WMU Sasakawa Fellows' Network Meeting in the African Region 2022

August 26 – August 29, 2022
Golden Tulip El Mechtel Hotel,
Tunis, Tunisia

Hosted and Organized by the Friends of WMU, Japan Secretariat in Cooperation with The Nippon Foundation, Tunisian Sasakawa Fellows, and the Office of Merchant Marine and Ports of Tunisia

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Sasakawa Fellows' Network Meeting in the African Region 2022

Overview of Regional Meeting

Sasakawa Fellows' Network Meeting in the African Region 2022

Overview

Date: August 26 - 29, 2022

Location: Tunis, Tunisia

Introduction

Photo by JR Harris on Unsplash

The Sasakawa Fellows' Network Meeting in the African Region 2022 took place in Tunis, Tunisia on August 26-29, 2022. 24 Sasakawa Fellows from 12 African countries and one Fellow from Japan convened for this event. This was the 5th regional meeting, the first in four years since the WMU Sasakawa Fellows' Network Meeting that was held in London in January 2018.

The event was scheduled to coincide with the Tokyo International Conference on African Development (TICAD)[1], which was to take place that summer after being repeatedly postponed due

[1]Established in 1993 at the suggestion of Chairman Sasakawa. This international conference brings together the knowledge and cooperation of not only African countries, but also development-related international organizations, private enterprises, and civic society, conducting discussions that lead to African development. The conference is held roughly every three years in Japan or an African country.

to the COVID-19 pandemic. The venue chosen was the Golden Tulip El Mechtel Hotel. This put the meeting in close proximity to the TICAD venue, and allow for Yohei Sasakawa, the Chairman of the Nippon Foundation, to visit in conjunction with his business trip to TICAD.

As was the case with previous regional meetings, all participants prepared materials such as presentations in advance before arriving in Tunis. Unfortunately, most Fellows faced difficulties obtaining a visa in the short amount of time available. Ultimately, 24 out of the 32 invitees were able to attend, with some arriving late due to issues with their flights.

Pre-Meeting (August 26, Afternoon)

As many of the Fellows have never met each other before, the pre-meeting (also called Day 0) was dedicated to getting to know one another. Some used a single PowerPoint slide to introduce themselves, while others enthusiastically utilized several. In addition, Dr. Cleopatra Doumbia-Henry, the President of WMU, was in attendance to see the participants' self-introductions. She had generously rearranged her schedule just so she could join the start of the regional meeting.

The event venue, the Golden Tulip El Mechtel Hotel

The self-introductions were followed by a discussion on the structure of the sessions and working groups beginning the following day, as well as who to elect as chairs for each session. Ultimately, Nabil Anwari (Morocco, 2005) was elected as chair for the overall meeting, with Houcem Eddine Cherni (Tunisia, 2020) and Maureen Kanini Kitheka (Kenya, 2020) as vice-chairs. The chairs of the working groups in Session 2, in which various maritime issues would be discussed, would be decided by the working group members themselves. Stella Joshua Katondo (Tanzania, 2001) was selected as the chair for Session 3 to discuss ways to strengthen and expand alumni networks.

At the end of the pre-meeting, Capt. Yusuke Mori (Japan, 2014), who was participating as a representative of the Japanese Sasakawa Fellows and as Deputy Executive Director of the International Association of Maritime University (IAMU), gave an overview of IAMU's important roles and activities.

Everyone headed on to the evening welcome party where they were joined by Dr. Hide Sakaguchi, the President of the Ocean Policy Research Institute (OPRI) at the Sasakawa Peace Foundation (SPF), and his staff from TICAD. WMU graduates from Tunisia also made special guest appearances, and all attendees enjoyed a friendly and fun reception which lasted until late night.

Day 1 (August 27)

Opening Ceremony

The opening ceremony began with a welcome address from Dr. Sakaguchi. This was followed

by a pre-recorded video message from Chairman Sasakawa, and a congratulatory address by Dr. Doumbia-Henry, who celebrated the regional meeting's occurrence and spoke of the importance of alumni activities. Lastly, Thouraya Khelil from the Office of Merchant Marine and Ports (OMMP), co-organizers of the regional meeting, gave a warm welcoming address to the audience.

Following the opening ceremony, Chairman Sasakawa - who was participating in TICAD - made an appearance at the meeting. The Fellows welcomed his entrance with WMU's school song. Chairman Sasakawa listened attentively as they each told him about their current activities and responded warmly to their questions. This long-awaited meeting was concluded with group photos with him, Dr. Atsushi Sunami (President of SPF), Dr. Doumbia-Henry, Dr. Sakaguchi, Ms. Khelil, and OMMP representatives. Several Fellows who ran into flight troubles made it just barely in time to see the Chairman.

Group photo with Chairman Sasakawa

Session 1: Maritime Review of Countries

Participants explained how their countries were doing regarding maritime affairs and current issues they were facing. Each presentation was followed by questions from the enthusiastic and curious Sasakawa Fellows. (See Part 4: Maritime Review of Countries for the full reports)

Day 2 (August 28)

Session 2: Working Group Discussions

The Fellows were separated into working groups based on four different topics: 1) Maritime Transport and Port/Harbor Issues, 2) Maritime Safety and Environmental Protection, 3) Maritime Education and Training, and 4) Ocean Governance. They selected specific topics within these broad themes and fervently carried out discussions aimed at resolving future issues.

Each working group spent some time before and after lunch compiling a summary based on what they had discussed, and then, presented their conclusions to everyone that afternoon. As they took the floor, the presenters passionately exchanged questions and answers with members from the other working groups. (See Part 5: Working Group Discussions for presentation slides)

Session 3: Discussion on Alumni Networks in Africa

Fellows talked about their country's alumni activities, or lack thereof. An energetic and passionate guided discussion was held to create ideas for expanding the alumni network. Some common issues were brought up: the lack of alumni per country, the lack of responsive members and a means for reaching out to alumni, and the lack of alumni leaders who can take the initiative to organize events. The talks culminated in one solution: establishing a strongly bonded group once and

for all at this very moment, leading to the Resolution. (See Part 2: Resolution)

Day 3 (August 29)

Port Tours

Thanks to the OMMP's generous support and meticulous preparations, the Fellows had the unique opportunity of boarding a large tugboat from the Port of La Goulette when they visited the important ports of Tunis. They landed to a cheerful reception at the Port of Radès, where they donned "uniforms." Afterwards, they received detailed tours of the Mediterranean Institute of Maritime Training (IMFMM) and saw their simulators and other facilities firsthand.

Sightseeing

The Fellows enjoyed some leisure and shopping time in the blue-and-white resort area of Sidi Bou Said, which sits in the Mediterranean Sea. Their sightseeing adventure finished with a trip to the distant past – to the UNESCO World Heritage site of the Ancient Carthage ruins.

Overlooking the Ancient Carthage ruins

Farewell Reception

For about an hour at the beginning, participants intensely discussed the meeting's resolution draft prepared by Mr. Anwari. The timing of the toast was delayed because of this, regrettably leaving less time for socializing. However, after the Resolution was finished and signed, everyone was able to enjoy their final night together. There was festive music and dancing, wonderful food, and many talks and commemorative speeches. The reception ended on a bittersweet, but very heartwarming note.

Though the consecutive days of presentations, discussions, networking, and learning were surely exhausting, the Fellows were patient, flexible, attentive, and positive throughout the whole affair. The meeting would not have been as rewarding and fruitful if it was not for this particularly outstanding group of maritime professionals. This event was, without a question, a great, great success. As the Friends of WMU, Japan Secretariat, we couldn't be prouder, and it was our honor and privilege to be able to hold the Sasakawa Fellows' Network Meeting in the African Region 2022.

Event Program

August 25th (Thu) – DAY 0 (Arrival)

Time	Schedule	Venue/Notes
Morning/ Afternoon	Arrival	Golden Tulip El Mechtel Hotel

August 26th (Fri) – DAY 1 (Arrival and Pre-Meeting)

Time	Schedule	Venue/Notes
Morning/ Afternoon	Arrival	Golden Tulip El Mechtel Hotel
15:00 – 17:00	Pre-Meeting 1) Self-introductions 2) Create Working Groups 3) Select Group Leaders	
17:00 – 17:20	IAMU Presentation by Mr. Yusuke MORI (Japan, 2014)	
18:30 – 20:00	Welcome Reception	

August 27th (Sat) – DAY 2 (Maritime Information Exchange and Working Group Discussions)

Time	Schedule	Venue/Notes
9:00 – 9:10	Opening Remarks by Dr. Hide Sakaguchi (President, Ocean Policy Research Institute of the Sasakawa Peace Foundation)	Golden Tulip El Mechtel Hotel
9:10 – 9:15	Video Message from Chairman Yohei Sasakawa (Chairman, The Nippon Foundation)	
9:15 – 9:25	Welcome Address by Dr. Cleopatra Doumbia-Henry (President, World Maritime University)	
9:25 – 9:35	Welcome Address by Ms. Thouraya Khelil (Director of Training Department, Office of Merchant Marine and Ports)	
9:35 – 9:45	Group Photos	
9:45 – 10:00	Short Break	
10:00 – 12:00	Visit from Chairman Sasakawa Group Photos	
12:30 – 13:30	Lunch Break	
13:30 – 15:45	Maritime Review of Countries Cameroon: Etakong TABEYANG Egypt: Team Egypt Ghana: Team Ghana Tunisia: Houcem Eddine CHERNI	15 min./person + 10 min. Q&A
15:45 – 16:00	Short Break	
16:00 – 17:15	Maritime Review of Countries: Nigeria: Team Nigeria Cote D'Ivoire: Djaiblond Dominique-Yohann KOUAKOU Uganda: Bibian TURYAHUMURA	15 min./person + 10 min. Q&A
17:15 – 17:30	Short Break	
17:30 – 19:45	Maritime Review of Countries: Togo: N'Hoboutoun SANTA	15 min./person + 10 min. Q&A

	Kenya: Team Kenya Benin: Yehonnou Tchegbenton Fabrice METONWAHO Tanzania: Team Tanzania Morocco: Nabil ANWARI Japan: Yusuke MORI	
19:45 – 20:00	Dinner with Dr. Cleopatra Doumbia-Henry	

August 28th (Sun) – DAY 3 (Working Group Presentations Cont. and Alumni Network Discussions)

Time	Schedule	Venue/Notes
9:00 – 10:30	Working Group Discussions (WG1-4) WG1: Maritime Transport and Port/Harbor Issues WG2: Maritime Safety and Environmental Protection WG3: Maritime Education and Training WG4: Ocean Governance	Golden Tulip El Mechtel Hotel
10:30 – 12:30	Wrap Up and Prepare Presentations	
12:30 – 13:30	Lunch Break	
13:30 – 14:30	Finalize Presentations	
14:30 – 14:45	Arrange Seats	
14:45 – 17:10	Working Group Presentations	15 min./group + 5 min. Q&A
16:05 – 16:20	Short Break	
16:20 – 18:30	Discussion on Alumni Networks in Africa	
18:30 – 20:00	Dinner	

August 29th (Mon) – DAY 4 (Port Visit, Tour of Tunis)

Time	Schedule	Venue/Notes
7:30 – 9:00	PCR Tests	Chelli Mohamed Hassen Laboratoire D'analyses Médicales
AM	Tour of Port of La Goulette and Port of Radès	by Bus
PM	Lunch Sightseeing 1) Ancient Carthage Ruins 2) Sidi Bou Said	
17:00	Arrive at Hotel	by Bus
18:30 – 19:00	Review and Sign Resolution	
19:00 – 20:30	Farewell Reception	Golden Tulip El Mechtel Hotel

August 30th (Tue) – DAY 5 (Departure)

Time	Schedule	Venue/Notes
Morning/ Afternoon	Departure	

Participants

Benin, 2018

Yehonnou Tchegbenton Fabrice METONWAHO
Port State Control Officer in Charge of Marine Pollution Subjects, Department of Marine Environment Protection, Directorate of Port, Maritime and Fluvio-Lagunar Affairs

Cameroon, 2018

Etakong TABEYANG
Diplomat,
Secretariat General,
Ministry of External Relations

Cote d'Ivoire, 2021

Djaiblond Dominique-Yohann KOUAKOU
Commanding Officer of Vessel,
Navy,
Ministry of Defense

Egypt, 2004

Capt. Ehab Ibrahim OTHMAN
Vice Dean for Education Affairs,
Maritime Safety Institute,
Arab Academy for Science,Technology and Maritime Transport (AASTMT)

Egypt, 2013

Capt. Amr Monir IBRAHIM
Captain/Director, Senior Simulator Instructor/Maritime Lecturer,
Director of Marine & Offshore Training Centre (MOTC),
Integrated Simulators Complex (ISC),
Arab Academy for Science, Technology and Maritime Transport (AASTMT)

Egypt, 2018

Fawzy Fathalla DEKINESH
Head of Natural Gas and Petrochemical Department,
Integrated Simurator Complex,
Arab Academy for Science, Technology and Maritime Transport (AASTMT)

Ghana, 2017

Prosper Senyo BEDIAKO
Senior Security Officer,
Security,
Ghana Ports and Harbours Authority

Ghana, 2020

Marvin Bang-Gesina AYOO
Maritime Administrative Officer,
Maritime Services Division,
Ghana Maritime Authority

Ghana, 2021

Synclesia Wenia PWATIRAH
Acting Assistant Director,
Naval Administration,
Ghana Navy

Participants

Kenya, 2012

Elsie Nyabonyi BIKONDO
Principal Human Resources Development Officer,
Human Resources Department,
Kenya Ports Authority

Kenya, 2013

Fiona Syovata MBANDI
Senior Human Resources Officer,
Human Resources Department,
Kenya Ports Authority

Kenya, 2015

Juma Ahmed ALI
Business Development Officer,
Commercial Shipping,
Kenya Maritime Authority

Kenya, 2019

Margaret Wanjiku WACHIRA
Monitoring Officer,
Commercial Shipping Department,
Kenya Maritime Authority

Kenya, 2020

Maureen Kanini KITHEKA
Maritime Expert,
Shipping and Maritime,
Ministry of Transport

Morocco, 2005

Nabil ANWARI
Senior Officer,
Multilateral Cooperation Service,
Cooperation Division/Directorate of Strategy and Cooperation,
Department of Marine Fisheries

Nigeria, 2019

Roland Oladipo IJABIYI
Senior Manager,
Pollution Control,
Environment Department,
Nigerian Ports Authority

Nigeria, 2020

Capt. Abiodun Abidemi FOLORUNSHO
Captain/Assistant Director,
Marine Engineering,
Nigerian Navy

Nigeria, 2021

Yakubu ABUBAKAR
Transport School,
Nigerian Institute of Transport Technology, Zaria

Participants

Tanzania, 2001

Stella Joshua KATONDO
Director of Transport Environment and Safety,
Transport Sector,
Ministry of Works and Transport

Tanzania, 2007

Dr. Tumaini Shabani GURUMO
Senior Lecturer/Acting Principal,
Maritime Transport,
Dar Es Salaam Maritime Institute

Tanzania, 2021

Kwilasa Lushanga NG'WIGULU
Environmental Management Officer I,
Directorate of Environmental and Social Impact Assessment,
National Environment Management Council

Togo, 2018

N'Hoboutoun SANTA
Head of the Section of Legal Affairs,
Direction of Legal Affairs and Litigation,
Ministry of Maritime Economy, Fisheries and Coastal Protection

Tunisia, 2020

Houcem Eddine CHERNI
Harbor Pilot,
Office of Merchant Marine and Ports,
Gabes Port Authority

Uganda, 2021

Bibian TURYAHUMURA
Maritime Information Technology Officer,
Maritime Department,
Ministry of Works and Transport

Japan, 2014

Yusuke MORI
Deputy Executive Director,
International Association of Maritime Universities

Sasakawa Fellows' Network Meeting in the African Region 2022

Resolution

RESOLUTION

We, the participants of the WMU Sasakawa Fellows' Network Meeting of the African Region held in Tunisia from 26th to 29th August 2022.

Whereas the African Fellows have been dormant with minimal communication and interaction, RECOGNISING the need to create WMU Sasakawa Fellows' Network in the African Region for the purpose of establishing and maintaining a constant link among Country and Regional Fellows for mutual cooperation and exchange of beneficial information and CONSIDERING the availability of resources and the maximum utilization of current information and communication technologies and tools.

