



“...with the tendency of seeing experts coming from abroad who does not know the country much. ...”

Colonel Andre CISEAU,
Secretary General
(PMAESA)

Meet with **Professor Martin NDENDE,**
an accomplished
academic and
world-renowned
specialist in
Maritime Law

“...I believe we must work towards the advent of an African Maritime Organization (AMO)...”
- **Kokou Edem TENGUE,**
Minister of Maritime
Economy, Fisheries
and Coastal Protection

In depth : Impact of
climate change on port
infrastructures

Focus : Principles of
container terminal design

Port of the Month

**Lome Port
Authority,**
the port of
all records





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- VMS (Vessel Monitoring System).
- Navigation simulators
- Port activities

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- A vessel traffic service (VTS) is a vessel traffic monitoring system that tracks, monitors and manages vessel traffic in critical areas such as ports, coastal areas and oil platforms.
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For the radiance of the blue economy in Africa....

Like the countries of the EC-CAS zone which launched a few months ago, the preparatory work of the first edition of the Maritime Conference of Central Africa (COMAR-1), other countries and associations (PMAESA and WIMAFRICA for example) of the continent are working to promote the blue economy in Africa.

Visionary and passionate men and women...

For the decisions taken and the strategies developed at various levels to produce tangible results, more men and women with vision and passion are needed at all levels, not only passion for the blue economy, but also passion for the search for sustainable and effective solutions. Men and women who know the real challenges of the sector and who are driven by a strong will to find solutions.

We have interviewed some of them for you in this magazine:

- Professor Martin NDENDE, a world-renowned specialist in maritime law, in the section on career path;
- Mr. Kokou Edem TENGUE, Togo's Minister of Maritime Economy, Fisheries and Coastal Protection, who talks about the expectations of the maritime industry at COP27, green shipping and the advent of an African

Maritime Organization (AMO);

- Colonel Andre CISEAU, Secretary General of PMAESA, who introduces us to his association, explains the challenges facing the Eastern/Southern part of Africa and the solutions to take control;

- Mrs. ADANLETE LAWSON Akuélé Yévona, Continental President of WIMAFRICA, a woman who gives us an update on her first 12 months in office and reassures us of her determination and firm commitment to continue working for the effective promotion of women in the maritime and port sector;
- Capt. Makhosi Mbokazi, a South African engineer, pilot and surfer, with more than 15 years of career whose portrait and words will inspire more than one;

- Mrs. Mariam DIABATE RTG Operator in service at Abidjan Terminal in Côte d'Ivoire, a passionate person who contributes every day by her diligent work to the radiance of the blue economy in her country and by extension in the whole Africa.

Practical reflections for effective solutions...

The radiance of the blue economy in Africa also requires an understanding of the challenges and the sharing of practical thoughts between professionals in the search for effective and sustain-

able solutions. This sharing that we often do with our program Maritimafrica Live, is also found in this issue, with the articles "Principles of container terminal design", "Impact of climate change on port infrastructures" and our vox pop "The contribution of the implementation of the AfCFTA for African maritime transport"

Visionary and passionate men and women, practical thinking for efficient solutions are necessarily two ingredients that have helped the Lome Port Authority, our Port of the Month, to break its records again in 2022.

You will find in this magazine, several other articles for the Radiation of the Blue Economy in Africa.

Enjoy your reading!



Pascaline ODOUBOURON



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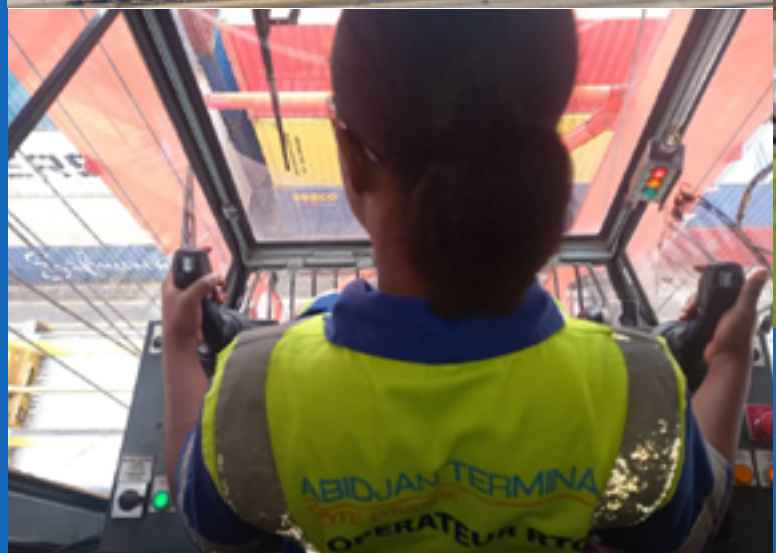
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LOME PORT AUTHORITY

