nightingale has been registered as a precious natural resource and is being protected in Hwado-ri.

Dok Island is a protection area for *Jou* (Korean) bird, one of the seafowl black-faced spoonbill.

In Sangchuiria and Hachuiria Islands, there are protection areas for shellfish. Taedong River, the main river in the coast, is designated as a reserve for fish resources, only allowing angling for the recreation of working people.

■ Habitat

Jamae (sister) Island, which is situated outside the West Sea Barrage, is a habitat for sea cucumber. Sangchuiria Island is a habitat for fishes such as *Portumus tribuberculatus* and oyster.

Along Taedong River, there are habitats for several kinds of freshwater fishes and also for seagrasses such as *Manjup* (Korean), *Myriophyllum spicatum*, brown seaweed.

On the landside, there is a natural forest in Waudo District and in the north of Hangu District.

■ Plants and Animals

The area lies in the southern part of the temperate zone and there are plants such as pine tree, jujube tree, *Zanthoxylum piperitum*, bottle flower tree, Albizia, *Trichosanthes kirilowii* growing largely in the southern part more

than in other areas. There are 560 kinds of high plant life in this area, with high trees occupying a small percentage of this.

The area of tideland and riverside take a great portion so there are various kinds of plants that suit this condition.

The forest of the site is located in low mountain areas, i.e. mountains which rise below 200 meters above-sea level take 85 percent of this area. So most parts of the forest are in Mt. Osok.

Pine trees take much of the forest area. There are also chestnut forest, pine-nut forest, cryptomeria forest, acacia forest, Pyongyang poplar forest and Oak forest.

General **Kim Jong Il** taught us that all the mountains should be covered with green foliage. Upholding the teaching of the General, the good kinds of trees which grow quickly and have high economic value were planted, and these trees provide timber, fiber and paper materials. There are pine-nut tree and *Fagara schinifolia*. Gold and silver flowers are distributed in many zones and there are edible grasses, mushrooms and aromatic materials.

Six hundred ninety (690) kinds of animals were registered, and among these, there are 30 domestic animals. Due to the site's special geographical location and natural features, there are a few herbivore and carnivore animals, and most of them are small ones which live in hillock. Common animals are the wild boar, roe deer, Korean water-deer, wildcat, fox, and weasel.

Today, over 200 kinds of birds are registered. Among these are about 30 kinds of four-season birds. Seasonal birds are about 170, while the birds which breed in the city are 120. Some of the four-season

birds are the grebe, pheasant, Eastern Margie, crow, and sparrow. Dok Island is designated as the reserve of the rare black-faced spoonbill in the country.

The site is situated at the downstream of Taedong River. Fifty kinds of freshwater fishes have been registered so far and examples of these are crurian carp, carp, mandarin fish, *Morocco oxycephalus* catfish, and mullet.

For saltwater fishes, there are sedentary fishes such as pacific sand lance, scabbard fish, anchovy and several kinds of shellfishes.

Around the Sangchuirea Island, Hachuirea Island and Pi Island, sea cucumbers and sea chestnut are breeding.

C. Soil

The site has a variety of soil types. Soil can be classified into forest brown earth, alluvial soil, tideland soil and rice-field soil. Forest brown soil is mainly distributed along the east side of Mt. Osok. Along the riverside there are nice soils, which are favorable for tree planting. In the low area, sand soil and loamy soil are largely distributed. Most of the rice-field soil is neutral and phosphoric acids are mixed greatly. Tideland soils are concentrated in Waudu District. After the construction of the West Sea Barrage, these soils are deposited inside the Barrage and there is not much natural tideland soil. Due to land leveling and rezoning, the reclamation project and the scientific manuring system, the soil fertility has been gradually raised, increasing the production.

D. Underground Resources

As a result of weathering and corrosion processes through various geological periods from the Archeozoic to the Cenozoic Era, valuable minerals including iron ore are largely deposited in the site. Iron resources are deposited in Kangso District and Ryongnam-ri of Waudu District. Manganese soil resources are deposited in Osan-ri of Taeon District and Titanium resources in Susan-ri and Husan-ri. There are also nonferrous metal ore resources such as nickel and mercury.

For non-metal resource, there is limestone. For fuel resource, there is the anthracite coal, deposited along the West Side of the southern coalfield of Pyongnam and Kangso coalfield, which were developed a long time ago. Its caloric value is 2,500-3,200 kJ/kg.

Taedae-ri apatite mine is located in the site. Its deposit amounts to 850 million tons and its mineral quality reaches to 5 percent. The mineral is used for the production of phosphate fertilizer.

E. Scenic Beauty and Tourist Resources

Nampho coastal area adjoins with Taedong River and the West Sea of Korea. Its coastline is 127 km.

The site has a lot of good scenery. Mt. Kuom, Guksa Peak and Mt. Rimu can be seen on the plain adjoining with the Taedong River and projecting hillocks along the riverside. These match well with the green space along the riverside. Islands such as Waudu, Kumdok and Pham

are located in harmony with the landscape. The islands have large sandy spots favorable for sea bathing or swimming, and dabbling in water.

There is the Mt. Guwol recreation park, one of the six famous mountains of Korea (Mt. Paekdu, Mt. Kumgang, Mt. Myohyang, Mt. Guwol, Mt. Chilbo and Mt. Jiri) to which the General gave on-the-spot guidance. Ryongsupo sea swimming resort is nearby. Nampho City is the gateway to this recreation park, and thus its recreational value continuously increases.



Photo 6. Recreation grounds

Resorts and camping grounds are built in Waudu, Usanjang and Lake Taesong pleasure ground, where working people and students spend good time every year.

Recreation Parks, such as those in Waudu, Usanjang, Lake Taesong and West Sea Barrage, serve as public resting places to a large number of working people, young students and tourists from other areas. There they spend good time sightseeing the West Sea Barrage, sea bathing, boating and fishing.

The recreation parks are equipped with soft drink facilities and restaurants that can provide various kinds of national dishes and other dishes suited to the appetite of tourists. They also have sports amusement and welfare service facilities.

In accordance with the increasing demands for recreation and entertainment of the people, the city is going to build new pleasure grounds equipped with an aquarium around Dongjong-ri, Songgwon-ri, Guksa-peak and Ori Island.

As a political education site, there are revolutionary museums on the activities of the President, the revolutionary places associated with activities of the three generals of Mt. Paekdu, and a historic place associated with traces of the leader of the anti-Japanese national liberation movement, Mr. Kim Hyong Jik.

Typical of the special tourism sites are the West Sea Barrage which is an edifice of the era of the Workers' Party, its monument, Lake Taesong, Mt. Osok, three tombs in Kangso, a zelokova tree of Usanjang and Ryonggang wave mark. The recreation park and tourism resorts of the coastal area are being developed to receive all the visitors and tourists with pleasure and provide them with better service facilities.

3. Economic Values

As the gateway of Pyongyang on the West Sea of Korea, Nampho coastal area lies in a favorable geographical position for the development of industry that depends on its own raw materials and shipped materials. It also has favorable conditions for development due to its close ties with Pyongyang.

Favorable geographical location and land and water transport conditions are fundamental factors for the development of Nampho industry.

After the liberation, under the wise guidance of the President, the city has overcome in a short period the backwardness of the industry left over by the Japanese colonial groups.

Thereafter, the city has been equipped with all necessary industries for the development of local economy, e.g. metallurgy, machinery, building material, textile and cloth-making, daily necessities and food production and fishery. These sectors are instrumental for the construction of an independent national economy.