DO hereby ADOPT an ACTION PLAN to fulfill the objectives of the WMU Sasakawa Fellows' Network and its future expansion as follows.

- To enhance the Friends of WMU, Japan Website by making more effective meaning of communication among fellows and for the promotion of Sasakawa Network to benefit the maritime sector;
- To regularly update the Fellows' List to keep the directory alive and relevant (beneficial),
- To improve the Newsletter of Friends of WMU Japan by regularly contributing articles touching on current maritime issues and challenges in our regions;
- To utilize our respective maritime knowledge, expertise and experience, individually as well as collectively, for the development of African maritime sector;
- Uganda: Bibian TURYAHUMURARegional Secretariat to monitor, communicate and sustain future activities for expansion of the Sasakawa Fellows' Network.
- To make active use of this network as an effective tool for solving various issues or for promoting sustainable development of maritime societies and ocean; and

RESOLVE to cooperate actively in the implementation of this Action Plan within the African Region as undersigned:

Name	Signature
Yehonnou Tchegbenton Fabrice Metonwaho (Benin)	
Etakong Tabeyang (Cameroon)	
Djaiblond Dominique-Yohann Kouakou (Côte d'Ivoire)	
Ehab Ibrahim Othman (Egypt)	
Amr Monir Ibrahim (Egypt)	
Fawzy Fathalla Dekinesh (Egypt)	
Prosper Senyo Bediako (Ghana)	
Marvin Bang-Gesina Ayoo (Ghana)	
Synclesia Wenia Pwatirah (Ghana)	
Elsie Nyabonyi Bikondo (Kenya)	
Fiona ~~Syobata~~ Syovata Mbandi (Kenya)	
Juma Ahmed Ali (Kenya)	
Margaret Wanjiku Wachira (Kenya)	
Maureen Kanini Kitheka (Kenya)	
Nabil Anwari (Morocco)	
Roland Oladipo Ijabiyi (Nigeria)	
Abiodun Abidemi Folorunsho (Nigeria)	

Yakubu Abubakar (Nigeria)

Stella Joshua Katondo (Tanzania)

Tumaini Shabani Gurumo (Tanzania)

Kwilasa Lushanga Ng'wigulu (Tanzania)

N'Hoboutoun Santa (Togo)

Houcem Eddine Cherni (Tunisia)

Bibian Turyahumura (Uganda)

Sasakawa Fellows' Network Meeting in the African Region 2022

A Visit from Chairman Sasakawa

Sasakawa Fellows' Network Meeting in the African Region 2022

A Visit from Chairman Sasakawa

Date: August 27, 2022

Guest of Honor: Yohei Sasakawa, Chairman of the Nippon Foundation

First, a Video Message

Chairman Sasakawa in his video message to the alumni.
See link for video: https://www.youtube.com/watch?v=1gFopBdgM20

The Nippon Foundation had recorded a video of Chairman Sasakawa prior to the regional meeting. While it was the Chairman's wish to come to the regional meeting, his schedule during TICAD was packed and unpredictable, so he had prepared the video message in case he had to miss the event. This was played during the opening ceremony following the opening remarks.

His Message

"Mr. Foued Othman, CEO of the Office of Merchant Marine and Ports of Tunisia, Dr. Cleopatra Doumbia-Henry, President of the World Maritime University, and WMU Fellows. I would like to thank you for organizing this networking session at the same time Japan is hosting the Tokyo

International Conference on African Development. This session will offer opportunities for exchange of views on ocean issues in Africa and beyond and for WMU Fellows to deepen ties among yourselves.

The Nippon Foundation's relations with Africa go back almost forty years. We have been active not only in the maritime and ocean fields that you specialize in but also in the areas of agricultural assistance and elimination of leprosy. Having visited almost thirty African countries, I feel very close to you and at the same time, consider you as my colleagues with whom I have overcome many difficulties in the spirit of "Never Give Up."

As you know, the ocean is a common asset of humanity. The challenges we face require cooperation /across countries and disciplines for orderly management of the environment, fisheries, energy, maritime safety, and international law. Against this backdrop, African nations too, while appreciating the importance of individual marine resource conservation and the sustainable use of the vast African oceans are now making joint efforts in ocean management. Africa hosted the Sustainable Blue Economy Conference in 2018 and the blue economy policy dialogue during the UN Ocean Conference in 2022. Although western countries have taken the initiative to lead those international ocean conferences now there is a growing momentum for Africa to play a greater role.

I sincerely hope that as WMU Fellows, you will also contribute to the orderly management of the oceans of Africa. You can do this by making full use of the expertise you have developed at WMU, experiences from your current field work, and the network of more than 1,600 Sasakawa Fellow ocean specialists all over the world, of which you are a part.

Ocean issues are wide-ranging. Although you may not see tangible results in the short term, you have to take action with a long-term perspective. But as the people of Africa have taught me, let us work towards passing on the sustainable oceans to the future generations in the spirit of Never Give Up. I look forward to the success of this gathering and your future work. Thank you very much."

Meeting Chairman Sasakawa

Right as the opening ceremony was finishing up and group photos were being taken, there was an announcement that the Chairman was, in fact, arriving that very morning. This announcement was met with a flurry of activity as Fellows moved chairs to more suitable positions closer to the front where he would be seated.

Mr. Eisuke Kudo, senior advisor to the Sasakawa Peace Foundation, had the brilliant idea of playing WMU's school song and timing it with Chairman Sasakawa's entrance into the meeting room. He seemed pleasantly surprised to hear the music and enthusiastic singing as he walked in, but immediately followed suit and clapped along to the song.

Clapping to WMU's song

Fellows took turns introducing themselves and talking about their time at WMU, and how their experience there shaped them as maritime workers

and as individuals. They ended these brief reflections with heartfelt words of thanks for funding their studies and allowing them to pursue their dreams. Thereafter, they had the chance to ask him questions such as about his motivations for his generosity towards mankind and maintaining his health at his age.

Receiving local clothing from Tanzania

A few Fellows actually flew into Tunis that morning and made it barely in time to see Chairman Sasakawa. Though they were operating on near-zero sleep after resolving their flight issues, they still participated in the introductions, Q&A, and the final group photos. Also, in the meeting, Chairman Sasakawa was presented with precious gifts from several alumni. He even declared that he would display his gift from Ms. Katondo, a Fellow from Tanzania, from the top of Mount Kilimanjaro if he is able to successfully climb it as part of his campaign in the fight against leprosy.

The visit finally concluded with Fellows taking group photos on top of individual photos with the Chairman. He would share a few images from his morning with the Fellows in his personal blog later: https://blog.canpan.info/yoheisasakawa/category_11/2

Though short and sudden, it was a heartwarming and emotional visit, especially for the alumni who never got to see him because of the COVID-19 pandemic. Their grins in the pictures tell us that it was worth it.

All smiles for the group photo!

Sasakawa Fellows' Network Meeting in the African Region 2022

Maritime Review of Countries

Benin

Benin Report: Overview of Maritime Situation and related entities in Benin

I- Country overview:

Located in West Africa between latitudes 6°30' and 12°30' north and longitudes 1° and 3°40' east, Republic of Benin covers a surface area of 114,763km2. It is limited to the South by the Atlantic Ocean and bordered Togo in the West, Nigeria in the East, Niger in the North-East, Burkina Faso in the North-West. Benin is subdivided into 12 Departments and 77 Municipalities. The population grew from 6,769,914 in 2002 (GPHC, 2002) to 10,008,749 (GPHC, 2013) with a mean annual growth rate of 3.52%. The average density is 29 inhabitants/km2 with a higher population concentration in the southern part of the country. Over the period 1996-2015, Benin experienced an unstable economic situation marked by a fluctuation in Gross Domestic Product (GDP) ranging from 2 to 6%. But due to current government economic reforms, GDP reached a record of 6.8% in 2018 (Ministry of the Living Environment and Sustainable Development, 2019).

The GDP per capita growth remains low, due to the sustained population growth (3.5% per year between 2002-2013), the poor performance of policies implemented, leaving little room for achieving the Sustainable Development Goals (SDGS) by 2030. As for the structure of the economy, it has remained virtually stable since the 2000s, with primary and secondary sectors representing, on average, 23.3% and 24.7% of GDP respectively and a predominant tertiary sector (52.0%) of GDP (Ministry of the Living Environment and Sustainable Development, 2019).

Republic of Benin is a coastal country in West Africa, bordering the Atlantic Ocean. It has a 125 km long coastline and a seaport, the port of Cotonou.

Benin has a maritime area extending two hundred (200) nautical miles from the coast (the exclusive economic zone) in which various socio-economic activities are carried out, notably: maritime transport, industrial fishing, artisanal fishing, oil research, transshipment of oil products, etc.

More than 90% of Benin's trade with foreign countries is carried out by sea, hence the vital importance of the sea and the port of Cotonou for the Beninese economy and those of the hinterland countries.

Benin's maritime activities are factors of change over time in the sense that they aspire to the development of their activities:

- The carriage of goods has increased since 2016 with the modernization of service offers and port infrastructures; this implies the densification of goods boats bound for the port of Cotonou with the corollary:

- the occupation of a larger maritime surface for boats in the harbour (pre-parking);

- the occupation of a larger coastal area: extension of the area of the old port and the creation of a second deep-water port on the coast of Sèmè-Pkodji;

- Maritime fishing has increased its fleet over time. With the decrease in catches, this fleet has decreased, but this decrease may be structural because the population's need for fish products is always on the rise:

- the number of fishing boats may vary over time,
- the fishing area may vary over time

- Maritime tourism in Benin could experience a real boom in the future because of the government's vision of making Benin a tourist destination

Indeed, if the "Fishing Route" project develops, there may be a market for the transport of cruise passengers. The project foresees the setting up of a tourist development zone, with the construction of hotels (6,000 rooms), residential developments (7,000 dwellings, between villas and flats), leisure facilities, shops, transport, services, etc. In the long term, this seaside area should create around 23,000 direct jobs (230,000 indirect jobs) and welcome up to 95,000 visitors per day (Witteveen+ Boss, 2016). To this end, several tourist sites are being modernized and developed, which may result in:

- ✓ Sea trips for cetacean observation can be multiplied,
- ✓ the number of boats for pleasure craft may increase,
- ✓ the coastal/marine area(s) reserved for recreational use may increase

Regarding research, the need for conservation of marine resources or/and their extension and oil exploration may require:

- more space for the creation of marine protected areas (MPAs),
- more space for excavations and research (Adje & Metonwaho, 2021).

The marine and coastal environment of Benin is attached to the continent by the coastline. Beninese coastline is an area of transition and intense interactions between the Atlantic Ocean and the continent. The continental part of southern Benin is home to several bodies of water that communicate with the sea.

The continental (terrestrial) part of the coastline is composed of the wetlands of southern Benin, listed in Ramsar sites No. 1017 and No. 1018 which are respectively represented by:

- South-West fluvio-lagoon complex, composed of the lower valley of the Mono River, 100 km long in Benin, the Couffo River, 190 km long; Lake Ahémé (78 km²) with a branching along the coast to form the coastal lagoon of Grand-Popo the whole of a surface of 47.500 hectares. It is located between 6°16'48"N - 6°57'N and 1°40'E - 2°20'E and;
- South-East fluvio-lagoon complex, composed of the lower valley of the Ouémé River length of 510 km, Lake Nokoué (150 km²) and the lagoon of Porto-Novo (35 km²), the all with an area of 91,600 hectares. It is located between 6°21'48"N - 6°57'N and 2°20'E - 2°45'E

The two river-lagoon complexes of South Benin communicate with the Atlantic Ocean respectively through the mouth of Grand-Popo called Bouche du Roi (via Lake Ahémé) and the Cotonou channel, which is 3 kilometers long (via Lake Nokoué).

The southern part of Benin is characterized by a subequatorial climate marked by high humidity and an average annual rainfall varying between 1230 and 1550 mm varying between 1230 and 1550 mm. This sub-equatorial climate, marked by two rainy seasons and two dry seasons, is the consequence of rainfall phenomena linked to the atmospheric circulation atmospheric circulation over West Africa (Ministry of Living Environment and Sustainable Development, 2020).

As a creator of direct and indirect full-time jobs, the port of Cotonou plays a transversal role between other sectors in the country by maintaining the economic and social environment, and accompanies and contributes to the dynamics of agricultural, commercial, industrial and financial growth in the entire economic sphere. As the "lung of the national economy", the port of Cotonou participates in 90% of foreign trade and generates up to 60% of the Gross Domestic Product (GDP). The autonomous port of Cotonou contributes between 80 to 85% of customs revenue and 45 to 50% of tax revenue (Adje & Metonwaho, 2021).

The port of Cotonou has a capacity of 2 million tonnes per year. It is equipped with a 1,300 m long commercial quay, divided into six conventional berths, a container terminal and a 450 m long jetty. Faced with the loss of market share to the ports of Lomé (Togo), Tema (Ghana) and Abidjan (Ivory Coast) in recent years, the Benin government has since 2016 undertaken reforms to improve the performance of the autonomous port of Cotonou and bring it in line with the major port institutions. The results obtained since then are very encouraging. The port of Cotonou closed 2018 with a total tonnage of 10.3 million tonnes (of which about 88% was import). This represents an increase of 10% compared to 2017 (Adje & Metonwaho, 2021).

Due to its natural position with an opening to the Atlantic Ocean, Benin has the advantage of serving several neighboring countries through transit and trade activities to supply the hinterland countries with essential products. The potential of Benin's hinterland is significant: Niger, Mali, Burkina Faso and Tchad have privileged relations with Benin. The autonomous port of Cotonou also deserts Nigeria, Africa's largest country in terms of area and population. Indeed, these hinterland countries are large countries with a growing consumer population. In 2018, 49% of total traffic in the autonomous port of Cotonou was hinterland related (Adje & Metonwaho, 2021).

II-Beninese maritime situation overview:

1- Maritime risks and country challenges:

1.1: Climate change, fishing and tourism activities, marine renewable energies

1.1.1: Climate change

In terms of seasonality, it is worth noting the very pronounced delays in the effective start of the rainy seasons for more than two decades, the increasingly random nature of the seasonal distribution of rainfall in general, and the displacement of the usual rainfall maxima. Intra-annual analysis reveals, since the 1990s, the persistence of disturbances in rainfall patterns observed in the south in particular. Spatial and temporal variability of rainfall has become particularly pronounced in recent years, especially between 2006 and 2016 (Figure 1).

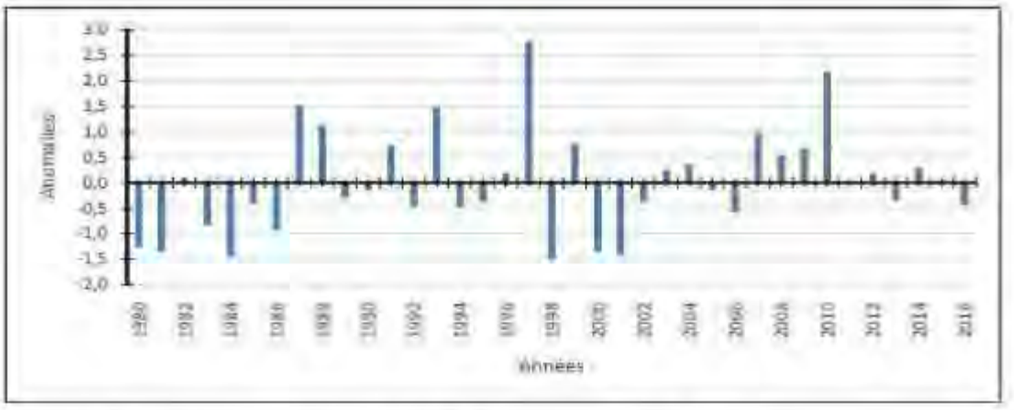


Figure 1: Interannual variability of rainfall in Cotonou. Period: 1980-2016
Source: METEO BENIN

With regard to temperature variability, departures from normal (1981-2010) annual mean temperatures vary overall between -0.7 and +0.7°C. Although these deviations were positive in places during the period 2000-2008 and generally positive during the period 2010-2016, they do not show the pattern of a clear warming trend (Figure 2).