The port of all records

A state-owned company with a capital of 3.5 billion CFA francs, with a commercial and industrial vocation, the Lome Port Authority (PAL), in addition to its regalian functions, is in charge of the operation of the facilities, piloting, the physical and legal custody of goods, the lighthouse and beacon service, the lookout and the radio and the management of the port and maritime domain. It also handles goods, particularly wheat, clinker and hydrocarbons.

The Port of Lome is the driving force behind Togo's economic activity. More than 80% of trade passes through it. In addition, the diversity of its activities, all of which create wealth and employment, as well as the considerable possibilities for development available to it, make it possible to appreciate its position in its environment and its economic weight. For landlocked countries such as Burkina Faso, Mali and Niger, the Port of Lome is the transit port par excellence, thus fulfilling its vocation as a tool for sub-regional economic integration.



Port of the month

HISTORY OF THE PORT OF LOME : KEY DATES

1890 : Construction of the first wooden wharf on metal piles by the Germans.

1904 : The first wharf was destroyed by a fire and replaced by another one made of metal frames on concrete piles. But the wharf was swept away in 1911 by a tidal wave.

1912: Replacement of the wharf with another one in bent walkway, but also damaged by a storm in 1924.



1928: Construction of a second wharf by the French.

1959: Decision of the Togolese authorities to equip Togo with a deep-water port, given the inability of the French wharf to cope with the increase in traffic, despite its reinforcement in 1955 and 1956.



July 20, 1960: Signature of an economic and technical cooperation agreement between the Federal Republic of Germany and the Togolese Republic for the construction of the port of Lome and the feasibility studies are entrusted to the Cabinet Lackner.

November 23, 1962: Laying of the foundation stone.

1964 : Start of the works entrusted to a group of German companies.



January 21, 1967: Docking of the first ship, the “Birte Hugo Stinnes”.

April 26, 1968: Inauguration of the Port of Lome.

1st May 1968 : Official start of the exploitation of the Port of Lome.



1974 - 1977 : Extension of the installations (counter pier, ore wharf, oil wharf, fishing port).

1982 : Construction of the 2nd mole.



2000 : Concession of handling activities to private operators.

March 4, 2011: Launch of construction work on the 3rd pier.

2012: Start of works on the dock /Lome Container Terminal (LCT).

July 2014: Launch of the Single Window for Foreign Trade.

October 14, 2014: Inauguration of the 3rd pier.

October 2014: Operation of the dock/LCT

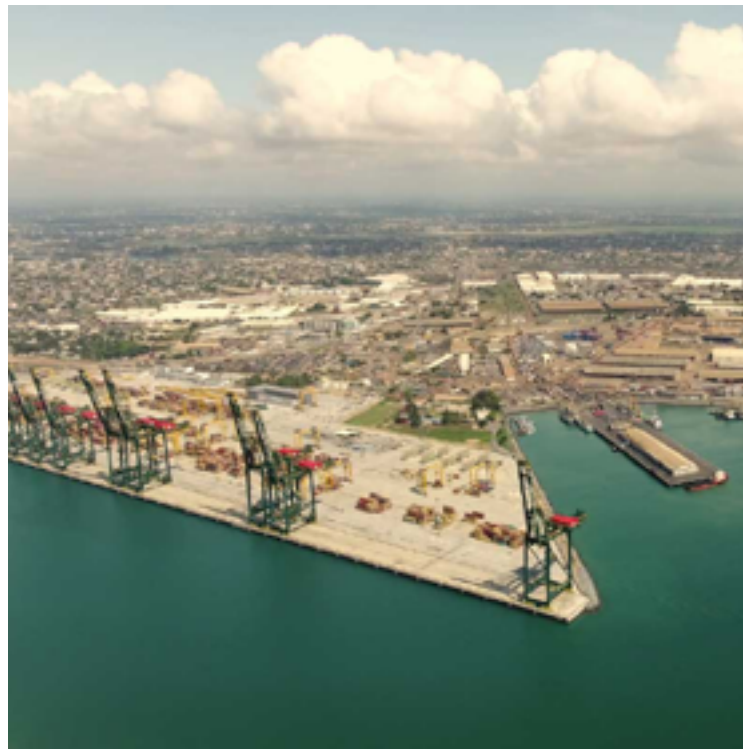
January 2017: Concession of towing, mooring and mooring activities.