A. Fishery and Aquaculture

Nampho City, where a useful ship could hardly be seen before the liberation, now has become one of the major fishery bases on the West Sea of Korea, producing fishery products in far and near seas using scientific fishing methods.

There are two fishery stations and 23 fishery institutions including Nampho Fishing Station, Fishery Cooperative, Fishery sub-work teams of collective farms, fishing equipment plant, West Sea Fishery Research Institute, West Sea Fishery Investigation Unit, and Institute of Fishery. All these institutions make solid scientific, technical and material foundation for the development of fisheries.

There are also various sea product processing facilities, such as a cold-storage plant



Photo 7. Fishery and Aquaculture

with a capacity for thousands of tons, food bottling facilities, fishmeal facilities, calcium sweet facilities, pickling tank, ice crusher, drier and shellfishes self-controller.

The major marine products are anchovy, *Maekgae* (Korean), gray mullet, flatfish and other fishes, as well as hard shell clam, razor-shell, short-neck clam, *Portumus tribuberculatus* and other shellfishes.

In 2000, the total volume of marine products is 6,259 tons and among these products, fish constitute 5,042 tons.

At present, the southern watershed of Sangchuiria and Hachuiria Islands beyond the West Sea Barrage of the site is a fishing ground of pacific sand lance and anchovy. In addition, there are ephemeral fishes, such as spotted sardines, *Maekgae* (Korean), *Hodugi* (Korean), a kind of tiny shrimp, lobsters and crustaceans.

In the waters inside the West Sea Barrage, there are freshwater fishes such as carp, silver carp, cornet fish, mandarin fish, *Kinyom* (Korean), and grass fish.

The watershed in front of Kumsong tideland embankment is teeming with *Dong* (Korean) shellfish, *Kam* (Korean) shellfish, butterfly shellfish, etc. The distribution extent of hard-shell clam in this area is concentrated in waters -3 to -4 m above-sea level. It is also the breeding ground for the young hard-shell clam.

Moreover, there is oyster ground around Kwangryang Bay watershed and short-neck clam ground around Pi islet. The estimated amount of shellfish resources in the site in 2000 is 33,000 tons.

B. Industry

Metal and machine industries are taking a major portion in the industry of Nampho City. Chollima Steel Complex has turned into a leading steel production center of the country.

The machine industries of this area take very important place in building a powerful nation. They constitute a perfect and comprehensive production system high in scale and standard. There are also chemical industries, such as the production of medicines, dyes and painting materials. Salt and its processing are also being developed in the site.

Under the policy of the government on raising the production of daily necessities, Nampho paint factory produces 60 kinds of chemical goods. It is a factory equipped for organic and inorganic chemistry.



Photo 8. Pyonghwa Automobile Factory

The building material industry, including cement, stone-materials and metal-building materials, is also developing here.

In Nampho, where most of daily necessities were imported from other areas before the liberation, now have scores of local industrial establishments built, upholding the policy of the government to develop the local industry depending on the local raw materials and resources.

The city's food industry produces bean paste and other kinds of basic foodstuff, including processed vegetables, sea products, meat and fruits. Nampho also produces ironware, glass and ceramic ware, wood and straw goods, etc.

Knitting, textile and clothing factories are found in the site, which provide residents with 1,140 kinds of goods, such as knitwear, sporting uniforms, underwear, socks and gloves.

Equipment and supplies necessary for children's schools, such as desks, chairs, notebooks, pencils, bags and musical instruments are produced locally.

C. Power Supply

Though the site consumes much energy, there is only one power plant with the capacity of 50,000 kilowatts. The rest are supplied from other areas. Eighty percent (80%) of power consumption is taken by industries and the other 20 percent by residents, agriculture and transportation. The city power is provided by the electric power substation of Hanggu District. There are 20 electric power substations in the site. The capacity of the power bases is expected to be enlarged to meet the increasing load.

D. West Sea Barrage

The West Sea Barrage, about 40 ri (15 km) away from central Nampho City, is situated in a place where Taedong River flows into the sea. This 8 km-long world-class barrage was constructed in a short period of five years from 1981 to 1986. West Sea Barrage contributes to the landscape of our Fatherland and the development of the national economy and industrial state. It was accomplished under the wise leadership of President **Kim Il Sung** and General **Kim Jong Il**.

The construction of the barrage has completely met the demand for drinking water, irrigation water and industrial water. It provided a new



Photo 9. West Sea Barrage

transportation route and scenic view at the lower part of Taedong River. There are three sluices with the passing capacity of 2,000~50,000 ton-vessels, 36 water gates, three fish routes and the barrage monument. The West Sea Barrage symbolizes the wisdom and militant spirit of our people, demonstrating their inexhaustible strength firmly united around President **Kim Il Sung** and General **Kim Jong Il**.

E. Nampho Port

Nampho Port, an international trading port and ship-repairing factory, is found in the site.

At present, the coastal area of Nampho has been built to suit the character of a cultural Port City, the central region of marine transportation via the West Sea Barrage.

The port is fully equipped with loading and unloading facilities, storehouses, crew club, vehicles, offices, water supply and other service facilities. The total capacity of the port is not yet fully utilized.

F. Agriculture

The cultivated field of the site is mainly used for vegetable production, for the subsidiary food of the citizens, and partly for grain production. Under the policy of the government on irrigation after the liberation, many irrigation facilities have been built for the development of agricultural production. In particular, the water of Lake Taesong was drawn into Nampho City through the Kiyang irrigation system. As a result, paddy fields increased in the site, where only cereals, such as Italian millet, barnyard grass and Indian millet, were produced before the liberation. Today, the water supply problem in the fields of the ridge has been completely solved.

The site has already been furnished with the infrastructure and a technical base for agricultural production after the completion of the irrigation system, with the construction of facilities that directly use the water of the West Sea Barrage Reservoir for agriculture and industry.

In the site, agricultural production is being modernized and industrialized with 20 kinds of modern farm machines such as tractor, truck and rice-seedling transplanter, and sufficient repairing stations. Thus, the infrastructure for agriculture has been strengthened.

Vegetable production occupies a very important place in agriculture in order to provide subsidiary food for the citizens. The major vegetables grown are cabbage, radish, eggplant, cucumber, pumpkin and condiments, such as garlic, pepper and stone-leek. From early spring to late autumn, various kinds of fresh vegetables are produced and supplied by season.



Photo 10. Cooperative-farm of Waudu District

There is the Taedaeri Stock-Farm where meats and eggs are produced using modern technology. Grain production, mainly rice production, takes important place in agriculture. Paddy field area occupies 40.1 percent of all acreage under cultivation. It is mainly distributed in the area, except in industrial and residential areas.

Attributed to its favorable natural and geographical conditions, the site produces fruits, mainly apple, pear, peach, plum and grape in several orchards. The foundation for cocoon production is strengthened through the massive undertaking of the project for expanding mulberry fields.

Thanks to benevolent politics of General **Kim Jong II**, the Nampho refinery, which caused air pollution, was removed and as a result, the output volume of fruits and leguminous plants per hectare increased rapidly.

G. Commerce and Trade

The coastal area is the best commercial and trade center in Nampho City. There are commercial and food service networks such as hotels, general and specialty shops, and restaurants where Korean Noodle and other national dishes are served.



Photo 11. Roast clam

There are many commercial and welfare facilities for foreigners in the Nampho Coast, such as the Waudu Hotel, Hangu Hotel, Nampho Crew Club, Exhibition



Photo 12. Hangu Hotel

Hall, and Golf Course near Lake Taesong, etc. The hotels and restaurants serve roast clam, the soup of Taedong River mullet and boiled *Portunus tribuberculatus* that will leave an unforgettable impression on visitors.