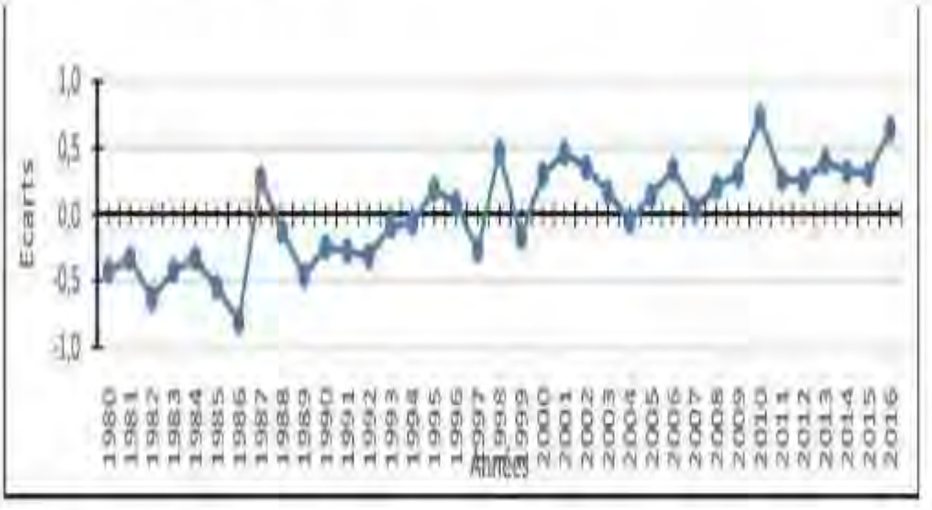


Figure 2: Interannual variability of the mean temperature in Cotonou. Period: 1980-2016
Source: BENIN METEO

Finally, the dominant weather and climate phenomena observed during the period 1980-2017 include heavy rainfall, long dry spells, excessive heat, strong winds, and lithometeors (haze or dust).

The coastal strip of Benin is subject to the process of global warming. The projections of climate parameters in the future are based on representative profiles of concentration evolution concentration evolution profiles (RCP 8.5: very high greenhouse gas emission scenarios; RCP 4.5: intermediate RCP 4.5: intermediate emission scenarios) of the IPCC 5th Assessment Report.

The results showed that in 2050 the average temperature will increase by 1.6°C (between July and November) and 2.4°C (in April) on the coast according to the concentration profile RCP 8.5.

The main climatic risks to which Benin's coastline is exposed are flooding, coastal erosion and sea level rise. These climatic hazards are ranked in order of their degree of severity

Table I : Climatic hazards and degree of severity in coastal of Benin

Factors	Characters
Coastal erosion	Severe
Flooding	Severe
Sea level rise	Average
Storms (squall lines)	Average

Source: (Ministry of Living Environment and Sustainable Development, 2020)

- **Flooding**

Flooding in the coastal communities is the second major risk that threatens many structures in Benin's coastal areas of structures on the Beninese coast. These floods are linked on the one hand to the hydrological dynamics, i.e., to the regime of the rivers in Lower Benin, and on the other hand to the insufficiency and inadequacy of the rainwater drainage network. The presence of a plateau and a plain in the Grand-Popo-Ouidah sector makes water retention difficult.

This situation makes this part of the country a vulnerable zone, especially given the presence of several rivers and bodies of water such as the Djessin and Donmè lagoons and Lake Toho in Ouidah and the Grand-Popo lagoon. The vulnerability of the Grand-Popo-Ouidah sector to flooding is significantly higher than the national average (Ministry of Living Environment and Sustainable Development, 2020). Photo 1 shows the flooding in Cotonou in 2010.

Photo 1: Flooding in Cotonou

As for the risk of marine flooding (washover) (photo 2), it has always been reported on the Benin coast, with minor damage; the periods of occurrence are generally in April-May and July-September, in accordance with the seasonality of the wind regime and swell conditions. However, the last decade has seen increasingly recurrent and widespread marine flooding throughout the coastal zone, with one or two extreme events per year. They lead to the overflow of sea water onto the beaches and cause significant damage.

Photo 2: Washover phenomena in Djondji

➢ ***Coastal erosion***

The Beninese coastline is a sandy area characterized by a chain of lagoons that make the coastal zone dynamic, with very complex natural characteristics. Along the West African coast, the sea transports huge quantities of sandy sediments from the rivers. Interruptions of sediment transport in the rivers or along the coast cause erosion problems. The main factors responsible for the hydrodynamic and morphosedimentary conditions in the area are:

- Natural phenomena:

o Coastal geomorphology (low slope and sandy substrate) as well as coastal hydrodynamics (West to East longshore drift);

o persistent regular waves from a great distance (swell) which generate a strong transport of sediment parallel to the coast towards the East;

o extreme weather events (e.g. storms);

o General sea level rise caused by global warming (indirectly natural factor acting on a global scale). –

- Anthropogenic phenomena:

o the cessation or reduction of fluvial sedimentary inputs by dams on rivers or excessive (illegal or insufficiently studied) extraction of sand; this results in beach erosion. This is the case in Benin near the Gbagan and Grand-Popo lagoons.

o the cessation of sediment transit by port and coastal protection structures causes a disruption of the morphodynamic process of the Beninese coastline, resulting in accretion of the coast to the west and erosion to the east of these structures. This is the case at the port of Cotonou where accretion is

observed between Togbin and Cotonou, and erosion at Akpakpa Dodomè towards Sèmè-Kpodji. The groins made to control erosion have a very limited impact. A new port at Sèmè-Kpodji is likely to cause erosion problems far away in Nigeria.

Coastal erosion does not manifest itself in the same way on the entire Beninese coast.

The most affected sectors are the segment of coastline located between Hillacondji and Grand-Popo (erosion rate: -15 m/year from 2012 to 2015 and -3 m/year from 2016 to 2019 (photo 3); the segment of coastline located east of the Sèyivè neighborhood in the commune of Sèmè-Kpodji (erosion speed -30m/year; photo 4).

The sectors in fattening are located to the west of the port up to Fidjrossè. The other sectors, which have benefited from protection works, are stabilized.

Photo 3: Disappearing fishing villages in Hillacondji


Photo 4: Cove formed by erosion downstream of the 2014 groin field

Figure 3 : Erosion hazard intensity per coastline segment and corresponding degrees of risk.
(Ministry of Living Environment and Sustainable Development, 2020)

- **Sea level rise**

Another risk to which the Beninese coastline is exposed is the sea level rise due to global warming. The projections of this rise in sea level rise made and recorded in the Second National Communication are not ery reassure

Figure 4: Projected sea level rise in the Benin coastline

Estimates give a rise in the order of 20 cm for 2030, 40 cm for 2070, and 60 to 70 cm by the end of the century. This will result in the submergence of certain large city districts such as Cotonou and Grand-Popo.

This sea level rise is manifested by flooding, washover phenomena and the coastal erosion.

The sea level rise by submersion and erosion of the coast will have a negative effect on human settlements. At the same time, the intrusion of marine water will water intrusion will increase the salinity level of agricultural lands, causing their degradation and will also contribute to the pollution of groundwater. In addition, the demographic weight and the development of economic activities in the coastal zone constitute a real pressure that is likely to persist or increase for a long time. In addition to the risks of sea level rise, flooding, the Beninese coastline is exposed to strong winds.

1.1.2: Fishing sector

Beninese fishing is practiced primarily by indigenous populations living on the water (at Ganvié on Lake Nokoué) and near water bodies, along the coast in the vicinity of water bodies and on the banks. It is the main economic activity of the coastal population and contributes greatly to the reduction of unemployment and the supply of fish products to the population, which are important sources of animal protein. Depending on whether it is practiced at sea or on the continent, there are two main types of fishing: inland fishing and maritime fishing.

- **Inland fishing**

Inland fishing remains a harvesting activity that is practiced mainly in the Ouémé delta-Porto-Novo-Lake Nokoué-Sò River complex and the Couffo-Ahémé Lake Couffo-Lake Ahémé and its channels-Coastal Lagoon.

Inland fishing is a very important activity for the riverside communities because of its employment-generating nature. The number of fishermen was 54,511 in 2012 for 53,342 pirogues, compared to 45,621 fishermen for 52,537 pirogues in 2008. Inland fishing remains the most accessible source of protein for the entire population. It provides around 45 000 tonnes of fish products. This fishery contributes nearly 75 per cent of national production, 90 per cent of which comes from lagoon fishing and 10 per cent from river fishing. In the south of the country, fishing takes place in the lower reaches of the main rivers and lagoon complexes, in ancient lakes and in small lakes (Ministry of Living Environment and Sustainable Development, 2020).

The fishing gears, techniques and methods used differ from one water body to another. However, gillnets are found on all water bodies with different mesh sizes. These fishing gears include nets such as cast or hawk nets, set nets, drag nets, fish or shrimp pots, hand lines and crab scales. Apart from the use of these gears, fishermen also practice different traditional forms of fishing. These include extensive fishing/fish farming (acadja or branch pens, whédo/ahlo or fish holes).

Given the socio-economic nature of the fisheries, fishermen are taking more and more fish despite the limited nature of the resource. This trend of over-investment and enrichment has contributed to the use of prohibited and devastating fishing gear and to an increase in fishing effort. The consequences of this situation are the destruction of the aquatic ecosystem, the decline in fishing potential and insignificant landings, which reflect the full exploitation of the water bodies of southern Benin and the need to put in place management plans that will enable the stocks to be reconstituted (Ministry of Living Environment and Sustainable Development, 2020).

The evolution of production over the last ten (10) years has seen a slight increase from 30,000 tonnes between 2010 and 2015 to 40,000 tonnes between 2016 and 2019 (Figure 2.3.). However, the fish caught are generally below their first sexual maturity size. More than 90% of the catches are immature fish that have not had the opportunity to reproduce at least once, with the result that recruitment and productivity of the water bodies are limited.

Overall, the current situation of inland fishing offers very limited prospects for development, in terms of diversity and quantity of catches. However, it is hoped that the measures to clean up Lake Ahémé, Lake Nokoué and their channels by removing acadja and prohibited gear carried out recently in 2019 by the Directorate of Fisheries Production constitute an important basic action for the development of the sector. The revival of inland fishing requires the removal of major constraints, particularly in the management of resources through the rehabilitation of water bodies and the strengthening of monitoring, control and surveillance of fisheries on a regular basis in the face of the pillaging of resources.

Figure 5 shows the situation of catches in inland, artisanal and industrial maritime fisheries from 2010 to 2019

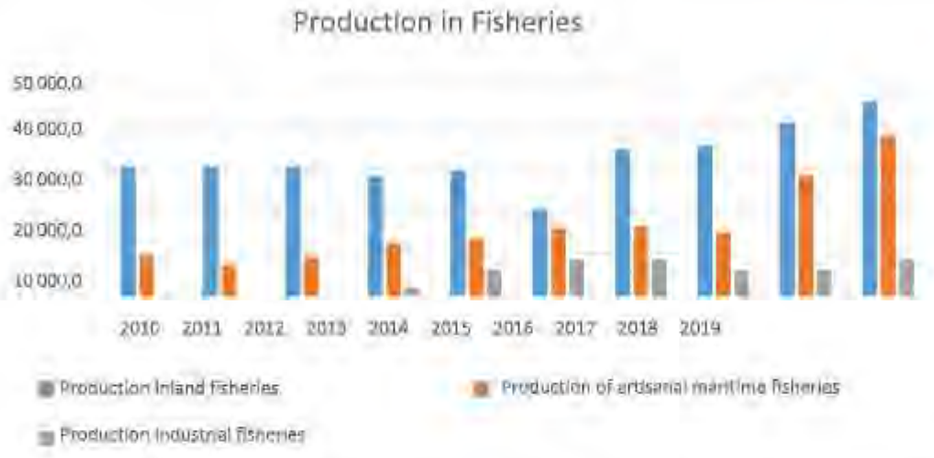


Figure 5: Production of inland, artisanal and industrial fisheries from 2010 to 2019 in South Benin

➢ **Maritime fishing**

Maritime fishing is composed of two types of fishing: artisanal fishing and industrial fishing.

✓ *Artisanal maritime fishing*

Artisanal marine fishing has a fleet of 728 highly motorized cover boats (motorization rate of about 76%) and 47 landing sites along the coast. It mobilizes 4,305 fishers for 40,531 households (Directorate of Fisheries Production, 2016) and represents the activity of Beninese coastal communities and non-native communities settled along the coast strip.

The 2014 maritime fisheries framework survey revealed that 81% of fishermen are Beninese, compared with 53% in 2009; there are also Ghanaians (12% in 2014, compared with 42% in 2009), Togolese and Nigerians (7% in 2014, compared with 5% in 2009). About ten types of gear are used in artisanal maritime fishing. These gears are mainly bottom-set gillnets, surface nets, seines and hook-and-line. Artisanal maritime fishing is carried out within 5 nautical miles according to the legislation in force (framework law N°2014-19 of 07 August 2014 on fishing and aquaculture in the Republic of Benin). Artisanal maritime production has increased significantly between 2010 and 2019. It increased from 10,000 tonnes between 2010 and 2017 to 35,000 tonnes from 2017 to 2019 (Ministry of Living Environment and Sustainable Development, 2020).

✓ *Industrial maritime fishing*

Industrial marine fishing is not very developed. It is normally carried out beyond the 5 nautical miles according to the legislation in force. This fleet is generally composed of about twenty vessels of between 16 and 70 m in overall length. These vessels are trawlers, shrimp boats, tuna boats (seiners and pole-and-line vessels). Of various nationalities (Chinese, Ghanaian and Nigerian), these vessels fly the flag of their countries and have a Beninese license according to the legislation in force. They fish in Beninese waters and in those of the countries of the sub-region.

The annual production of industrial fisheries, including tuna production, remained from 2010 to 2013, at about 8,000 tonnes per year. It has shown a slight increase between 2014 and 2019, reaching around 10,000 tons per year. It increased slightly between 2014 and 2019, to about 10,000 tonnes per year. This increase in maritime fisheries production could be explained by the increase in catches of large pelagics (jacks, tunas, mackerels, swordfish, sharks and others) on our coasts in recent years.

The majority of fish products are sold on the local market and distributed by a large network of resellers (fishmongers). Apart from the domestic consumer market (households, restaurants, hotels), there is a small export channel for fresh and smoked products to neighboring countries, notably Togo and Nigeria. In terms of social organization, the men are in charge of fishing, while the women look after the post-capture products (Ministry of Living Environment and Sustainable Development, 2020).

➢ **Aquaculture**

Aquaculture in South Benin is essentially limited to classical fish farming. It is practiced in a traditional way in the lagoons with the "acadjas" (photo 5) and in the flood plains with the "Whedos flood plains with the "Whedos" and "Ahlo" (photos 6) and constitutes a considerable resource in the "basket of the housewife".

Nowadays, fish farming activities in Benin are oriented towards the breeding of species belonging either to the family Clariidae, namely: Clarias gariepinus or African catfish Heterobranchus spp. or the family Cichlidae: Oreochromis niloticus commonly called tilapia.

Photo 5: Acadja installed in Lake Nokoué

Photo 6: Fish farming in ponds and floating cages in the Ouémé valley (Sèmè-Kpodji)

1.1.3: Tourism and hotel business

Tourism in Benin includes the activities of people traveling and staying in places outside their usual environment, for an uninterrupted period not exceeding one year, for leisure, business, or other reasons. It is one of the main resource mobilization sectors in the Beninese economy. Second only to cotton in terms of foreign exchange earnings, tourism is the sector of activities that contributes most to the integration of the national economy, since 71% of its intermediate consumption is of local origin. It constitutes an exploitable asset for strengthening Benin's achievements in terms of economic and social development in order to ensure growth, the fight against poverty and cultural influence (Ministry of Living Environment and Sustainable Development, 2020).

Tourism in Benin's coastal plain is growing steadily, with a potential that has yet to be potential that has yet to be fully exploited. The Beninese coastal zone is characterized by the presence of major tourist attractions. In this area, we distinguish four (4) sub-zones of tourist interest:

- Estuaries (lower Mono valley);
- Lakes (Lake Ahémé, Lake Nokoué)
- Deltas (lower Ouémé valley); and
- The coastal strips (sandy beaches, coastal lagoons).