Port of the month

THE PIERS

- *The tugboat wharf with a length of 62.35 m;*
- *A modern fishing harbour that can accommodate more than 400 pirogues;*
- *An ore wharf of 210 m long with a berth; used for the docking of ore and bitumen tankers;*
- *An oil wharf of 250 m long with a berth for the docking of tankers;*
- *Pier 1, 366.5 m long and 72 m wide with 4 berths, is reserved for conventional cargo;*
- *Pier 2, 250 m long and 140 m wide, is exclusively reserved for container ships;*
- *The 3rd pier which has the following characteristics: Length: 450 meters, Depth: 15 meters;*
- *A dock of 1050 meters in length and 16.60 meters in depth to accommodate the latest generation of ships.*



SERVICES OFFERED BY THE PAL

The activities of the Lome Port Authority (PAL) can be summarized as services, given its status as a maritime transport company. The PAL works with all the economic sectors located on the port platform that engage in maritime, land and rail transport. The main activities are :





Port of the month

- **Navigation** : it is the set of services rendered to the vessels touching the PAL. As navigation activities we have: towing, pilotage and mooring of vessels. Towing and mooring have been conceded since January 2017 to the company BOLUDA S.A.
- **Handling** : this is an activity that concerns the unloading and loading of ships; shifting which is the additional movement of containers on board the ship caused by a bad arrangement of them. Currently, most (85%) of this activity is ceded to certain private companies such as: Terminaux Conventionnels de Lome, Lome Container Terminal, Togo Terminal...
- **Management of goods for consumption** : this activity emphasizes the proper management of goods intended for Togolese consumers. They are taxed with VAT, the Chamber of Commerce tax, in addition to the merchandise fee and the right of way.
- **State billing** : this concerns the billing of a group of services such as the rental of land and warehouses, telephone, water and electricity charges.



- **Management of vehicles in consumption** : this activity concerns vehicles intended to be used in Togo. They are subject to the same taxes as goods in consumption.
- **Personnel leasing** : this activity consists of leasing personnel (dockers, winch operators, guards) to companies that request them. The services are invoiced by the port.
- **Management of goods in transit** : this activity concerns goods destined for landlocked countries. These goods are only subject to transit rights.
- **Miscellaneous services** : they include the work done in the technical workshop and the sale of various products.
- **Nautical and non-nautical services**





Port of the month

THE ADVANTAGES OF THE PAL



- *Security* : The Lome Port Authority is recognized as the most secure port in the sub-region thanks to the Togolese navy which patrols the Togolese coast 24 hours a day, 7 days a week.



- *The deep water port* : Lome Port Authority is the only port on the West African coast to have a depth of nearly 17 meters.



- *The franchise* : all operations are done inside the Lome Port Authority without customs constraint, which constitutes a saving of time, guarantee of competitiveness.



- *Strategic position* : the Lome Port Authority is the only port in the subregion through which several capitals can be reached in a single day's drive, which is an asset for the transport of goods to the Sahel countries.

AWARDS OF THE LOME PORT AUTHORITY

- **1st transshipment port in West and Central Africa in 2019, 2020 and 2021** according to the Port Management Association of West and Central Africa (PMAWCA)
- **1st transit port for the economies of the sub-region in 2021**, (PMAWCA)
- **Best port for container traffic in TEU in 2021**, (PMAWCA)
- **The Lome Port Authority ranked 96th in the world for a container traffic of 1.96 million TEU in 2021 in the 2022 edition of the ranking of the 100 largest ports in the world**, published by the famous London magazine of port performance, Lloyd's List. The Port of Lome has thus gained two places compared to last year's ranking (98th). It is therefore the 3rd most competitive port in Africa, according to the same ranking.