Foreign trade through Nampho Port is also brisk.

H. Land Use of Nampho Coastal Area

The total area of Nampho coastal site is about 252.8 km². The agricultural land is mainly concentrated in Hangu District.

The composition of the forest area of 48.3km² according to land type is Forest tree – 43.9 km², Non-forest tree – 2.3 km², and Non-forested land – 2.1 km². The composition of the forest according to economic purpose is Protective forest – 34.4 km², Timber forest – 3.8 km², Firewood – 2.5 km², and Others – 7.6 km²

Forest resources consist mainly of Acacia forest of 795 hectares and the rest is pine trees and Evoldia Daniellii.

Table 2. Composition of the forest according to land type and economic purpose.

Classification	By Economic Purpose (km ²)					By Land Type (km ²)			
	Total	Protective Forest	Timber Forest	Firewood	Others	Total	Forest tree	Non-forest tree	Non-forested land
Area	48.3	34.4	3.8	2.5	7.6	48.3	43.9	2.3	2.1
Percentage (%)	100.0	71.1	7.7	5.6	15.6	100.0	90.9	4.7	4.4



ENVIRONMENTAL ISSUES

Today, the degradation of the environment is being regarded as the most important and serious global problem directly related to the existence, development and future of human beings.

Due to environmental pollution and destruction, many countries are facing grave difficulties in their sustainable economic growth, and human kind is threatened by various diseases and pains.

Smog from factory chimneys that had been the symbol of creation and prosperity to the people during the past decades is being regarded as the symbol of air pollution. There is a saying that water is the common material in the world, but now this saying doesn't fit the reality of our life.

Human beings are also facing a new environmental challenge, the destruction of the ozone layer and global warming.

These environmental challenges are connected with scientific technique, industrial production, and socioeconomic activities. So these issues have become the common concern of the whole world and are being solved through international co-operation and exchange.

Recently, great efforts are concentrated on environmental protection in our country, and we are pushing the work on a nationwide scale to strengthen the country and to meet the demand of socialism.

Nampho coast is placed in the specific natural and geographical position along Taedong River and the West Sea.

In order to make Nampho coast more beautiful and clean, the strategy was prepared focusing on the protection of the water environment of Taedong River and the West Sea Barrage.

After the construction of the West Sea Barrage, Taedong River has turned into a big artificial lake, but wastewater and sewage from industrial and residential establishments have degraded the water quality as well as the air quality. So in formulating the Nampho Coastal Strategy, we have proposed environmental protection as a main task in the basin of Taedong River to improve water and air quality.

1. Water Pollution

In building Pyongyang-Nampho area into a world-class cultural and port city, Taedong River takes the most important position. That is the reason why improvement of water quality of Taedong River is raised as an urgent issue.

The watershed of the project site is characterized as a major commercial, residential and industrial zone in Nampho City. The sustainable and high quality development of the coastal area will have an impact on the overall development of the city. However, the water quality is remarkably deteriorating in the project watershed for some reasons. This situation requires measures for preventing the water pollution and improving water quality.

The state environmental protection standard for the river, stream and reservoir water quality assessment, following the standard approved by the DPRK Cabinet in its decree No. 338 on February 25, 2000, is as follows:

- pH = 6.5 – 8.5;**
- Suspended Solid (SS) = 30 mg/l;**
- Chemical Oxygen Demand (COD) = 3 mg/l;**
- Nitrite (NO₂) = 3 mg/l;**
- Nitrate (NO₃) = 1.0 mg/l; and**
- Ammonium (NH₄) = 0.3 mg/l.**

In Sangdaedudong, sewage is treated by going through the waste pumping ground to the sedimentation pond. Due to the lack of modern facilities, the purification capacity is not fully met.

The causes of water pollution in the project site are:

- Polluted water from tributary streams of the river;
- The Barrage reservoir is partly influenced by salty water;
- Mud accumulation in the watershed which results in the increase of algae and coliform bacteria;
- Pollution from residential sewage due to the lack of capacity of sewage treatment facility;
- Industrial waste water; and
- First rainwater and agricultural wastewater.

Table 3. State of water quality by location

Point (unit)	Standard	Waudu Barrage	Nampho Port	Samhwa Stream
pH	6.5-8.5	7.300	7.100	7.670
SS (mg/l)	30	33.900	46.200	48.130
COD (mg/l)	3	3.100	3.900	3.700
NO ₂ (mg/l)	3	0.053	0.065	0.075

2. Habitat Changes

After the construction of the West Sea Barrage and Kumsung tideland, the habitat of fish resources in the coast changed. Outside the area of West Sea Barrage, saltwater fishes, such as gray mullet and sea bass can be found. Inside the barrage, waters containing less salt were changed into freshwater, so planktonic algal species increased.

In waters off Nampho, the phytoplankton species have increased 1.7 times, those in waters off Ryongnam-ri, the amount has increased 5.75 times, and the kind of zooplankton species 1.4 times. Therefore, great changes took place in terms of fish resources in the downstream of Taedong River, where resources of freshwater fishes are rapidly increasing. Eutrophication of the water has also accelerated.

Moreover, there is a serious change in the habitat of shellfishes. After the construction of Kumsung tideland, the exposure area decreased in waters off the tideland dike and gutters (ditches). Sediments do not flow off very well and accumulate muddy sediments. As a result, the ground hard shell clam has been destroyed, while *Kam* (Korean) shellfish and *Tong* (Korean) shellfish have increased in abundance.

3. Impact of Industrial Wastewater and Solid Wastes

Nampho Coast is bordered with large-scale metal and machinery manufacturing industries. For this reason, it is impossible to avoid the effects of industrial wastewater. Presently, there are many factories in the coast that discharge industrial wastewater. Total purification of this wastewater is impossible at present.

Large amounts of solid wastes (type and volume) are also treated by various means, but part of the solid wastes is not treated completely.

In the past, the greatest environmental pollution sources in Nampho coastal area were Nampho Glass Factory and Nampho Electrode Factory. Thanks to the policy of the government on turning Nampho City into a beautiful, cultural and port city, these sources were removed from the site.

Presently, main potential pollution sources in the area are Taedae-ri Apatite Mine, Nampho Chicken Farm and Taedae-ri Pig Farm. Wastewater from Nampho Chicken Farm and Taedae-ri Pig Farm is treated in their treatment ponds and discharged to nearby streams and irrigation canal.

4. Overexploitation of Resources

Due to the overexploitation of forest resources, the forest density was reduced and tree species with low economic value, such as pine trees, became dominant.

Marine resources are depleted due to overexploitation. Overfishing in the coastal area is depleting fishery and shellfish resources. Shellfishes are natural resources with ceaseless reproductive characteristics and the abundance of their resources depends on fishing activities. In recent years, clams have been a target of foreign currency income in the coastal area. Overharvesting has severely reduced its population.

5. Impact of Population Growth

Increase of population is inevitable, so are expansions of urban areas. This has resulted in a decrease in open spaces and forest areas. In particular, areas of cultivated land and forest decreased due to the construction of residential quarters and industrial sites and roads.

The expansion of production, increased industrial waste, and the growing amount of sewage due to population growth, have impacts on the ecosystem. There are wastewater treatment ponds in Waudo district and Hanggu district, but sometimes these ponds are not operated regularly.