The lake cities (photo 7), the Bouche du Roy (mouth of the Mono River), the Slave Route and private parks, etc. remain the main sights of the country.

The lake habitat concentrated on Lake Nokoué (Ganvié, So-Tchanhoué...) welcomed 15.424 visitors in 2014 against 12 837 in 2013 for a revenue of 0.0834 $ in 2014 and 0.0752 $ in 2013 (Ministry of Living Environment and Sustainable Development, 2020).

Photo 7: Lake habitats in Ganvié

The festival of endogenous religions is celebrated in Benin every 10 January and attracts many tourists. Similarly, at the suggestion of Haiti and Benin, UNESCO launched the "Slave Route" project in Ouidah, Benin, in 1994 to break the silence on a tragedy (the slave trade) that had been concealed for too long. Since then, the city of Ouidah, through the Djègbadji Embarcadère, where the "door of no return" (photo 8) was erected in 1992, has been able to commemorate the deported slaves. This place, located on the edge of the sea, has become the destination of the Afro-descendants of the ancestors carried off by slavery.

Photo 8: Door of no return in Ouidah

Other attractions in the coastal zone include the natural landscape formed by a long straight coastline with a string of lagoons behind (photo 9).

Photo 9: Landscape of the mouth of the Bouche du Roy at Grand Popo

The tourism sector in Benin is highly strategic in that it is cross-cutting, involving many other sectors such as handicrafts, agriculture, the environment, transport, telecommunications, IT services, construction, security services, etc. According to (Ministry of Living Environment and Sustainable Development, 2020), international tourism has resulted in the investment of about 163 783 499,72 $ in the Beninese economy.

It is therefore right that the current government intends to increase the contribution of tourism to Benin's GDP to 8% by relying on the development of the tangible and intangible heritage, but also underwater, mainly in the development of the cultural wealth of voodoo, of which Benin is the world showcase. An agency dedicated to tourism promotion is working towards this vision through the "Fishing Road" tourism development project. Since 2015, this project has entered its active phase and significant investments have been made since 2016 to qualitatively transform and make the coastal area more attractive to any visitor or walker. Work on the 42-kilometre-long road along the coast between Cotonou and Ouidah has facilitated the creation of tourist circuits along the coastal strip. The concretization of the "Fishing Road" project will enable the impacted Communes (Abomey-Calavi, Ouidah and Grand-Popo) to better organize themselves for the mobilization of resources for a real development of tourist activities in South Benin (Ministry of Living Environment and Sustainable Development, 2020).

Furthermore, if the "Fishing Road" project is realized, there may be a market for the transport of cruise passengers. The project foresees the creation of a tourist development zone, with the construction of hotels (6,000 rooms), residential complexes (7,000 dwellings, between villas and flats), leisure facilities, shops, transport, services, etc. In the long term, this seaside area should create around 23,000 direct jobs (230,000 indirect jobs) and welcome up to 95,000 visitors per day (Witteveen+ Boss, 2016).

In terms of hotel infrastructures, they line the entire coast and are more abundant between Grand-Popo and Cotonou. There are several types of hotel establishments (hotels ranging from 5 stars to 1 star,

motels, hostels, etc.). The geographical distribution of the hotels suggests a notable presence of these infrastructures in Cotonou (25%) followed by the Atlantic department (14%) (Ministry of Living Environment and Sustainable Development, 2020).

1.1.4 marine renewable energies

Benin has a strong potential in marine renewable energy and in marine mineral resources that is totally unexploited. Worse, there is little attention from the government for the exploration and development of this potential, particularly on the marine side. This is evidenced by the fact that this dimension is not taken into account in the two policy documents drawn up in this sub-sector (PONAME and PONADER). However, there are isolated initiatives such as the "Pre-feasibility study for the development of a wind farm in the Port of Cotonou" launched by the Autonomous Port of Cotonou and financed by the European Union, which is currently being carried out. This should allow, among other things, to determine the type of wind turbine to be used (height, diameter, ...) in the coastal zone of Benin, taking into account the wind regimes. All the potential is still unexplored and untapped (Benin National Blue Economy Strategy, 2022).

1.2 Maritime transport and majors' challenges:

1.2.1 Maritime safety and security

The development in 2013 of the National Strategy for Maritime Protection, Security and Safety (SNPSSM) took place in a context marked by the rise in maritime insecurity in Benin's territorial waters. Today, there has been a slight decline in acts of maritime piracy compared to 2010, 2011 and 2012. This decline in piracy is the result of :

- Strengthening south-south cooperation with Nigeria through "Operation Prosperity";

- French project "Priority Security Fund to support the reform of the maritime security system" (ASECMAR) launched in November 2011 in Cotonou, which aims to strengthen maritime security in the Gulf of Guinea and covers, in addition to Benin, Ghana, Togo, Côte d'Ivoire, Guinea and Nigeria;

- Critical Maritime Routes of Gulf of Guinea (CRIMGO) project of the European Union for the period 2013-2016, which also includes Togo, Nigeria, Ghana, Gabon and São Tomé and Príncipe and which provides Benin with a platform for sharing information on maritime security, and contributes to the capacity building of its maritime actors;

- The GoGIN project which took over from the CRIMGO project for the period between October 2016 and November 2021. It aims to secure the maritime space and covers the 19 coastal countries from Senegal to Angola. The project works closely with the three regional organisations (ECCAS, ECOWAS, CGG), the three transnational centres (CRESMAO, CRESMAC and CIC), the five multinational coordination centres and the national centres, constituting the Yaoundé architecture;

- The new authorities' determination since 2016 to combat this maritime threat has resulted, among other things, in the Government's 2020 decree requiring commercial vessels entering Benin's territorial sea to have an armed protection team on board or, failing that, to be protected by the Beninese Navy as soon as they enter the country's territorial waters. The main concern of the Beninese authorities, in putting in place security and safety measures, is to maintain the upward trend in maritime traffic in the port of Cotonou, which is described as the "lung" of the national economy.

Despite these responses, piracy in Beninese waters persists and the risks are increasing (Benin National Blue Economy Strategy, 2022).

1.2.2 Marine and Coastal Pollutions

The marine environment is currently under increasing anthropogenic pressure due to the intensification of urban, industrial and port development in the coastal zone. Thus, the main sources of marine pollution in Benin are: (i) the discharge of domestic and industrial wastewater from coastal towns, (ii) the discharge of continental water at the mouths, particularly in the Ouémé basin (nearly 50,000 km2) and the Mono basin (nearly 22,000 km2), and finally (iii) pollution from maritime activities.

- *Marine pollution*

Marine pollution, which is seen here as an unfavourable modification of the natural environment, appears as a consequence of human activities through direct and indirect effects.

As direct effects of man on the Beninese marine environment, we can mention:

- hydrocarbon pollution of the marine environment in the Commune of Sèmè-Kpodji. Indeed, Benin's offshore oil platforms were exploited between 1982 and 1998. They are now abandoned and their condition is in constant deterioration. Oil leaks are visible and these installations are dangerous for maritime navigation. Several studies and audits have been carried out since the site was closed and it appears that the environmental risks are real. On the site there are 5 abandoned platforms (2 monopods, 2 tripods and 1 quadripod) and ten (10) uncapped oil wells.

Photo 10 shows the five abandoned oil platforms off Sèmè-Kpodji.

Photo 10 : Five (5) abandoned oil platforms at sea (off Sèmè-Kpodji)

The capping of these ten wells and the decommissioning of these derelict platforms will reduce the risks associated with these installations and promote the sustainable development of the marine environment and its ecosystem.

- The degassing of ships at sea aggravates the degradation of marine waters without the seriousness of these impacts being really defined, for lack of appropriate studies. The ballast water from ships plying the Beninese coast is largely responsible for the presence of tar balls and marine debris on the beaches, making them unsuitable for tourist and leisure activities (Ministry of Living Environment and Sustainable Development, 2020).
- Another oil contamination that is no less negligible is the accidental spillage of petrol into the marine and lagoon environment during the illicit petrol traffic between Benin and Nigeria. Indeed, during the crossing of the artisanal pirogues used for this traffic, barrels of hydrocarbons (petrol, oil, gas oil) arrive empty at their destination (photo 11).

Photo 11: Oil traffic at sea and on Lake Nokoué.

Another direct pollution is the accidental spillage of handling products and goods in the port of Cotonou.

Furthermore, the marine environment at the Togo-Benin border is subject to pollution caused by the operation of the Kpémé phosphate factory in Togo. This is transboundary pollution, visible in the colour of the sea. Through the effect of marine currents, the mixtures of waste discharged by the plant are drained into the marine waters of Benin. This pollution is felt along the Beninese coast and even beyond. The marine pollution resulting from the location of the Kpémé plant in Togo (photo 12) disturbs the Beninese marine environment and its ecosystem (Ministry of Living Environment and Sustainable Development, 2020).

Photo 12: Discharge of phosphate treatment sludge from the Kpémé plant in Togo into the sea

The modification of the physico-chemical constitution of the marine environment, as a consequence of the above-mentioned human actions, can negatively affect the marine ecosystem and man directly or indirectly through biological resources such as fishery products and/or seaweed strandings.

In relation to the pollution of the coast by seaweed, strandings of seaweed have been observed for some years. According to the Institut des Recherches Halieutiques et Océanologiques du Benin, these algae occur on the Beninese coast from April onwards each year. They are of Sargassum species, originating from the Sargasso Sea. Like Benin, these algae are found all along the West African coast (photo 13).

Photo 13: Stranding of seaweed (sargassum) on the coast of Benin

2. Maritime sector organizational scheme

In Benin, several ministerial departments and government structures are involved in the management of the maritime sector. This section will present the most important.

2.1: The Ministry of Infrastructures and Transports

The Ministry of Infrastructure and Transport is in charge of designing, supporting the implementation, monitoring and evaluating the general policy of the State in the field of land, sea, river and air transport as well as public works and other infrastructures, in accordance with international conventions, laws and regulations in force in Benin.

In addition to the central directorates, the General Directorate of Transport Infrastructure, the Directorate of Land Transport and the departmental directorates of Infrastructure and Transport, the Ministry of Infrastructure and Transport has under its supervision the Directorate of Port, Maritime and River-Lagoon Affairs and the Autonomous Port of Cotonou.

2.1.1 The Directorate of Merchant Marine

Created by decree No. 172/PR/MTPTPT of 18 June 1968, the Directorate of Merchant Marine has always been a technical body of different ministries in charge of maritime transports, sometimes sharing its attributions with other technical entities. Today, the Directorate of Merchant Marine is renamed the Directorate of Port, Maritime and River-Lagoon Affairs (DAPMF) and is a technical entity of the Ministry of Infrastructures and Transports in accordance with Decree No. 2021-575 of 3 November 2021 on the attributions, organization and functioning of the Ministry of Infrastructure and Transport.

The Directorate of Port, Maritime and River-Lagoon Affairs is in charge of the implementation of the maritime and fluvio-Laguna policy in the Republic of Benin, the implementation of the national port policy as the national maritime and port authority, the implementation of the policy of promotion and protection of the interests of importers and exporters of Benin. In this respect, it is in charge, among other things, of:

- in terms of the management of port, maritime and river-lagoon affairs:

- ensuring compliance with the provisions of the maritime code in force in the Republic of Benin and its application texts;
- ensure compliance with the legislative and regulatory texts relating to the status and regime of public maritime and river-lagoon domains;
- ensuring the organization of maritime search and rescue;
- participate in the maritime fisheries police in liaison with the competent national structures and bodies;
- ensuring that maritime maps are drawn up and updated.

❖ in terms of its mission as a national port authority:

- contributing to the elaboration of the national port policy;
- coordinating the activities of the different ports of Benin;
- to ensure the application and respect of the legislative and regulatory texts relating to the planning, exploitation and development of ports;
- to propose to the competent authorities the development strategies of maritime ports, river ports, lagoon ports, advanced ports and dry ports.

❖ in terms of protecting the interests of Benin's importers and exporters:

- conducting consultations and negotiations with shipping lines, shipowners and maritime conferences for the determination of freight rates and monitoring their application;
- liaise with shippers' councils or similar bodies with a view to improving Benin's maritime services;
- work, together with the concerned bodies, for the harmonization and simplification of administrative and legal formalities in the field of maritime transport.

The Directorate of Port, Maritime and River-Lagoon Affairs ensures the representation of the Republic of Benin in the international bodies in charge of issues in its field of competence.

The Directorate of Maritime, Port and River-Lagoon Affairs is headed by a Director appointed by decree of the Council of Ministers on the proposal of the Minister of Infrastructure and Transport.

He may be assisted by a Deputy Director appointed by Order of the Minister of Infrastructure and Transport.

The Directorate of Port, Maritime and River-Lagoon Affairs comprises:

- the Secretariat;

- the Department of Regulations, Documentation and Cooperation

- the Department of Operations and Navigating Personnel

- the Department of the Protection of the Marine and River-Lagoon Environment;

- the Department of Ship, Maritime and River-Lagoon Navigation Safety;

- the Department of Ship and Port Facility Security.

2.1.1.1 The Secretariat

The Secretariat is responsible for:

- receiving, recording, preparing and sending mail

- distributing and forwarding mail to the various departments of the Directorate

- filing of mail

- the reproduction of documents;

- all other tasks entrusted to it by the Director of Port, Maritime and River-Lagoon Affairs.

The Secretariat comprises:

- the Incoming Mail Division;

- the Outgoing Mail Division.

The Secretariat is headed by a Head of Secretariat who has the rank of Head of Division.

2.1.1.2 The Department of Regulation, Documentation and Cooperation.

The Department of Regulation, Documentation and Cooperation is responsible for:

- elaborating and ensuring the application of quality and performance standards of legislative and regulatory texts governing the maritime, port and fluvio-lagoon domains;

- ensuring the application of national regulations, conventions and international agreements governing the maritime, port and fluvio-lagoon fields

- drawing up regulations on the prevention of pollution of the sea by ships;

- drafting regulations on the safety of ships and maritime navigation and the transport of dangerous goods by sea

- drafting regulations on the "beninisation" and registration of ships and other floating devices;

- drawing up regulations on the management of seafarers;

- studying the files on the "blessing" and registration of ships and other floating devices

- keeping the register of maritime mortgages;

- collecting, classifying and disseminating documentation relating to maritime activities and the marine environment

- managing the Directorate's documentary production;

- participate in the management of the public maritime domain;

- participating in the regulation of fisheries in Beninese maritime waters in relation with the technical services of the Ministry in charge of fisheries;

- studying cooperation files for maritime transport agreements with interested countries and regional and international organizations;

- Ensure the management of cooperation with regional and international institutions in the port maritime and river-lagoon fields.

The Department of Regulation, Documentation and Cooperation comprises:

- the Regulation Division;

- the Documentation and Cooperation Division.

2.1.1.3 The Department of Operations and Navigating Personnel

The Department of Operations and Navigating Personnel is responsible for:

- proposing innovative, ambitious and integrated reform strategies for the development of the maritime economy sector;

- monitoring the activities of public and semi-public companies and other organizations in the maritime, port and river-lagoon sub-sectors as well as evaluating their performance;

- ensuring the facilitation of international maritime and river-lagoon traffic;

- to control the implementation of the naval equipment policy and the use of the national merchant fleet;

- controlling the execution of all concessions granted for the exercise of port, maritime and river-lagoon activities;

- monitoring the execution of the specifications relating to the exploitation of maritime traffic rights in Benin's territorial waters;

- ensuring the application of the labour regime in the employment contracts of seamen on board ships

- managing maritime labour disputes;

- monitoring the activities of seafarers' placement structures;

- applying the merchant navy's disciplinary regime and keeping the disciplinary book;

- checking the physical fitness of seafarers for maritime navigation in agreement with the doctors approved for seafarers;

- promoting the training and integration of seafarers and tradesmen in the sector;

- drawing up maritime professional records;

- issuing maritime professional titles and studying the equivalence of foreign professional titles;

- ensuring relations with seafarers' organizations and welfare councils;

- monitoring the careers of Beninese seafaring personnel;

- applying national regulations, conventions and international agreements governing seafarers;

- monitoring compliance with regulations relating to hygiene and habitability on board ships and the prevention of maritime and river-lagoon accidents;

- ensuring the compilation of statistics on maritime and river-lagoon transport professionals;

- ensuring compliance with the specifications relating to concessions granted by the State to third parties in the field of maritime and river-lagoon transport;

- assisting local authorities in the design, organization and management of river-lagoon transport services

- studying applications for approval to carry out river-lagoon transport activities

- monitoring the pricing of river-lagoon transport services;

- to participate in the elaboration and application of the national regulations relating to the delimitation and exploitation of the public maritime and fluvio-laguna domains;

- to follow the files of the Regional and International Institutions in charge of maritime transport and related activities.