6. Impact of Natural Disasters

After the construction of the West Sea Barrage and the conversion of Taedong River into a big artificial lake, the coastal area is totally free from flood damage. However, sometimes there is soil loss and flooding of cultivated land by storm because of overexploitation of forest resources. The past records of tidal waves and heavy flood damages indicate that the coastal area was damaged by a tidal wave in August 1923, and wharf No. 1 of Nampho Port and the seaside of Nampho Shipping Factory were flooded in October 1967.

There are coastal dikes in the area but their width is narrow and height is almost the same or lower than the sea level. Thus, typhoons, waves and heavy floods demolished several blocks of the dike, and drainage structures were severely damaged or covered with mud.

During the last century, the average temperature of the earth went up to more than 0.6°C.

According to the weather forecast observation, the average temperature of the earth will go even higher by 1- 3.5°C at the end of the 21st century.

If the average temperature goes up more than 3.5°C, some islands of the world will be submerged in seawater and this will also influence some parts of the country.

Inner walls of the wharves and embankment have already been built but the site standard height is +4 meter (the central area of Nampho +3.8 meter), a little higher than the water level of the West Sea Barrage. So tidal waves and typhoon may submerge the site. The loss of shellfish resources because of tidal waves and deluge, and the decrease of shellfish resources by freshwater coming out from the barrage, pose a serious risk.

In winter, there may be coastal destruction by the movement of ice and disturbance of marine transportation. Global climate changes are also exerting influence on the environment of Nampho coast.

A full-page background image of a sunset over the ocean. The sky is a deep orange, and the water below is shimmering with golden light from the setting sun. The text 'VISION AND MISSION' is centered in a white, serif font. A thin white horizontal line is positioned below the text.

VISION AND MISSION

VISION:

A modern international port city, with cultural values maintained, with clean and healthy environment conserved, and with public well-being protected, for present and future generations, as guided by the Juche Idea.

MISSION:

All the stakeholders shall collaborate with each other and thoroughly execute the state environmental policy to protect the natural and living environment of Nampho, strive for social and cultural development, and advance environmental protection and socioeconomic development toward the achievement of sustainable development.



BASIS OF THE COASTAL STRATEGY

The Coastal Strategy of Nampho is based on land and environmental protection policies and plans of the DPRK government, and the mutual co-operation, stability, joint support in the implementation of international conventions and agreements.

Land and Environmental Protection Policies and Plans of the DPRK Government

This strategy was framed in accordance with President **Kim Il Sung** and the General **Kim Jong Il**'s idea on land construction, the land and environmental protection policies of the government and the plans for land construction and management.

Kim Jong Il published "On the Improvement and Strengthening of the Land Management" and several other works which dealt with issues related to land and environmental protection, management and development.

The strategy is based on the general plan for land construction, worked out by the Land Planning Research Institute, the Ministry of Land and Environmental Protection, fully reflecting **Kim Il Sung**'s instructions on land construction and **Kim Jong Il**'s plan for the building of a powerful nation.

It was also mapped out on the principle of strictly observing several laws and regulations such as "The Land Planning Law of the DPRK," adopted at the 5th session of the 10th Supreme People's Assembly of the DPRK on March 27, 2002, and "The Environmental Protection Law of the DPRK," "DPRK Law on Land" and "Marine Pollution Prevention Law of the DPRK," adopted at the Presidium of the Supreme People's Assembly of the DPRK.

Mutual cooperation

The Coastal Strategy of Nampho was suggested and completed following consultation, agreement and in the spirit of mutual cooperation among relevant ministers and national institutions, local agencies and other bodies. The success or failure of this strategy depends on mutual cooperation among the relevant agencies and enterprises.

Stability

The aim of the strategy is to strengthen the ability of the various agencies in overcoming difficulties in the management, development and use of the coast, to help coastal users and residents preserve their coastal values, and to provide good conditions for the achievement of this strategic vision.

Thus, it will make possible for those involved to observe their commitments and take an active part in the implementation of this long-term strategy without any divergence of view.

Joint Support

The work of coastal management and environmental protection is a mass movement that all the people of the country and people should work together as one.

Joint efforts are essential in order to develop, preserve and manage our coast and environment well, not only for today but also for the future.

This strategy calls for the participation of all those directly or indirectly concerned in implementing the coastal development, management and protection programme through effective and concerted actions in the fulfillment of the common vision and mission.

International Conventions and Agreements

International Conventions and Agreements are taken as references in the main action for the execution of the Nampho Coastal Strategy.

International Convention and Agreements signed by the government of the Democratic People's Republic of Korea are:

Agenda 21

Biodiversity

Climate Change

Global Programme of Action

MARPOL

OPRC

PURPOSE OF THE NAMPHO COASTAL STRATEGY

The purpose of the strategy is to build Nampho City magnificently into a socialist paradise by developing and utilizing the land and natural resources in the coast, as well as protecting its environment and beautifying the coastal arrangement.

In accordance with the plan for integrating Pyongyang and Nampho into one city system, the purposes of formulating the Nampho coastal strategy are:

- 1.** To build Nampho City into a magnificent and prosperous international port and cultural city, linking the city from Dojidong to Ryongnam-ri, and serving as a beautiful gateway to the capital city.
- 2.** To build the site as a socialist paradise, through afforestation of the area, construction of elegant villages, embankments and water-conservancy projects, beautification of the coast, and improvement of the air, water and living environment.
- 3.** To develop and use the land and natural resources rationally, and in conformity with the demand for transforming the whole society following the Juche Idea, promoting economic development while protecting the environment to achieve sustainable development.

DESIRED CHANGES AND OUTCOMES

The desired changes and outcomes to be realized in the course of fulfilling the long-term vision of the Nampho coast, and the mission of various stakeholders, are outlined below.

Institutional Changes

- State policies, laws and detailed rules/supporting legislation on the environmental preservation and management of the coast and sea implemented and enforced
- Responsibility and capacity of the local government strengthened for the environmental management of the coast and sea
- Interagency and multi-sectoral coordination achieved to implement a sustainable development plan of the coast
- Economic development plan integrated into the national and local environmental management plan for the Nampho coast
- Agreements between the DPRK and international environmental organizations observed
- International environmental conventions, which are ratified by DPRK, being implemented

Operational changes

- People's Committee of Nampho City, which is directly responsible for the preservation, management and development of the Nampho coast, implementing the plan for the comprehensive management of the coast and management of the ecosystem
- Capacity-building programs in place to strengthen the management capacity for marine and coastal resources
- Cooperation enhanced between national and local organizations to solve the administrative and practical problems arising in the environmental field

- Joint research and information exchange undertaken for the management of coastal and marine resources
- Residents of relevant areas participating in the implementation of the plan for the preservation, development and management of the Nampho coast and marine resources
- Incentives and reward system provided for the protection and management work of Nampho coast
- Preservation of Nampho coast and marine resources strengthened

Desired Outcomes

- Water quality in polluted areas improved
- Main habitats and reserves restored and managed
- Effective protection of fishery and biodiversity in Nampho implemented
- Public health and security of residents along Taedong river and coastal water areas improved
- 100 percent supply of drinking water provided to residential areas
- Marine aquaculture products safe for human consumption
- Sustainable development goals achieved in the coastal areas
- Systematic and safe management and disposal of toxic and hazardous wastes implemented
- Reconstruction and modernization of the comprehensive sewage treatment plants in Nampho City undertaken
- Integrated solid waste management system in Nampho City established
- Waste reception facilities at Nampho Port and Ryongnam Fish Port provided
- Port safety and environment management system implemented in the ports
- Oil/chemical spill preparedness and response system established

EXECUTION OF THE COASTAL STRATEGY

Who will execute the Nampho Coastal Strategy?

The goal of the strategy is to achieve a common vision of the Nampho coast. The strategy requires all related organizations and enterprises to take full responsibility in coastal management. All stakeholders have their own roles in fulfilling the implementation of the coastal strategy for Nampho.

Ministries and Central Organizations

- Clarify the roles and responsibilities of ministries and central organizations
- Execute coastal and marine policies effectively
- Establish an effective system for administrative and economic/ financial support for the adoption and implementation of the coastal strategy
- Strengthen the system of legal supervision and control
- Establish the systems of monitoring and evaluation of the implementation of the strategy
- Strengthen management capacities for marine and coastal resources

Local Institutions

- Develop and implement the local action plans of the Nampho Coastal Strategy
- Establish an appropriate system of administrative organization and financial support for the implementation of the coastal strategy
- Strengthen the cooperation between the private sectors and communities
- Integrate all activities that are now in progress into the coastal strategy
- Establish a system of supervision and assessment over the implementation of the strategy

Private Sectors

- Highlight Corporate responsibility with regard to the sustainable development and use of the Nampho coast
- Encourage state investment to promote environmental services and economic activities that can provide benefits to the coastal communities and environment
- Strengthen cooperation among central and local agencies and enterprises for the implementation of the coastal strategy

Academe and Scientific Research Institutions

- Provide relevant knowledge and scientific information to the central and local administrative organizations and enterprises
- Provide monitoring data and scientific research information to implementing parties, such as local agencies and enterprises
- Undertake research programs related to the Nampho coast
- Strengthen the capacity of local stakeholders through training and education
- Establish and implement an environmental education plan for young people

Communication and Media Sectors

- Ensure awareness and understanding of the relevant problems and responsibilities
- Support and take an active part in the implementation of the Coastal Strategy and relevant action programs
- Promote the application of successful examples and models in coastal environment and resources management

UN, International Agencies and Support Countries

- Support the execution of the coastal strategy by providing technical and financial assistance
- Develop capacity-building programs including training and education
- Establish demonstration projects
- Facilitate sharing of experiences, expertise and knowledge with other areas implementing integrated coastal management
- Apply and transfer new technologies
- Assist in effective national and local implementation of international conventions
- Forge partnerships among foreign investors, companies and national organizations
- Leverage financing for environmental investments



STRATEGIES

STRATEGIES

To achieve the general goal of the Nampho Coastal Strategy for the National ICM Demonstration Project Site, the following strategies have been established:

INFORM:

Inform the stakeholders and relevant agencies of their rights and responsibilities, and the scientific and technical issues concerning the coastal and marine environment, thereby ensuring their active participation in the development of the coast and implementation of environmental management programs.

PRESERVE AND RESTORE:

Preserve ecological habitats as well as geographical, cultural and historical features, and restore to their original state, those that have been damaged by human activities.

PROTECT:

Protect human welfare and the ecological and economic features of the Nampho coast from risks that occur as a consequence of human activities and natural forces.

SUSTAIN:

Ensure the sustainable use of marine and coastal resources in order to fulfill the needs of the present and future generations.

DEVELOP:

Develop and utilize the Nampho coastal area in consonance with the land and environmental protection policies of the state and plans for the development of national economy, thereby ensuring a balance between economic development and environmental protection.

INFORM

Inform the stakeholders and relevant agencies of their rights and responsibilities, and the scientific and technical issues concerning the coastal and marine environment, thereby ensuring their active participation in the development of the coast and implementation of environmental management programs.

Principles:

- The residents of Nampho coast need to be aware of the importance of coastal and marine resources and the impact of human activities to the natural environment.
- The residents of Nampho coast need to understand the relationship between human activities and the life-support system of the Nampho coastal and watershed areas.
- Public education and awareness on the sustainable use of marine and coastal resources, and threats to such use, are important for the continuous improvement of the environment.
- An understanding of historical, cultural and socioeconomic values is important for the effective implementation of resource protection measures.
- All organizations and enterprises concerned with coastal management need to be informed of and consulted on the preservation, management and use of the natural and cultural heritage, recreational areas, development sites and other features of high economic value.

Objectives:

1. Improve the awareness of stakeholders concerning the Nampho coast and their rights and duties in addressing priority issues with respect to the environment of Nampho coast and territorial waters.
2. Establish a Coastal Management Information Center, which will serve as the primary resource of skills and knowledge on the coastal and marine environment, including information related to scientific research, economic development and environmental management.
3. Enhance the participation of all stakeholders in the planning and management of the Nampho coast and marine resources.
4. Strengthen the mutual cooperation of stakeholders for effective management of the Nampho coast and marine areas.

Objective 1:

Improve the awareness of stakeholders concerning the Nampho coast and their rights and duties in addressing priority issues with respect to the environment of Nampho coast and territorial waters.

Action Programs

1. Develop information materials which focus on coastal and marine ecosystems and the natural processes that exist in the Nampho area.
2. Increase awareness of residents on the impacts of human activities on coastal and marine ecosystem, including industry, commerce, tourism, coastal development, and waste management and disposal.
3. Convey to residents their roles and responsibilities related to land and environmental protection.

Objective 2:

Establish a Coastal Management Information Center, which will serve as the primary resource of skills and knowledge on the coastal and marine environment, including information related to scientific research, economic development and environmental management.

Action Programs

1. Set up an information center in the Department of Land and Environmental Protection and Management, PCNC.
2. Collect, collate, synthesize and disseminate all available information and data on the coast and territorial waters of Nampho City as a regular function of the Coastal Management Information Center.
3. Establish integrated information management system of coastal environmental data to assist coastal managers and stakeholders in management planning and decision-making as well as building public awareness.

Objective 3:

Enhance the participation of all stakeholders in the planning and management of the Nampho coast and marine resources.

Action Programs

1. Promote a clear understanding of the public on the State's policy pertaining to land and environmental protection.
2. Identify a lead agency tasked with the responsibility of coordinating, planning and managing environment-related communication activities.
3. Organize public participation activities and programs such as coastal clean-up and tree planting.
4. Incorporate environmental education into the curriculum of primary and secondary schools.

Objective 4:

Strengthen the mutual cooperation of stakeholders for effective management of Nampho coast and marine areas.

Action Programs

1. Promote communication and information-sharing among scientific institutions and government agencies.
2. Conduct regular fora to promote the sharing of knowledge and experiences among scientists, managers, stakeholders and community members, as well as to build stronger cooperation and collaboration in ICM activities.
3. Develop a mechanism to encourage stakeholders' consultations and cooperation in the management of Nampho coastal and marine areas.

Agencies:			
Lead:	PCNC		
Sectors:	LEPDNC	EDNC	
	Legal Agency	Media	SOs

PRESERVE AND RESTORE

Preserve ecological habitats, as well as geographical, cultural and historical features, and restore to their original state, those that have been damaged by human activities.

Principles:

- The ecological, geographical, cultural and historical features of the coast should be preserved and maintained for present and future generations.
- Restoration of damaged habitats and ecosystems is necessary to sustain the life support system in Nampho's environment, for the welfare of present and future generations.
- Features of ecological, social and historical significance shall be restored for the benefit of future generations.

Objectives:

1. Preserve biodiversity and increase green space in the city.
2. Preserve geographical, historical and cultural heritage of Nampho, and promote sustainable development of tourist and recreational sites.
3. Restore and rehabilitate damaged habitats and other natural features.

The forest plays a very important role not only in providing people with joy of landscapes or sceneries, but also in protecting the environment and maintaining ecosystem.