The Department of Operations and Navigating Personnel comprises:

- the Maritime and Port Operations Division;

- the Navigating Personnel Division.

2.1.1.4 The Department of the Protection of the Marine and River-Lagoon Environment

The Department of the Protection of the Marine and River-Lagoon Environment is responsible for:

- drawing up, steering and monitoring the implementation and follow-up of the policy for the prevention and management of pollution in the marine and fluvial-lagoon environment and for the development of the coastline and the public maritime domain

- monitoring compliance with regulations on the protection of the marine and fluvial-lagoon environment;

- monitoring compliance with regulations on the reception of waste from ships;

- Participating in the implementation of the conditions of occupation and establishment of activities on the sea shore;

- participate in the elaboration and application of national regulations relating to the delimitation and exploitation of the coastline;

- coordinating actions to prevent and combat marine and fluvio-lagoon pollution and related cooperation;

- monitoring the implementation of programmes and actions for the development and enhancement of coastal areas;

- drawing up and implementing, with the other national services concerned, the national plan to combat accidental marine pollution

- ensuring the application of international conventions and agreements on the protection of the marine environment;

- Participate in the creation and development of marine and coastal environmental vulnerability maps for Benin;

- collect, classify and disseminate documentation relating to the protection of the marine environment;

- participate in the hygiene and sanitation of coastal and river-lagoon areas.

The Department of the Protection of the Marine and River-Lagoon Environment comprises:

- the Pollution Control Division;

- the Pollution Prevention Division.

2.1.1.5 The Department of Ship, Maritime and River-Lagoon Navigation Safety

The Department of Ship, Maritime and River-Lagoon Navigation Safety is responsible for

- drawing up, steering and monitoring the implementation and follow-up of national policy in the fields of maritime transport, maritime and river-lagoon safety

- participate in the elaboration and implementation of the security policy in the maritime spaces under the jurisdiction or control of the Beninese State;

- applying and monitoring standards relating to the security of ships and port facilities

- monitoring and controlling standards relating to the transport of dangerous goods by sea;

- bless and register ships and other floating devices;

- carrying out safety inspections of ships and barges and issuing the relevant maritime and river-lagoon navigation permits;

- to provide the secretariat of the safety commission;

- monitoring the proper functioning of the navigational aids system;

- to provide the secretariat of the Nautical Commission;

- controlling and monitoring the application of maritime and fluvial-lagoon signaling rules;

- monitoring the implementation of international and regional conventions and agreements relating to maritime and port facility security;

- monitoring the documents issued by the recognized classification societies

- to carry out investigations into marine incidents and inland waterways;

- monitoring compliance with the regulations on the safety of activities within the port area, particularly the handling, transport and storage of dangerous goods;

- monitoring the organization of maritime and river-lagoon search and rescue;

- managing maritime wrecks;

- participate in the maritime fisheries police;

- organizing the maritime and river-lagoon navigation police;

- organizing, monitoring and controlling transport on inland waterways.

The Department of Ship, Maritime and River-Lagoon Navigation Safety comprises:

- the Ship and Maritime Navigation Safety Division;

- the River-Lagoon Navigation Safety Division.

2.1.1.6 The Department of Ship and Port Facility Security.

The Department of Ship and Port Facility Security is responsible for:

- participating in the development and implementation of the security policy in Beninese ports

- applying and controlling the regulations relating to the security of ships and port facilities

- carry out security visits, inspections, tests and security audits of ships and port facilities;

- ensure the secretariat of the National Commission for Maritime and Port Security;

- enforcing laws, regulations, policies and procedures relating to port and ship security;

- Monitoring the implementation and adequacy of port and ship security;

- ensuring the conduct of security assessments;

- ensuring the assessment, development and approval of security plans;

- monitoring, supervising law enforcement agencies and port and ship security service providers;

- monitoring, supervising the activities of Recognized Security Organizations involved in security;

- monitoring the implementation of international and regional conventions and agreements related to port security.

The Department of Ship and Port Facility Security comprises:

- the Ship Security Division;

- the Port Facility Security Division.

ORGANISATION CHART OF THE DIRECTORATE OF PORT, MARITIME AND RIVER-LAGOON AFFAIRS

DPMRA : Director of Port, Maritime and River-Lagoon Affairs
DDPMRA : Deputy Director of Port, Maritime and River-Lagoon Affairs
SA : Secretariat
IMD : Incoming Mail Division
NPD : Navigating Personnel Division
DPMRE : Department of the Protection of the Marine and River-Lagoon Environment
PCD : Pollution Control Division
PPD : Pollution Prevention Division

OMD : Outgoing Mail Division
DRDC : Department of Regulation, Documentation and Cooperation
RD : Regulation Division
DCD : Documentation and Cooperation Division
DONP : Department of Operations and Navigating Personnel
MPOD : Maritime and Port Operations Division
DSMRNS : Department of Ship, Maritime and River-Lagoon Navigation Safety
SMNSD : Ship and Maritime Navigation Safety Division
RNSD : River-Lagoon Navigation Safety Division
DSPFS : Department of Ship and Port Facility Security
SSD : Ship Security Division
PFSD : Port Facility Security Division

2.1.2 The Autonomous Port of Cotonou

Before the Autonomous Port of Cotonou and until the end of the XIXth century, maritime trade to the country was done in two (02) points of the coastline: Grand-Popo and Ouidah.

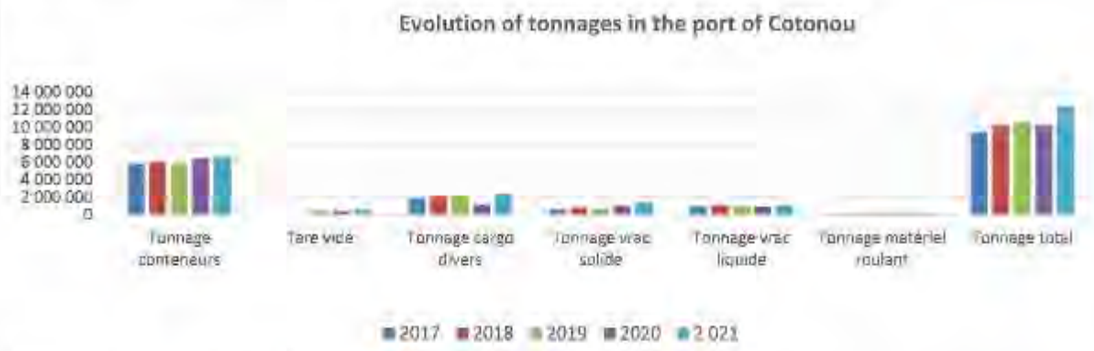
The disembarkation and embarkation of goods and people were done by transshipment on open baots that provided the link between the ships anchored in the roadsteads and the bend.

Since its creation on December 31, 1964 by the law n°64-39 modified by the order N°76-55 of October 12, 1976, the Autonomous Port of Cotonou (PAC) as a public body of an industrial and commercial nature with civil status and financial autonomy has taken over the organization of port activities. Over the years, the PAC has reputation as the "lungs of the national economy". Indeed, as a creator of direct and full-time jobs, the PAC plays a role of economic transversality and catalyst of development. It participates in 90% of foreign trade and generates up to 60% of Gross Domestic Product (GDP). The Autonomous Port of Cotonou contributes between 80 and 85% of customs revenues and 45 to 50% of and 45 to 50% of tax revenues (Ministry of Living Environment and Sustainable Development, 2020).

The Autonomous port of Cotonou thus maintains the economic and social environments of Benin, accompanies and contributes to the dynamics of agricultural, commercial, industrial and financial growth in the entire economic sphere. Because of its coastal position, Benin has the advantage of serving as a transit country for the supply of essential products to hinterland countries essential products. The Port of Cotonou is therefore a natural outlet for countries without a seaboard but also to Nigeria (Adje & Metonwaho, 2021).

Faced with the loss of market share compared to the ports of Lomé (Togo), Tema (Ghana) and Abidjan (Côte d'Ivoire) in recent years, the government of Benin has been carrying out major reforms since January 2018 aimed at improving the competitiveness of the port of Cotonou, by delegating its management to the Port of Antwerp International, with the effect, among other things, of gradually improving its performance. This is evidenced by the evolution of tonnages at the Port of Cotonou, which have increased from 9,439,933 T in 2017 to 12,379,044 T in 2021, i.e. an increase of 24% in 4 years (Benin National Blue Economy Strategy, 2022).

Figure 6: Evolution of tonnages in the Port of Cotonou 2010-2021.



Source: Autonomous Port of Cotonou, 2022

Although Africa still has a relatively small impact on international trade (3% of world volumes), maritime transport in Africa is following the growing trend recorded at world level. Thus, container traffic in African ports has increased at an annual rate of 8% over the last 5 years, compared to 5% worldwide. According to data from the Autonomous Port of Cotonou, this traffic would have increased in the Port of Cotonou from 575,973 TEU in 2017 to 668,664 in 2021 as shown in the table below (Benin National Blue Economy Strategy, 2022).

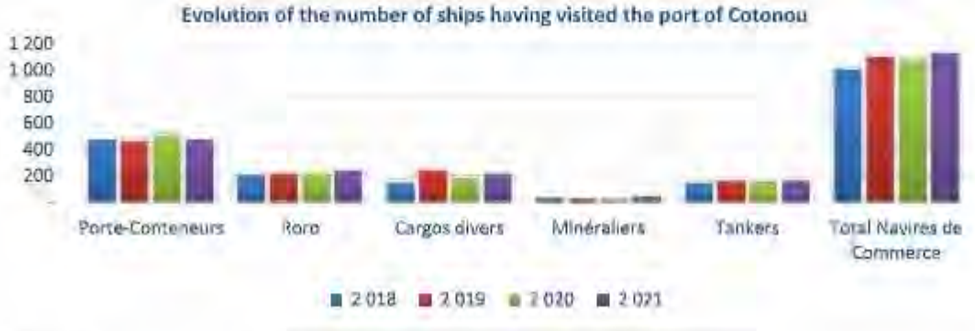
Table II: Evolution of traffic in the Port of Cotonou (2017-2021)

	2017	2018	2019	2020	2021
Tonnage containers	5 806 544	5 965 937	5 864 702	6 430 962	6 638 935
TEU containers	-	575 973	561 193	587 507	668 664

Source : Autonomous Port of Cotonou, 2021

Moreover, the expected increase in port traffic will only be possible thanks to the modernization of the ports, which will then be able to gradually accommodate the latest generation of large ships. Benin, thanks to the management delegation contract with the Port of Antwerp International (PAI), is already part of this dynamic with a test operation to receive 300-metre ships and increasing traffic in the port of Cotonou (Benin National Blue Economy Strategy, 2022).

Figure 7: Evolution of the number of ships having visited the Port of Cotonou 2018-2021



Source: Autonomous Port of Cotonou, 2021

In this context, the modernization of the Port of Cotonou has been planned through the adoption of a master plan which provides for the construction of major infrastructures to improve its capacity. This will result in a capacity to handle twice the current volume of goods, i.e. eventually about 20 million tonnes compared to 10 million in recent years, and an increased performance resulting from the widening of the entrance to the port basin, which will eventually allow 360-metre vessels to be received.

Twelve (12) major projects have been planned for the modernization of the port of Cotonou. This includes the following: the construction of a new 20-hectare terminal with 2 berths, dedicated to bulk and various large-volume cargoes, the creation of a 550m turning circle and the widening of the channel from 200m to 250m, the enlargement of the port basin, the renewal of the quays with the possibility of accommodating large-capacity vessels and more volumes, the construction of an 11-hectare car park for centralized, automated and digitalized access to the port, the construction of the logistics zone, the construction of the second hydrocarbon station. The development of the nautical service zone, the logistic platform of the great Nokoué, the construction of the new fishing port, the construction of the maritime affairs centre etc....

Construction of the Terminal 5

Photo 14: Terminal 5

The construction of the logistics zone

Photo 15: Logistics zone

The construction of a 40-hectare logistics zone on the port platform, with warehouses meeting international standards, will make it possible to create a value-added zone for specific products in transit to the sub-region.

Construction of the second hydrocarbon station

Photo 16: Second hydrocarbon station

Construction of a new wharf for hydrocarbon products as well as the increase of +/- 4ha in the port for the development of the reception capacities.

Construction of the nautical service zone

Photo 17: Nautical service zone

The development of a nautical service area for the naval forces, the lookout, the tugs and the shipyard will provide a common service area for naval activities.

Logistic platform of the great Nokoué

Photo 18: Great Nokoué Logistic Platform

Construction of five (05) warehouses of 24000m², including four (04) mixed warehouses and bulk and one (01) dedicated bulk warehouse

Construction of the new fishing port

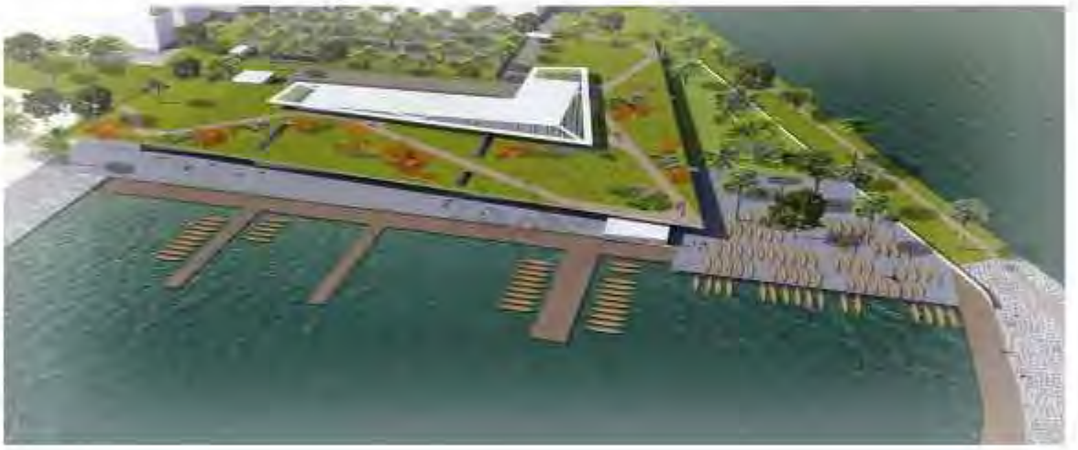


Photo 19: New fishing port

Construction of a new fishing port on an area of approximately 8 ha in Xwlacodji and dedicated to artisanal and semi-industrial fishing activities. This project aims at the revalorization of the district of Xwlacodji and the development of a zone of marketing and transformation of the fishing products

Construction of the maritime affairs centre

Photo 20: Maritime affairs centre

Construction of a new building for the General Management of the Port Authority of Cotonou. This project aims to provide more space to improve the fluidity of port operations, to bring together all the key actors of the port platform and to create a more efficient working environment for all actors

Relocation of the resellers of the Boulevard de la Marina

Photo 21: Relocation place of the resellers of the Boulevard de la Marina

Social project for the construction of a building dedicated to sales and catering, including two halls with 250 seats, 36 stores, 24 sales kiosks, a secondary hall with 12 seats for small vendors and retail spaces. This project aims to improve traffic flow and sanitation.

Construction of the Zongo reception hangar

Photo 22: Zongo reception hangar

Construction of a reception building for Zongo parking lot drivers, including a storage area, a waiting area, a food court, offices and sanitary facilities.

Renovation of the Port of Cotonou's fence

Photo 23: Renoved port of Cotonou's fence

Construction of a fence 1.62km long and more than 5m high decorated with frescoes or graffiti relating the history, present and future of Benin.

Construction of a fence 410 m long and more than 5 m high. It will extend from the General Management to the Artisanal Fishing Port of Cotonou.

- **Dry port of Allada**

The dry port of Allada is a platform created to receive goods in transit to the countries of the hinterland. The aim is to decongest the Autonomous Port of Cotonou, which receives a large number of goods every day.

Located in Allada (60 kilometres from Cotonou), the dry port offers import and export customers a strategic hub covering an area of 15 hectares with prospects for expansion to another 35 hectares. This fully paved area, with regulated access and 24/7 video surveillance, guarantees maximum security for the users and their goods.

On the import side, the dry port offers handling and storage services. It has an unloading area for containers for local consumption or for hinterland countries such as Niger, Mali, Burkina Faso and Chad.

For exports, the dry port offers containerized stuffing services for various products (bales of cotton and derived products, wood, cashew nuts, shea nuts) as well as fumigation and certified weighing services on weighbridges.

Photo 24: Dry port of Allada

2.2 Other state institutions involved in the maritime sector

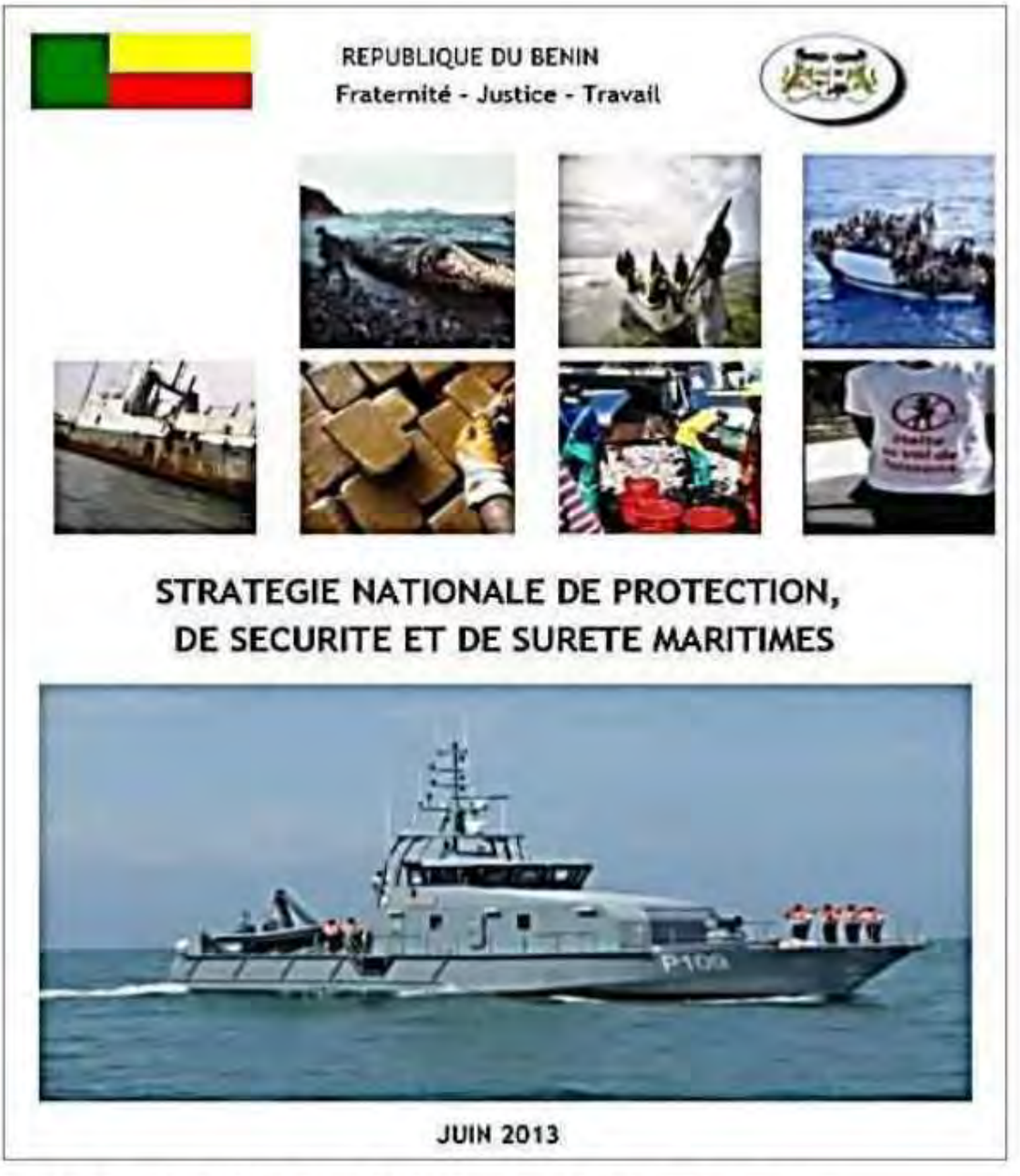
In addition to the Ministry of Infrastructure and Transport and its branches presented above, other state institutions and their branches are also involved in the maritime sector. The table III below presents the State institutions and their branches involved in the maritime sector.

Table III: Institutions involved in the maritime sector

INSTITUTIONS	BRANCHES
STATE INSTITUTIONS	
Ministry of the Living Environment and Sustainable Development	- Directorate General of Environment and Climate - Directorate General of Water, Forests and Hunting - Delegation of Land Management - National Environment and Climate Fund - Beninese Agency for the Environment - Agency for the Integrated Development of the Economic Zone of Lake Ahémé and its Channels
Ministry of Water and Mines	- Directorate General of Hydrocarbons and Other Fossil Fuels - Directorate General of Mines - Directorate General of Water - Beninese Office of Geological and Mining Research
Ministry of the Interior and Public Security	- National Civil Protection Agency - River and Maritime Police - National Fire Brigade Group - Beninese Agency for Integrated Management of Border Areas
Ministry of Higher Education and Scientific Research	- National Water Institute - UNESCO Chair - Benin Institute for Fisheries and Ocean Research
Ministry of Agriculture, Livestock and Fisheries	- Directorate of Fisheries Production - Central Laboratory for Food Control and Sanitary Surveillance
Ministry of Tourism, Culture and Arts	- Directorate of Cultural Heritage - Directorate of Tourist Development
Ministry of National Defense	Navy
Presidency of the Republic	- National Authority in charge of the State Action at Sea (Maritime Prefect) - National Agency for the Promotion and Development of Tourism

Source: (Ministry of Living Environment and Sustainable Development, 2020)

2.3 The Sate Action at Sea organizational scheme

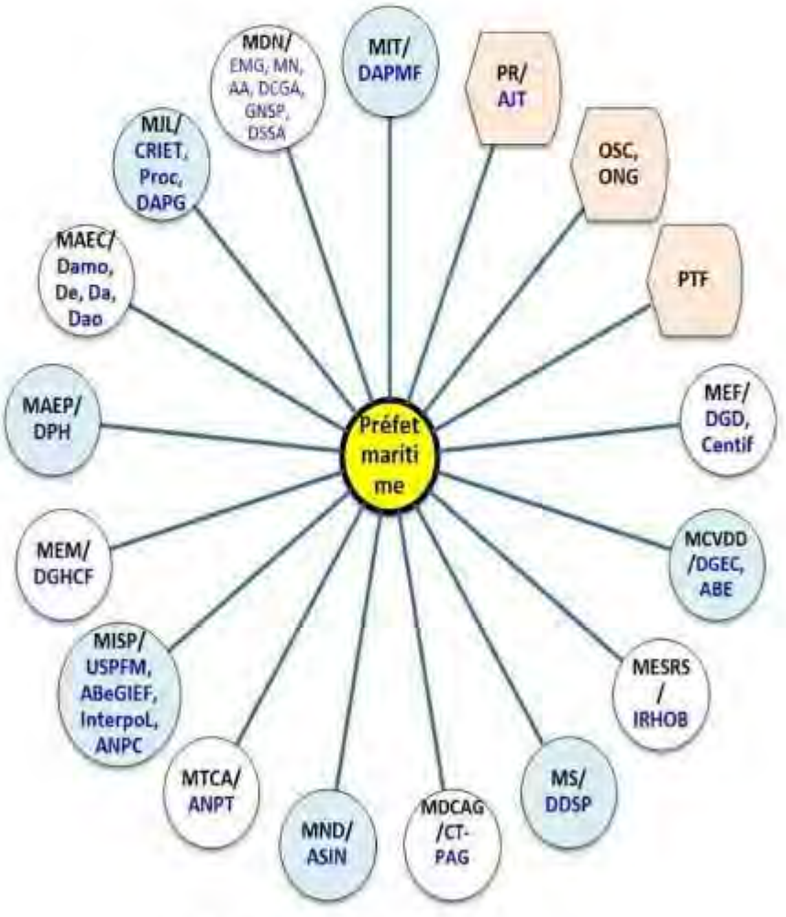


NATIONAL STRATEGY FOR MARITIME PROTECTION, SECURITY AND SAFETY STRATEGY

By decree No. 2013-551 of 30 December 2013, Benin adopted a **National Strategy for Maritime Protection, Security and Safety (SNPSSM).** Indeed, the adoption of this strategy stems from the fact that Benin was prey to the rise of maritime insecurity in the Gulf of Guinea and particularly in its territorial sea.

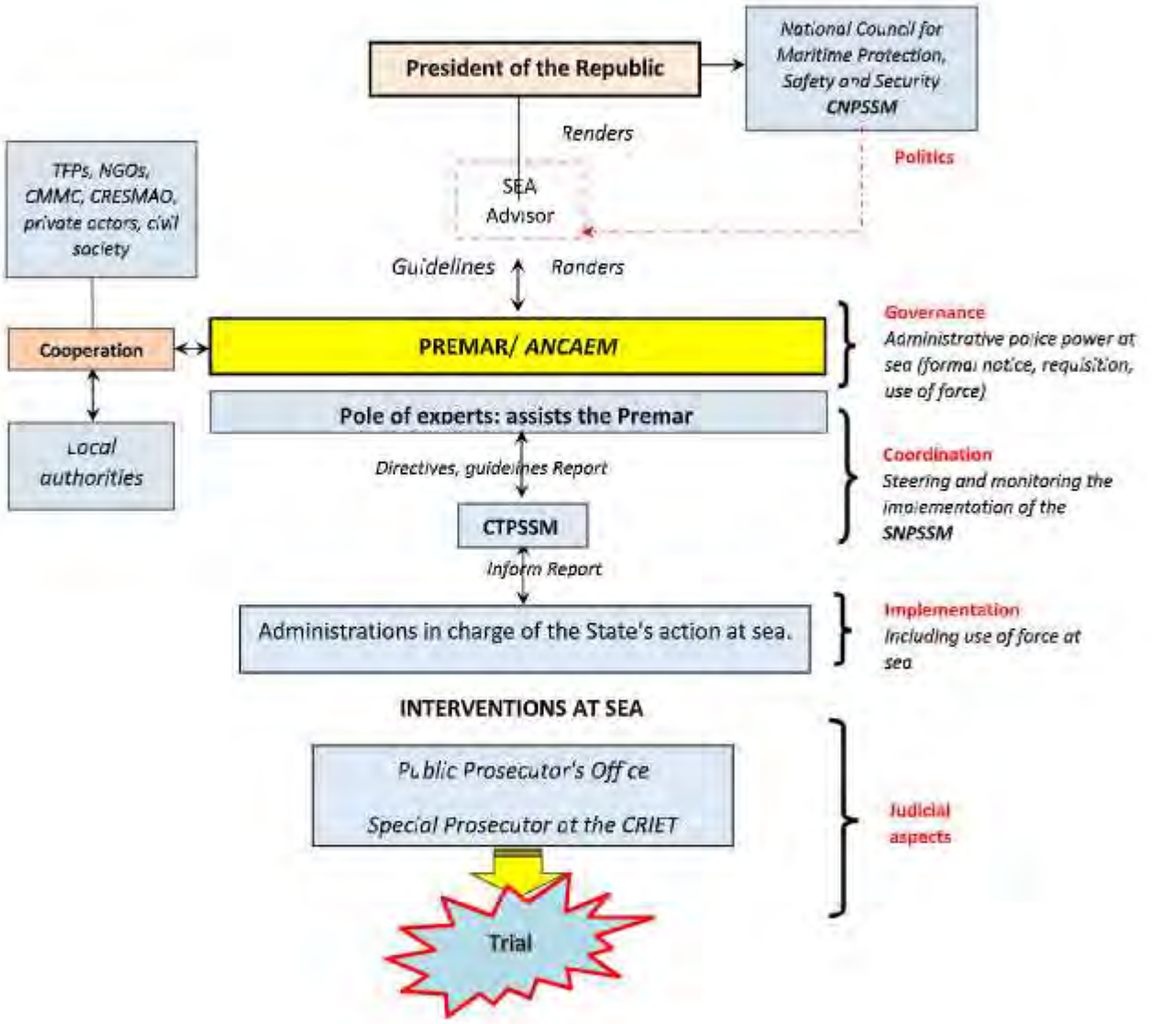
In addition, this strategy provided for the establishment of a **National Authority in charge of State Action at Sea (ANCAEM).** Thus, by Decree N°2014-785 of 31 December 2014, this Authority was established and represented by the **Maritime Prefect (PREMAR)** who is responsible for coordinating the actions of all administrations and structures intervening at sea in the event of crises.

Attached to the Presidency, this authority has management and financial autonomy.



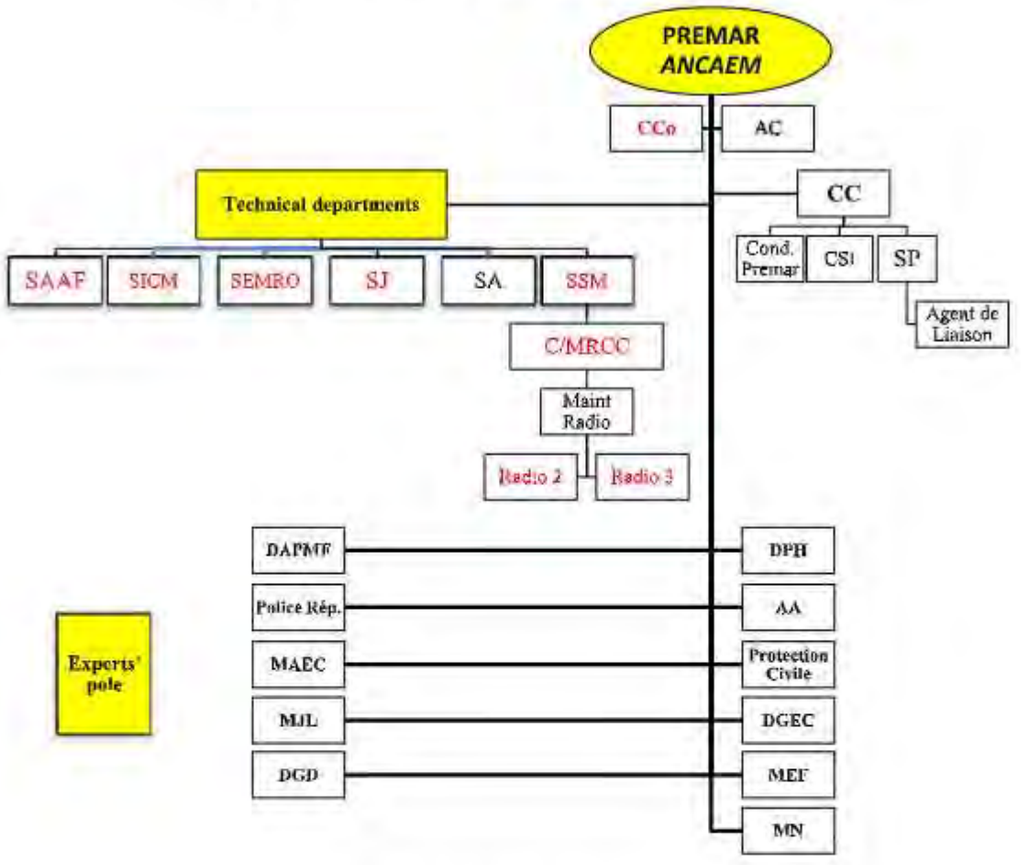
Source: (AHOYO, 2022)

Administrative and operational organization of the State's action at sea



Source: (AHOYO, 2022)

ORGANIZATION CHART OF THE ANCAEM



Source: (AHOYO, 2022)