A hectare of forest absorbs 220 - 280 kg carbon dioxide per day and releases 180 - 220 kg of oxygen per day. Thus the forest plays an important role in increasing the rate of existing oxygen.

According to the data, the amount of dust absorption of a broad-leaved tree is 2.7 - 14.9 kg/m². It also absorbs 26 percent of noise.

Objective 1:

Preserve biodiversity and increase green space in the city.

Action Programs

1. Preserve habitats and resources of high natural value and biodiversity.
 - Improve the work of preserving and managing the Hwado-ri black-napped oriole-breeding site No. 2.
 - Designate Dok islet as a protection area for *Jou* (Korean) bird and improve its protection and management.
 - Designate Sangchuirea, Hachuirea and Pi Islands as the protection areas for sea cucumber, sea chestnut, *Portumus tribuberculatus* and clam, and improve its protection and management.
2. Afforestation of the City
 - Develop a long-term plan for afforestation considering biodiversity as well as economic efficiency.
 - Cover 40 percent of the city construction area with green foliage by planting more trees in residential quarters and compounds of factories and along the roadsides.
 - Create a forest along the Youth Hero Highway and the road from Kuomdok Island Port to the West Sea Barrage.
 - Establish more forest parks by planting trees for economic use.

Objective 2:

Preserve geographical, historical and cultural heritage of Nampho, and promote sustainable development of tourist and recreational sites.

Action Programs

1. Strengthen the protection and management of the revolutionary sites associated with the leadership achievements of President **Kim Il Sung** and General **Kim Jong Il** and the activities of Kim Hyong Jik, the outstanding leader of the anti-Japanese national liberation movement in Korea, as well as historical and cultural relics which boast the brilliant cultural tradition and history of the Korean people.
2. Restore revolutionary sites and battle sites to their original state.
3. Improve the management scheme for the conservation of and public access to important historical and cultural sites.
4. In the 20 km area from Dojidong to Ryongnam-ri, build residences following the shape of the hills, to keep the scenery of this coastal and port city.

Objective 3:

Restore and rehabilitate damaged habitats and other natural features.

Action Program

Determine priority areas in the restoration and rehabilitation of damaged habitats and establish a management plan after thorough consultation with relevant agencies.

- Increase green space in the city and mountain forest by promoting a campaign involving all residents to plant trees.
- Establish habitat protection areas to restore fish and shellfish stocks, including sea cucumber, sea chestnut, *Portumus tribuberculatus* and clam around Sangchuirea, Hachuirea and Pi Islands.

Agencies:			
Lead:	PCNC		
Sectors:	MLEP	LEPDNC	Legal Agency
	SOs	Factories and enterprises	

PROTECT

Protect human welfare and the ecological and economic features of Nampho Coast from risks that occur as a consequence of human activities and natural forces.

Principles

- The environment should be protected from potential damages that occur as a consequence of human activities and natural forces.
- Cooperative measures to improve the management and protection of the coastal and marine resources are important.
- Areas of biodiversity shall be protected to maintain ecological and socioeconomic values.

Objectives

1. Strengthen control over sea-based activities adversely affecting the coastal and marine environment.
2. Strengthen control over land-based activities adversely affecting the coastal and marine environment.
3. Prevent and reduce potential damages caused by natural hazards.

At present, drinking and industrial waters in the site depend on Taedong River, underground water and Samhwa reservoir.

Large factories use the Taedong River and underground water directly, while some factories, which require clean water such as food factories, depend on the city water supply system.

The completion of the Kaechon-Lake Taesong Waterway project has put the water supply in the site under favorable conditions.

Objective 1:

Strengthen control over sea-based activities adversely affecting the coastal and marine environment.

Action Programs

1. Prevent catastrophic and operational oil/chemical spills caused by ship activities in the course of their navigation, departure and entry into Nampho coast and in offshore waters.
 - Establish port safety and environmental management system.
 - Secure safe use of sea-lane from the disturbances of other coastal use activities by developing and implementing a coastal use zoning plan.
 - Strengthen supervision, preparedness and response system over oil/chemical spills.
 - Prepare appropriate legal, institutional and economic countermeasures to prevent ship-based pollution.
 - Prevent operational spills in ports and wharves by providing waste reception facilities and regulating disposal of used oil/lubricants from all types of vessels.
 - Develop an oil spill contingency plan through concerted efforts of various relevant agencies and enterprises.
 - Prepare a comprehensive database to support oil/chemical spill response planning, and develop environment sensitivity index map.
2. Strengthen the management and control over dredging and land reclamation activities.
 - Land and Environmental Protection Planning and Designing Institutions shall establish a coastal use zoning plan and formulate long-term and short-term

implementation plans, taking into account natural values of threats and their impacts to the coastal area of Nampho.

- Assess environmental risks of dredging and land reclamation, putting people's interests and ecosystem protection and management as high priority.
3. Strengthen control over marine development and utilization such as aquaculture.
 - Conduct aquaculture according to the comprehensive plan for national land construction, designating aquaculture in near shore and offshore waters and considering its economic effectiveness.
 - Raise the capacity of Nampho Fishery Station so as to increase marine production and, at the same time, strengthen the work to increase and protect marine resources.
 - Prevent pollution caused by aquaculture activities in the sea area such as waters off Nampho City and the West Sea Barrage.

Under the land management policy of the government, Kaechon-Lake Taesong Waterway, a great nature-remaking project adorning the era of the army-based policy, was constructed to improve the water supply condition.

The protection and management activities on the coast have been improved, as well as its afforestation, that marine and forest resources in the coastal area have continuously increased. The river arrangement and embankments have been built or reinforced to provide a clean environment.

Objective 2:

Strengthen control over land-based activities adversely affecting the coastal and marine environment.

Action Programs

1. Under the State laws and regulations on the prevention of marine pollution such as the “Law on Marine Pollution Prevention of DPRK,” strengthen the control and management of practices such as dumping of untreated sewage in Nampho coastal waters.

- Regularly inform the relevant agencies and residents of the laws and regulations on the prevention of coastal and territorial water pollution.
- Provide scientific guidance and improve facilities to treat wastewater and sewage discharged from factories, enterprises and residential areas according to the state standard.

2. Reduce and manage the discharge of contaminants, which directly or indirectly pollute water, air and land.

- Set a clear target for the elimination and reduction of the contaminants and come to an agreement for implementation.
 - ✓ Consult with various agencies in the establishment of standards and policies for natural resources and environmental protection and management.
 - ✓ Consider the correlation between human activities and health in the coastal area and assess the environmental risk to determine the order of priority.

- ✓ Treat wastewater and contaminants including pathogens, sediment, nutrients, pesticides, oil and grease, heavy metals and other toxic and hazardous materials.
- ✓ Strengthen supervision and control over the discharge of contaminants.

• Formulate and implement comprehensive waste management programs.

- ✓ Establish appropriate treatment facilities to manage wastewater and sewage from industrial and residential quarters.
- ✓ Establish a solid waste management program including reduce, re-use and recycling activities.
- ✓ Establish a management program for toxic, hazardous and agricultural waste.
- ✓ Set up an integrated rainwater network system to handle heavy rain, runoff and slush in urban, industrial and agricultural areas and river basins.
- ✓ Strengthen the control over harmful air emissions from mobile sources.

• Improve the water quality of the Nampho coastal area to the state standard.

- ✓ Establish clean and safe water supply system in this area.

3. Remove environmental pollution source

- Set up a thorough purification system in industrial areas of Chollima District and Kangso area, which give serious impact to the water quality of Taedong River.

- Modernize the purification system at the Chollima Steel Complex and the April 13 Iron Works to ensure the disposal of waste at the permitted standard.
 - In the coastal area, measures should be taken for ore treatment of Apatite mine to prevent environmental pollution.
 - Facilities for disposing sewage from stockbreeding farms should be upgraded to ensure their regular operation even in rainy and winter seasons.
4. Prohibit economic activities that promote overexploitation of the resources and destruction of the ecosystem and natural processes.
- Designate natural park and reserves of flora and fauna, and improve the protection and management capacity and measures.
 - Remove/reduce pollution sources to protect spawning grounds, and prevent the catching of fries.
 - Promote technical modernization of existing factories in order to reduce their adverse impact to the coastal and marine environment.
5. Prohibit illegal construction along waterways and reserves.
- Forbid construction that destroys shellfish habitats, breeding areas and fishing grounds.
 - Undertake strict measures to prevent water areas from being polluted by industrial and domestic sewage, and harmful materials.
6. Control the use of fertilizers and other chemicals.
- Produce organic fertilizer in large quantities to raise yields of rice and increase vegetable cultivation.

7. Strengthen enforcement of the State’s law and policies regarding the development and utilization of the coast.
- Ensure that all planning and designing institutions prepare specific measures to prevent damages caused by land development and utilization.
 - Enhance supervision and control over all forms of human activities, which may cause damage to protected areas.

Objective 3:

Prevent and reduce potential damages caused by natural hazards.

Action Programs

1. Set policy direction and measures to prevent natural and socioeconomic damages caused by natural disasters such as typhoons, tidal waves, heavy rain and drought, and intensify supervision and control work.
2. Strengthen the protection facilities against natural hazards, such as embankments and watergates.
3. Prevent soil and sandy beach erosion by appropriate planting and protective measures, such as the application of construction setbacks from the shoreline.

Agencies:

Lead:	PCNC	
Sectors:	LEPDNC	WSORI
	LSONC	MAMDNC

SUSTAIN

Ensure the sustainable use of the marine and coastal resources in order to fulfill the increasing demands of present and future generations.

Principles:

- Fulfill the needs of the present generation without compromising the needs of future generations.
- To achieve sustainable development and economic growth of the different sectors, such as industry, agriculture and fisheries, there is a need to coordinate environmental protection and management activities.
- The protection and sustainable development of fish resources takes a very important place in the food security and economic prosperity of the area.

Objectives:

1. Conserve water resources for sustainable use.
2. Ensure sustainable fisheries.

Affected by the meteorological phenomenon, fish resources in the West Sea are fluctuating, within the period of 15 - 20 years. Therefore, the short-life fishes are breeding there and the amount of resources are currently increasing.

The shellfish resource is increasing rapidly in the coastal area and it is expected that the amount of shellfish production in waters off Kumsung tideland will also increase.

Objective 1:

Conserve water resources for sustainable use.

Action Programs

1. Develop and implement water resource conservation programs.
 - Convert the water supply system coming from groundwater in the coastal area to a system based in Taedong River.
 - Establish treatment plants for industrial wastewater and sewage.
 - Promote conservation of water resources by applying water re-use and recycling programs.
 - Integrate water resource development and conservation programs into an integrated land- and sea-use plan.
2. Strengthen research on pollution sources that cause damage to the coastal and river basin areas.
3. Improve and implement legal and economic instruments to promote rational and sustainable use of coastal waters.

- Develop measures to protect the rights and livelihood of fishers.
- Implement measures to eliminate destructive fishing and overfishing.
- Prohibit human activities resulting in habitat loss.

2. Increase marine resources by intensifying resource protection, increasing public awareness and ensuring sustainable utilization.

- Increase fish production by actively protecting the marine resources and modernizing fishing equipment and facilities.
- Improve fish breeding methods and build more spawning ponds to increase the production of freshwater fish in the downstream watershed of Taedong River in the West Sea Barrage.
- Improve the protection and management of shellfish production (e.g. hard shell clam, short neck clam in Gwangryang Bay) by applying shellfish culture technology and creating a healthy habitat.
- Designate protection areas such as spawning and nursery grounds in the downstream of Taedong River inside the West Sea Barrage, and make efforts to increase the fish and shellfish stock by producing fries.

Objective 2:

Ensure sustainable fisheries.

Action Programs

1. Integrate the fishery management plan into the coastal management plan.

Agencies:

Lead:	PCNC	
Sectors:	LEPDNC	LPDDNC
	CPDDNC	WSORI
	LSO NC	

DEVELOP

Develop and utilize Nampho coastal area in consonance with the land and environmental protection policies of the state and plans for the development of the national economy, thereby ensuring a balance between economic development and environmental management.

Principles:

- Economic development of the Nampho coastal site shall be carried out in conformity with the environmental character of the site and interests of the residents.
- Environmental protection shall be integrated with economic programs for the sustainable development of the Nampho coastal economy.
- The impacts of the present economic development to future generations should be taken into account during the planning and management of coastal area.
- All the stakeholders and relevant agencies recognize the importance of coastal development and concentrate all their efforts on this work.

Objectives:

1. Develop industries and commerce, as well as tourism and recreational areas, suited to the characteristics of the coast and territorial waters.
2. Formulate an integrated coastal-use zoning plan.
3. Strengthen multi-sectoral/inter-agency cooperation for implementation of environment-related policies.
4. Establish systematic planning, approval and execution of development projects.

The site is a gateway of the capital city of Pyongyang and will be developed into a partial area responsible for the capital function, and the central area of foreign trade.

The site has Nampho Port, which is the large trade port on the West Sea of Korea and has favorable conditions for marine transport after the construction of the West Sea Barrage. It is favorable for foreign trade, joint venture and collaboration, and other forms of international economic exchanges.

Objective 1:

Develop industries and commerce, as well as tourism and recreational areas, suited to the characteristics of the coast and territorial waters.

Action Programs

1. Develop a socioeconomic development master plan for Nampho City considering the unique value of coastal and marine resources.
2. Promote the modernization of coastal industries to reduce any potential adverse impacts to the coastal and marine environment.
3. Raise port capacity by expanding Nampho Port to the place where the evacuated Nampho Refinery was located, and build a new foreign trade cargo port in Kuomdok Island.
 - Develop the coast into a center of foreign trade and marine industries.
 - Build an international passenger wharf in Bam Island in Ryongnam district.
 - Develop Doji district as a port town, linked with Kuomdok Island Port, and equipped with a bonded goods processing base and port service facilities.
 - Develop Ryongnam District as a center of foreign trade.
 - Develop Sinhung district as a thriving district where foreign trade, services for foreigners and joint ventures are encouraged as a main business in close relation with Nampho Port and Kuomdok Island Port.
4. Increase the proportion of the third industry, as well as mariculture and aquaculture, in accordance with the character of Nampho City as a cultural port city or international trade city.

5. Promote international tourism, including tours of the grand monumental edifices such as the West Sea Barrage, historical relics and natural products, medical treatment, business or conference, and sightseeing of landscape.
6. Build new resorts and suburban recreational grounds to meet the demands of the increasing population.

- Build Dongjon-ri Recreation Ground, the West Sea Barrage Recreation Ground (Songgwan-ri included), Guksa peak (Usanjang included), the Ori Island-Rimusan Recreation Ground as suburban pleasure grounds.
- Establish modern recreation parks, resorts and camps with various entertainment facilities.
- Build a modern sports village in the area between Ryongnam-ri and Waudu district, and a bathing place in the Barrage, by expanding the present Waudu Pleasure Park.