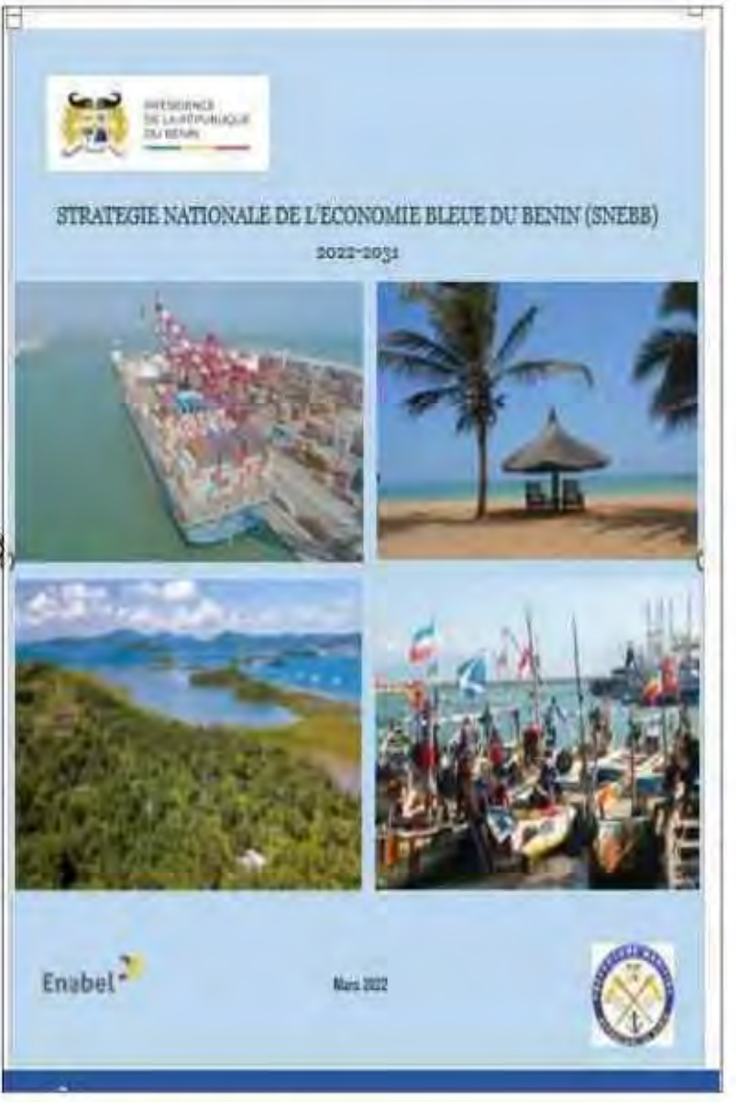
PERSPECTIVES

Revision of the maritime security and safety strategy and migration towards the blue economy concept

Evolution of the context

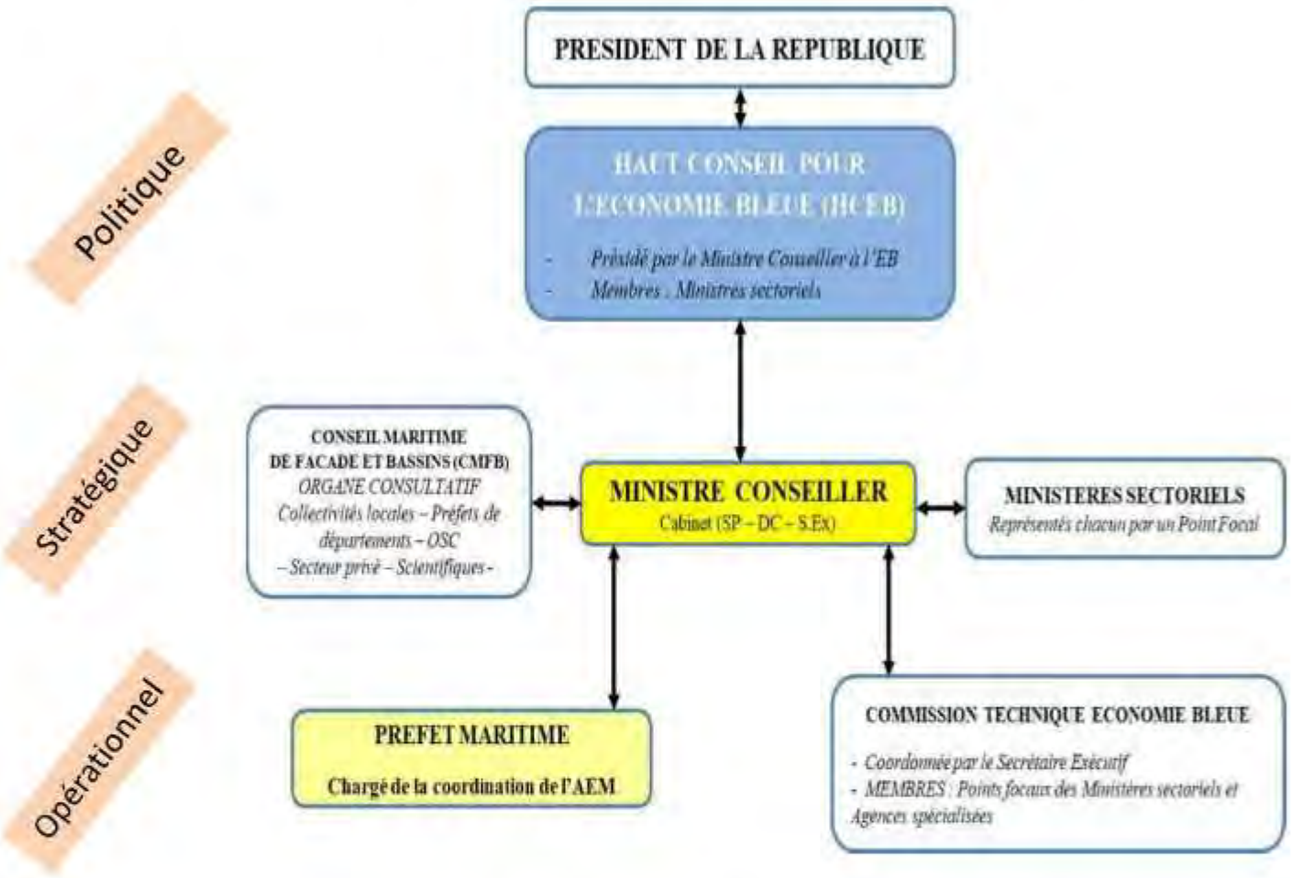
multidimensional

- Political
- Economic plan
- Security plan
- Environmental plan
- Social plan
- Tourism plan
- Normative plan (Tools and instruments at national, regional, international level))



Source: (AHOYO, 2022)

New administrative and operational organization of the State's action at sea



Source: (AHOYO, 2022)

Establishment of new maritime units **Revitalisation of existing maritime units**

Maritime and River Customs Unit

River and Maritime Police Unit

Source: (AHOYO, 2022)

Establishment of a Secondary Maritime Search and Rescue Centre (MRCC)

Source: (AHOYO, 2022)

Strengthening the operational capacities of Navy

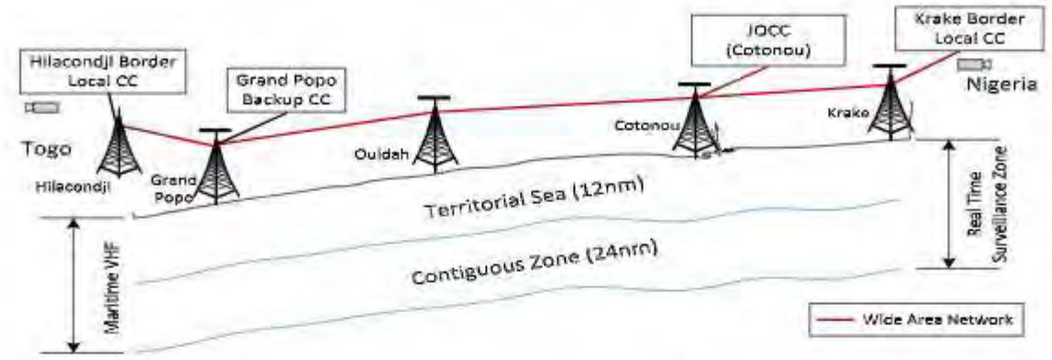
High sea patrol vessel

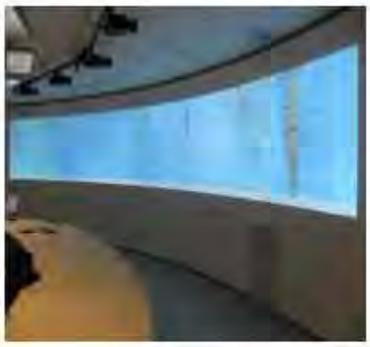
Semaphore of Sèmè

Airborne drones

Source: (AHOYO, 2022)

Construction of a fusion centre of maritime information





Source: (AHOYO, 2022)

Conclusion

Due to its geographical position, Benin is a natural corridor linking some West and even Central African countries to the Atlantic Ocean.

Maritime transport in Benin is an integral part of the transport sector, managed by the Ministry of Infrastructure and Transport, whose overall development vision is to turn Benin into a platform for logistics and export services, including an integrated system of efficient transport infrastructure and services. More specifically, the objective is to make the port of Cotonou an important lever to support the country's economic growth through the development of exports. To achieve this objective, several infrastructures are currently being built at the port of Cotonou with a view to modernising and extending the port.

Such an ambition can only be realised if the security and safety of Benin's maritime waters are guaranteed. As a prerequisite, it is necessary to reinforce the efficiency of the State's action at sea.

This is why the government is committed to developing a national strategy for the blue economy, which is currently being adopted. Through the implementation of this strategy, Benin intends to ensure sustainable management of its aquatic environments by 2031 for a prosperous and competitive economy for the social well-being of its citizens.

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Côte d'Ivoire

CÔTE D'IVOIRE

1. Overview of the Country

Côte D'Ivoire is a state located in West Africa which shares maritime borders with Ghana and Liberia. The country has an area of 322,462 sq. km with a population of 29,389,150 people (national census 2021).

The country possesses a coastline of 520 km on the Atlantic Ocean. A particularity of its littoral is that a network of lagoons stretches over 300 km along and covers 1400 sq. km. The internal waters can be used also for navigation and economic activities like fishing, farming, tourism, etc.

The point of entry of ships are the two ports: Abidjan and San Pedro, which reported a traffic of 2,321 and 388 ships respectively in 2020 according to their statistics.

Côte D'Ivoire exports goods worth 11 billion EUR, mainly cocoa (41.6%), gold (11.8%), oil (9.4%), rubber (8.4%), and cashew nuts (6.8%). The principal trading partners are the Netherlands and Switzerland in Europe, Mali, South Africa, and Burkina Faso in Africa, and Vietnam and Malaysia in Asia. The value of imports is 8.3 billion EUR, mostly from China (15%), Nigeria (14.3%) and France (11%).

2. Legal Framework

The main legal documents that regulate the maritime domain are:

🌍 ENVIRONMENT CODE 1996: The protection of the environment is the core of this document. A new code is under development to encompass more dimensions of the environmental administration in an era where climate change is a reality.

📌 NATIONAL STRATEGY FOR THE STATE ACTION'S AT SEA 2014: This document is the first of its kind for the country. It advocates a holistic approach to address maritime matters in the country. It calls for a pooling of resources among all maritime stakeholders to ensure the proper management and control of all sea-related activities.

🐟 FISHING AND AQUACULTURE CODE 2016: Regulating the fishing industry, the law comes to curb the challenges posed by IUU fishing and organize the growing aquaculture sector in the country.

📍 MARITIME CODE 2017: The previous Merchant Marine Code was from 1961. The country needed a new document to regulate maritime economic activities as well as its related activities. With its 1,115 articles, this law covers the spectrum of all activities connected to the sea with very few exceptions.

3. Maritime Issues

Like most countries in the Gulf of Guinea, Côte D'Ivoire faces a number of challenges which can impede the development of its blue economy potential. Among them are:

💣 Piracy and armed robbery: This a very hot topic on the agenda as the last reported attack in Ivorian waters occurred on 24 January 2022.

🐟 IUU Fishing: Despite considerable efforts by authorities, IUU fishing is still a concern. Its forms are constantly changing, from unauthorised fishing to lack of traceability of catch.

🛢 Illegal oil smuggling: The wide network of lagoons is sometimes used by traffickers to feed an illegal oil market even across borders.

🌪 Coastal erosion: Communities living near the coast are experiencing a serious reduction of land because of coastal erosion, a phenomenon that is closely linked to sea level rise due to global warming. Some villages are threatened to disappear since the sand band is constantly shrinking.

😒 Pollution: Chemical, plastic, or oil pollution are issues which need higher attention as the littoral area hosts most of the factories and the two ports. Waste dumping by households is also a threat to the environment as wastes can be discharged into waterways from rain or unauthorised sewage connections.

🎷 Drug trafficking: With the insecurity of the Sahel region, some analysists claim that drug trafficking could be used to finance other illegal activities. The country sees a surge of drug busts not only on land but also at sea, as the region presents a point of passage for Europe.

4. Recent Developments

Côte D'Ivoire has been putting a lot of strategies in place to develop maritime economic activities.

With its partners, the country re-energizes oil exploration in its offshore blocks. These efforts led to oil and gas discoveries in deep waters in 04 offshore blocks: deposit "Paon" on CI-103 in 2012, deposit "Saphir" on CI-514 in 2014, and deposit "Baleine" on CI-101 in 2021 and CI-802 in 2022. Currently, the country is a modest oil producer with around 30,000 barrels/day, but this figure is expected to evolve quickly when production starts on deposit "Baleine" in 2023.

Since 2011, authorities have invested more than 1.5 billion EUR for the development of the two ports. The entry canal to the Port of Abidjan has been deepened and widened to receive bigger ships without length limitations (was limited to 260 m ships before).

Vridi Canal (before)

Vridi Canal (now)

In the same port, four terminals have been scheduled; the extension of the Fishing terminal (1,522 m of berths, 280,000 m²) and the Ro-ro terminal (~100 units/hour) have already been put into service.

Fishing terminal

Ro-ro terminal

Two new terminals are under construction: the Grain terminal (700 m of berths/14 m deep), which is a project financed with the help the Japanese International Cooperation Agency (JICA), and the second container terminal (1,100 m of berths/18 m deep) which aims at 1.5 million TEU/year of capacity and should be labelled a zero emission CT.

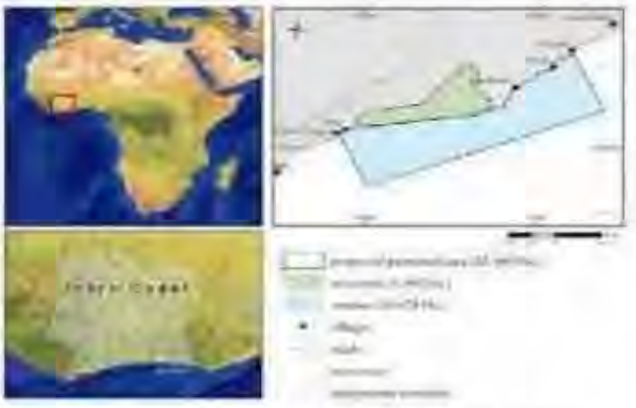
Grain terminal

2nd container terminal

The Port of San Pedro launched its new industrial terminal (1 berth 270 m/15 m deep and 1 berth 220 m/12.5 m deep) which has a storage capacity of 160,000 T of bulk.

Port of San Pedro industrial terminal

As part of its objectives to preserve biodiversity, Côte D'Ivoire enacted a law for the protection and integrated management of the littoral. This new document made possible the creation of the first marine protected area (MPA) in Grand-Béréby in 2020. This MPA covers 2600 sq. km and is an important nesting site for turtles. Its mangrove trees and forest also shelter animals like chimpanzees, monkeys, buffalos, toucans, pangolins, and many other species. In the future, four MPAs will be created and their locations are already known.



Map of Grand-Béréby's MPA (blue and green)

Côte D'Ivoire aspires to make its ports more attractive to shipowners and companies as part of its plan to develop shipping and maritime trade. In 2020, the country opened an international registry for international companies willing to acquire the advantages of its flag. In order to boost this initiative and make the fleet safer and cleaner, the government authorised the ratification of 4 international conventions in 2022: the Maritime Labour Convention (MLC 2006), the International Convention on the Control of Harmful Anti-fouling Systems on Ships (AFS 2001), the Work in Fishing Convention (C188), and the Ballast Water Management Convention (BWMC 2004). Thanks to all these endeavours, the national petroleum company, in a joint venture, chartered its very first LNG carrier in August 2022.