Objective 2:

Formulate an integrated coastal use zoning plan.

Action Programs

1. Develop and implement a functional zoning scheme for the integrated use of the site.
 - Prepare a comprehensive master plan for the land and sea use, and incorporate it into the economic development plan and environmental management plan.
 - Define functional uses of the coastal zone including forest zone, agricultural zone, underground resources development zone, city and industrial zone, recreational and recreation ground zone, embankment and

beautification zone, marine zone and West Sea Barrage embankment zone.

2. Prepare guidelines for the construction of buildings and other infrastructure in the coastal area.
 - With the limit of vacant lot in the central part of the city, build a new trunk road between the entrance to the Youth Bridge and Ryongnam-ri, which links the center of the city with Waudu and Ryongnam areas.
 - Build hotels and modern high-rise apartment houses in the sites of Waudu Sports Village and Nampho Glass Factory make the riverside the center of the city.
 - Develop the present salt-pond into a green area furnished with modern sports and entertainment facilities for long-term use. Park and recreation grounds will be built between residential areas and the riverside.
 - Arrange international trade exhibition hall, trade center, financial center, hotels and other service facilities in Waudu District and its neighboring district.
 - Develop plan for an international airport, as well as light industrial factories, in Pham Island.
 - Link the present industrial road to Kuomdok Island Port and build a new industrial road from Nampho Port to the West Sea Barrage to join outside traffic network for the convenience in carrying cargo from the site.
 - Ensure traffic ties between the central city and Ryongnam area through the use of the present Nampho-West Sea Barrage road and a new trunk road.

It is calculated that the rate of resort users will be 25 percent of the site population, and of this number, the rate of suburban pleasure ground users is 55 percent, except those who use the pleasure parks and grounds in the city.

Dongjon-ri Pleasure Ground is a good place around Mt. Kum along the riverside of Taedong river, so it is planned to accommodate resorts and children's camps furnished with modern amusement, sailing, and sports facilities.

The West Sea Barrage Pleasure Ground consists of special sceneries including Mt. Kojong in Songgwan-ri, the shore of the West Sea Barrage and coastal scenery. Therefore, it will be built as a comprehensive pleasure ground. This place with a wide area of the Barrage shore is favorable for sightseeing of the West Sea Barrage, boating, bathing, angling and mountain-climbing, so it is planned to host a resort and children's camp, and hotels for tourists.

Guksa peak linked with Mt. Osok is a scenic place where mountains are very beautiful and water is very clear. Guksa Peak Pleasure Ground will be connected with Usanjang Pleasure Ground. Modern pleasure parks, resorts and camps are to be built there with various entertainment facilities.

A pleasure park, an aquarium and a wading pool is planned to be built in Ori Island. This is expected to raise the capacity of pleasure parks in the site.

The site is very favorable for tours and cultural rest, because aside from various forms of landscapes, it also has a pleasure park in Mt. Guwol, a famous mountain on the West Coast, a very short distance from the site. There is also Ryongsupo bathing place, which is known as the best sea-bathing place in the West Coast.

In Ryongnam area, an exhibition hall for foreign goods and international trade, financing and communications center, hotels, and an international passenger port will be newly built. Nampho Port will be expanded and Kuomdok Island Port will be built to promote international

3. Develop coastal settlements in accordance with the economic development of the coast.

- Develop the plan for the arrangement of residential quarters of the coast taking the following points into consideration:
 - ✓ The arrangement of residential quarters indicated in the general plan on land construction;
 - ✓ Features of the coastal area;
 - ✓ Existing economic activities;
 - ✓ Prospect for population increase and settlement capacities;
 - ✓ Infrastructure and environmental facilities of the coastal area and prospect for socioeconomic development.
- Define appropriate settlement areas taking into account their potential impacts to coastal and marine environment
- Assess the economic value of marine and coastal resources, and the cost/benefits associated with development policies for the Nampho coast.
- Construct residential quarters and roads in harmony with the scenic beauty of the coast.

Objective 3:

Strengthen multi-sectoral/inter-agency cooperation for implementation of environment-related policies.

Action Programs

1. Establish a multi-sectoral and inter-agency coordinating mechanism to effectively implement integrated planning and management of coastal and marine resources and environment.
2. Enhance the control function and enforcement of relevant agencies by providing appropriate legal, institutional and economic instruments, and strengthening their coordination.
3. Increase the coordination among research and scientific institutions in undertaking coastal and marine environment monitoring and scientific research, and strengthen their contribution to management decision-making

Objective 4:

Establish systematic planning, approval and execution of development projects.

Action Programs

1. Conduct a multi-sectoral and inter-agency consultation process for the development plan of Nampho coast.
2. Implement environmental impact assessment as a tool for assessing economic development proposals and ensuring the well-being of the residents in the Nampho Coast.
 - Advance coastal development rationally using integrated environmental impact assessment (IEIA) as a tool for evaluating project impacts and benefits.

3. Conduct planning and management for the resources of Nampho coast under the “Land Planning Law of DPRK.”

- Carry out the work of land and environmental protection and management in accordance with the requirement of the land and environmental protection policy of the government, and the actual specific conditions and needs of Nampho coast.
- Strictly prohibit the works that are not reflected in the plan and do not conform with the economic policy of the State on the development and use of land and marine resources.
- Carry out the development of land and marine resources thoroughly under the principle of sustainable development.

Agencies:			
Lead:	LPRI		
Sectors:	LPDDNC	CPDDNC	

The direction for building Nampho City into a magnificent area has already been set, and infrastructures are improving in favor of economic development. Transportation systems including the Youth Hero Highway, Riverside Motorway, Pyongyang-Nampho railway and Nampho-CholGwang railway, which crosses the Pyongnam railway section and the West Sea Barrage, have been laid conveniently.

Therefore, the site can develop into an economic and foreign trade center in the West Sea area, because of its favorable position for productive ties with other regions.

A wide-angle photograph of a coastal city. In the foreground, a large body of water, likely a river or bay, stretches across the frame. The middle ground features a grassy bank with a prominent traditional-style building with a red-tiled roof. In the background, a city skyline with several high-rise buildings is visible against a backdrop of hazy mountains under a blue sky with light clouds.

MONITORING
THE IMPLEMENTATION
OF THE COASTAL STRATEGY

Upholding the idea of **Kim Jong Il** on land management, all the officials in the fields of land and environmental management must have correct understanding of the importance of this work. It is also necessary to conduct strict monitoring and control over this work in a responsible manner under the “Land Planning Law of the DPRK,” “Environmental Protection Law of the DPRK,” “Land Law of DPRK” and “Marine Pollution Prevention Law of DPRK.” These are the assurances for the successful execution of the strategy.

For the successful implementation of this strategy, it will be rational to monitor and evaluate the activities based on the following principles:

1. Systematically explain and propagate the teachings of President Kim Il Sung and the instructions of General Kim Jong Il on the development of the Nampho Coast and improvement of its land and environmental protection and management, and the State’s policies on economic development and land and environmental protection.
2. Enhance the roles and responsibilities of implementing and monitoring institutions, and strengthen understanding and awareness of the importance of this work.
3. Steadily improve the environment while ensuring the health of the people, ecosystem and natural resources.

The most important thing in the rational execution of the strategy is to convert this work to a mass movement so that everyone can implement it in a responsible manner.

To accomplish the purpose of this strategy, all sectors and units should prepare and implement short- and long-term action programs in accordance with their specific conditions and objectives.