LNG Carrier SAPET GAS

5. Conclusion

Côte D'Ivoire is a state with ambitious maritime goals despite the challenges posed by some issues. By enhancing its maritime regulatory framework and investing in modern infrastructure, the country aspires to benefit more from the potential of blue economy to boost its development. This goal will surely be achievable through a smooth and greater coordination between all maritime stakeholders.

Egypt

Current Maritime and Ocean Situation in Egypt

Egypt Vision 2030

Inspired by the ancient Egyptian Civilization, linking the present to future, the Sustainable Development Strategy (SDS): Egypt Vision 2030 represents a foothold on the way towards inclusive development. Thus, cultivating a prosperity path through, economic and social justice, and reviving the role of Egypt in regional leadership. SDS represents a roadmap for maximizing competitive advantage to achieve the dreams and aspirations of Egyptians in a dignified and decent life.

THE SUSTAINABLE DEVELOPMENT STRATEGY (SDS): EGYPT VISION 2030 MAIN PILLARS

Maritime Sector in Egypt (MTS)

The Arab Republic of Egypt has a distinguished geographical location between at the crossroads of three continents with coastlines extending more than two thousand nautical miles and overlooking two seas, the Mediterranean and the Red Sea, linked by the Suez Canal, which is the most important global navigational artery linking the East to the West, which had a great impact on communication with the outside world since ancient times.

MTS Structure

MTS COMPETENCES

1. To prepare the general strategy for all Egyptian ports, present it to the Supreme Council of Ports for review and approval, and to follow up the implementation of the Council decisions and recommendations.
2. To lay down the general plans and policies in the field of maritime transport and logistics in coordination with port authorities, the Egyptian Authority for Maritime Safety and the concerned authorities in the country as well, and follow up their implementation.
3. To support construction and development projects in port, studies and research in the field of maritime transport and sovereign services required by the National Security.
4. To present the Arab Republic of Egypt in various international organizations and forums.
5. To grant, renew and cancel the following licenses

MTS and IMO

- **Egypt is a part of the most IMO environment related conventions such as:**
  - MARPOL 73/78
  - OPRC 90
  - BWC 2004
  - CLC 92
  - Bunker 2001
  - AFS2001

Maritime Agreements in all levels:

- **REGIONAL AGREEMENTS**

- (Mediterranean protection, red Sea protection, Port's state memorandum of understanding)

- **MARITIME TRANSPORT BILATERAL AGREEMENTS**

- BETWEEN EGYPT AND THE ARAB STATES
- BETWEEN EGYPT AND THE FOREIGN COUNTRIES
- BETWEEN EGYPT AND THE AFRICAN COUNTRIES
- PORTS COOPERATION PROTOCOLS BETWEEN EGYPT AND THE ARAB STATES
- COOPERATION PROTOCOLS BETWEEN FREE ZONES
- PORTS COOPERATION PROTOCOLS BETWEEN EGYPT AND FOREIGN STATES
- MOU ON COOPERATION AND TWINNING BETWEEN EGYPT AND THE AFRICAN PORTS
- BETWEEN THE RECOGNITION OF SEAFARER CERTIFICATES ACCORDING TO STCW REQUIREMENTS

Recent maritime projects and development

➢ Plans to develop Egypt's Maritime Sector

Abu Dhabi Ports Group has signed a Memorandum of Understanding (MoU) with the industrial arm of the Egyptian Ministry of Transportation, the Egyptian Group for Multipurpose Terminals to supervise the event and operation of Egypt's Ain Sokhna Port and the maritime sector in Egypt.

The 2 organizations have agreed to work carefully collectively to conduct a feasibility examine into the longer-term growth of Ain Sokhna Port, exploring potential funding alternatives to reinforce its capability and capabilities. It will allow the port to focus on untapped market segments and set up new income streams

➢ River Nile Protection and Development Project

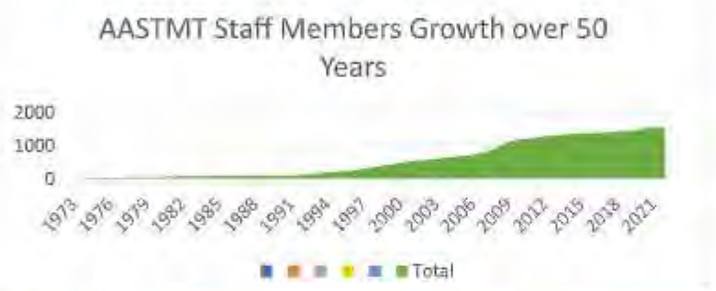
Funded by the Canadian International Development Agency (CIDA), the River Nile Protection and Development (RNPD) project aimed at achieving rational utilization of available resources, mitigation of side effects and increasing the efficiency and effectiveness of present use and future development of the River Nile Channel and its two branches, namely, Damietta and Rosetta.

➢ Cleanup River Nile from (2020-2023)

Reduce Plastic pollution in the river Nile and the emission into the Mediterranean by raising awareness, accelerating education and an improved waste management infrastructure.

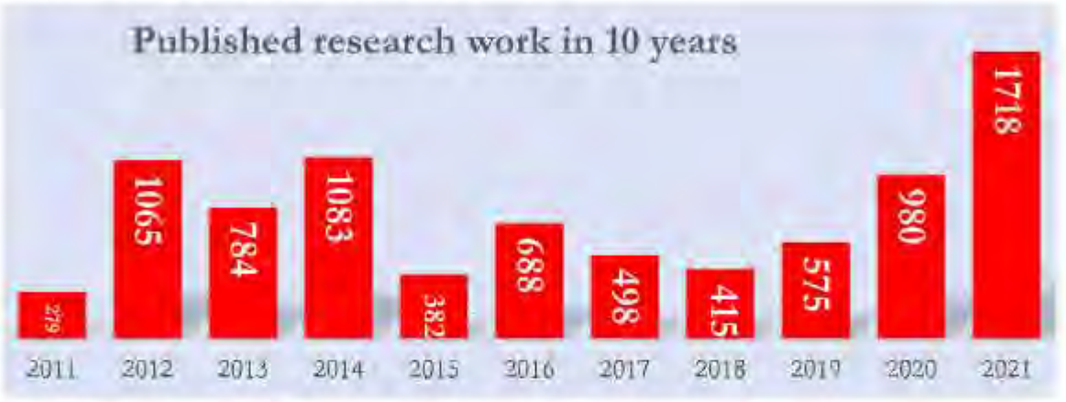
Maritime Education and training sector

Arab Academy for Science, Technology & Maritime Transport (AASTMT)



- 7 Branches in Egypt
- 2 International branches in United Arab of Emirates and Syria
- 4 Joint branches with METs in Cypress, Greece, Lebanon, and Saudi Arabia
- Staff of more than 1500, including 180 Maritime teaching staff
- 2 patches of Graduates every year since 1972
- 70 + WMU graduates including 11 Sasakwa fellows
- IAMU Contributor, IAMUC, IAMUS, GMP-Bok.

Maritime Sector in the AASTMT



1. College of Maritime Transport & Technology
2. College of Fisheries & Aquaculture Technology
3. Maritime Upgrade Studies Institute
4. Maritime Postgraduate Studies Institute
5. Maritime Research and Consultation Center
6. Sea Training Institute
7. Maritime Safety Institute
8. Integrated Simulators Complex
9. Regional Maritime Security Institute
10. Port Training Institute
11. Marine & Offshore Training Center – Cairo
12. Marine Simulators
13. Full Mission Engine Room Simulator
14. Offshore Simulators
15. Liquid Cargo & Natural Gas Simulators
16. Engineering Workshop
17. Global Maritime Distress & Safety System Simulators
18. Maritime & Offshore Safety Facilities
19. Fire Fighting Facilities
20. Environmental Protection & Crises Management Centre

21. Port Training
22. Metrology Station
23. Diving Center
24. Training Vessel
25. Maritime Training & Sail Sports Center

List of references

INTERNATIONAL CONVENTIONS – أهلا بكم في قطاع النقل البحري (mts.gov.eg)

Project Cleanup river Nile - Endplasticsoup

Plans to develop Egypt's maritime sector - Supply Chain Risk Management

River Nile Protection and Development Project - ECG website (ecgsa.com)

Arab Academy for Science, Technology & Maritime Transport - AASTMT | Home

Ghana

MARITIME REVIEW OF GHANA

1.0 INTRODUCTION

Ghana, formerly known as the Gold Coast, is located in West Africa with a total land surface area of **238,535km²** and a population of 32.83million according to the 2021 Population and Housing Census conducted. There are 16 administrative regions in Ghana and the capital is Accra. Geographically, Ghana shares boundaries with three countries, to the North by Burkina Faso, to the West by Ivory Coast and to the East by Togo. The Gulf of Guinea (Atlantic Ocean) is to the south of Ghana, making the country an important maritime nation.

Fig.1. Map of Ghana.

2.0. GHANA'S MARITIME ADMINISTRATION AND GOVERNANCE.

Ghana's maritime architecture and governance is under the supervision of the Ministry of Transport headed by the sector Minister. The main mandate of the Ministry of Transportation is to formulate policies for the transport sector, establish the regulatory framework

for transport operations, creating the enabling environment for transport investment and the development of an efficient transport system which is modally complementary. The Ministry has 15 agencies and departments under its regulatory supervision which includes;

- Ghana Maritime Authority
- Ghana Ports and Harbors Authority
- Regional Maritime University
- Volta Lake Transport Company
- PSC Tema Shipyard

2.1. Ghana Maritime Authority (GMA).

Ghana Maritime Authority was established in 2002 to ensure the provision of safe, secure, and efficient shipping services and the protection of the marine environment from ship source pollution. The Authority is also responsible for the training, examination and certification of seafarers in accordance with the international convention on Standard of Training, Certification and Watch keeping (STCW) for seafarers. The Authority is also responsible for the implementation of other International Conventions

ratified by Ghana in relation to maritime administration, transport and shipping.

2.2. Ghana Ports and Harbors Authority (GPHA).

Ghana Ports and Harbours Authority (GPHA) is a statutory corporation established under Ghana's Provisional National Defense Council Law (PNDCL 160) of 1986 to build, plan, develop, manage, maintain, operate and control all ports in Ghana.

The Authority manages and operates the sea ports of Ghana and various business units in collaboration with a number of private service providers in the areas of vessel handling, stevedoring, transfer, storage, receipt and delivery of containerized and general cargo. The main business Units currently in operation are:

- Port of Tema,
- Port of Takoradi
- Tema Shipyard and Drydock
- Transit Sahelian Liaison Office in Burkina Faso

2.3. Port of Tema

The Port of Tema is the largest port in Ghana. Situated on the eastern coast of the country, it stretches over 3.9 million square metres of land area and receives an average of over 1,650 vessel calls per year.

There are over 50 Shipping lines and agencies that provide both direct and indirect shipping services to and from the Port of Tema. Cargo types handled at the port include Agri bulk, bagged cargo, containerized cargo, dry bulk, forest products, frozen cargo, general cargo, iron/steel, liquid bulk, petroleum products, machinery/equipment and vehicles.

The Port Authority has expanded the existing port, built new terminals, upgraded IT systems and widened operational partnerships and networks. This is reflected by the port's ability to handle increasing volumes of traffic from 7.3 million tonnes in 2003 to 17.4 million tonnes in 2016 due to the expansion works carried out by the Port Authority and its partners, Meridian Port Services (MPS).

Development projects completed in the past years include a new Reefer Terminal, a four (4) berth bulk jetty, one stop service revenue and data centre, the refurbishment of the Transit Terminal and the electronic gating system amongst many others. From December 2016, the Port of Tema's

Quality, Environmental Management and Occupational Health and Safety Systems were certified under the ISO Integrated Management System: QMS 9001: 2015; EMS 14001:2004; and OHSAS 18001:2007.

Fig.2. Port of Tema

2.4. The Port of Takoradi.

The Port of Takoradi in the west of the country is Ghana's first commercial port opened in 1928 to serve the needs of the mining/extractive industries and to handle imports of consumer goods/Liquid products into the country. The city of Takoradi is the regional capital of the Western Region of Ghana, which is about 230 km east of Accra. The Port has six (6) berths with

draughts between 8.4m and 10m in addition to dedicated manganese, bauxite and oil berths.

The port handles 65% of total exports of Ghana with Cocoa, Timber, Bauxite, and Manganese as the export commodities. Major import commodities handled by the port includes; Clinker, Petroleum Products, Wheat, Ammonium Nitrate, Gypsum, Quicklime, Coal and Limestone.

The Port has sheds with storage covered area of 140,000m^2, an open storage area of 250,000m^2 and a container holding capacity of 5000teus. There are also private warehouses in and around the Port to augment its capacity.

Fig.3 Port of Takoradi

2.5. Proposed Port of Keta

Ghana is in the process of developing a third commercial port in the coastal town of Keta in the Volta region. The project is part of Ghana's broader plan to develop port infrastructure, including the existing commercial ports of Tema and Takoradi and the proposed inland ports to be located at Boankra and Mpakadan.

The Keta Port project when completed is expected to be a commercial cargo port that can accommodate containerized vessels, bulk cargo, oil and gas shipment, Clinker, Petroleum Products, farm produce, Ammonium Nitrate, Gypsum, Quicklime, Coal and Limestone. The port is also expected to house a shipyard facility for repairs and maintenance of ships.

Fig.4 Site for Proposed Port of Keta

2.6. Tema PSC Shipyard.

The Tema Shipyard is one of the largest shipyards and dry-docks on the African Continent. Strategically located on 48.45 acres of land, it is situated adjacent the commercial Port of Tema as a dry dock and slipway facility. The Shipyard has two (2) graving docks of 100,000 dwt capacity and provides dry docking services, lay berths and fitting out quays and preservation works. It is currently under renovation and some expansion works have begun to face-lift the facility with the state-of-the-art machinery and equipment to meet modern technological demands.

Fig.5 PSC Tema Shipyard

2.7. Regional Maritime University

The Regional Maritime University (RMU), Accra, Ghana, is an international tertiary institution comprising four member states; The Gambia, Sierra Leone, Cameroun and Ghana, which was established in 2007 for maritime education of students, training of marine personnel, research and consultancy and promotion of maritime co-operation. The hallmarks of its operations are meeting international standards, teamwork, discipline and professional integrity.

Fig. 6 Students of Regional Maritime University

3.0. PROSPECTS OF GHANA'S BLUE ECONOMY

The concept of blue economy refers to the sustainable use of the ocean resources to promote growth and development in the economy. The European Union describes the Blue economy as "all economic activities related to oceans, seas, and coasts that cover a wide range of interlinked established and emerging sectors". Ghana's Marine ecosystems/ocean covers a coastline of 550 kilometers with abundant valuable ecological

marine resources to promote its socio-economic development. Several economic activities such as fishing both at the domestic (small scale) and commercial level (large scale), production of oil and gas, ports and harbors activities, marine transportation/shipping and eco-tourism (recreational activities) are among the major drivers of economic growth along the coast of Ghana.

Figure 7. Local/artisanal fishing activities in Ghana.

Fig. 8 Local fishing in Ghana.

Fig. 9 Industrial Fishing Trawlers in Ghana

3.1. Oil and Gas Production in Ghana.

Ghana is an up-and-coming player in the oil and gas industry with operations in the upstream (exploration and production), mid-stream and downstream sectors of the economy. Commercial production begun in the Jubilee field in 2010 following initial discoveries in 2007. Ghana's current output of oil production is 150,000 barrels of oil per day with the potential for increased output in the near future. The production of oil and gas in Ghana is carried out by three FPSO units offshore in the Jubilee, Sankofa and TEN oil fields.

Fig.10. FPSO Nkrumah producing 96,000 barrels of oil daily

Fig. 11 FPSO John Agyekum Kuffour (JAK) producing 58,000 barrels of oil daily

Fig. 12 FPSO John Evans Atta-Mills producing about 50,000 bpd

Ghana has enormous potential in the exploitation of its marine resources to generate the needed growth and development in its blue economy drive as