Port of the month

PORT STATISTICS FOR THE LAST THREE YEARS (2019-2021)

	2019	2020	2021
Global traffic (in tons)	22.690.563	25.974.211	29.470.695
Transshipment traffic (in tons)	14.832.699	16.975.696	20.061.481
Transit traffic (in tons)	3.038.061	3.840.870	3.794.617
Container traffic (in TEU)	1.500.611	1.725.270	1.962.304
Shipping service (number of ships)	1.449	1.510	1629

THE INNOVATIONS OF THE PAL

A TOTALLY DEMATERIALIZED PORT

The total dematerialization of the procedures of removal of goods with the online payment of invoices at the Lome Port Authority allows a number of advantages such as: ease, speed, transparency in the administrative formalities of entry and exit of goods.

One of the challenges is to further reduce the time needed for the passage of goods through the port in order to make the Lome port platform a logistics hub in the sub-region.

THE ADETICOPE INDUSTRIAL PLATFORM (PIA)

The Adetikope Industrial Plat-



form (PIA) will strengthen the range of infrastructure for better fluidity of the Lome-Ouagadougou corridor. This platform, which will be inaugurated on June 6, 2021, offers a fleet of large trucks, a container park with a capacity of 12,500 TEU

and modern warehouses, and will save time and money and increase the security of goods destined for the Sahel countries..

SETTING UP A CALL CENTER (CA)



Port of the month

MAJOR WORKS CARRIED OUT

REHABILITATION OF THE ROAD SYSTEM AND INTERNAL NETWORKS OF THE LOME PORT AUTHORITY

Since its construction and inauguration in 1968, the Lome Port Authority has never had such a large-scale operation to give the platform a very good level of service of its roads and various networks (VRD).

Indeed, it is :

- *a systematic overhaul of the pavement structure in accordance with the requirements of the traffic, which has been evolving exceptionally well over the last few years;*
- *the replacement of almost all the water, electricity and telephone networks;*
- *the complete overhaul of the sewage system for efficient wastewater disposal;*
- *the installation of a fiber optic network for telecommunications on the entire platform. This achievement aims to improve the attractiveness of the port of Lome and thus its competitiveness.*



WORK IN PROGRESS

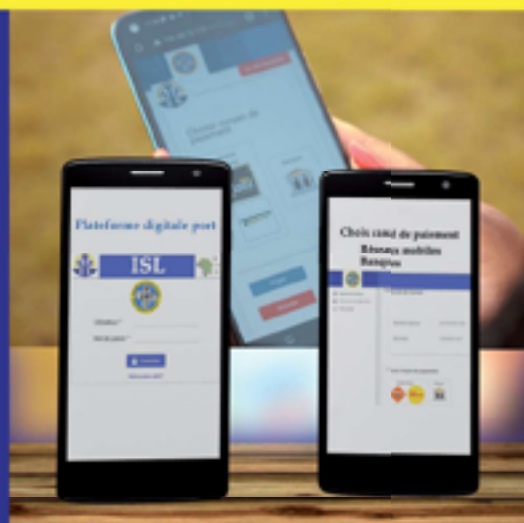
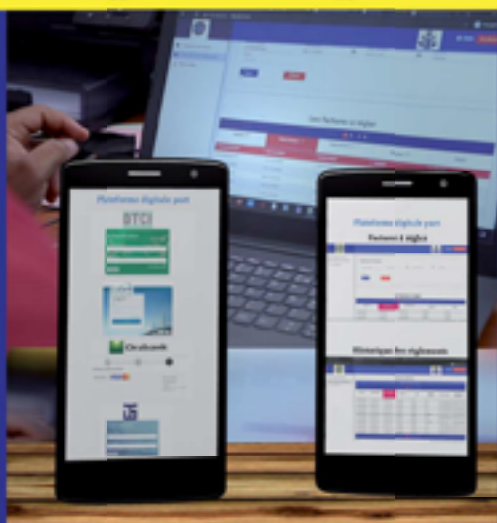
- *The Lome Container terminal dock is being expanded and will be delivered shortly due to the size of the demand recorded in recent years. As a reminder, Lome Container terminal is the first trans-shipment terminal in West and Central Africa since 2019;*
- *Expansion of the Mineral Wharf;*
- *Relocation of the used vehicle and machinery sales yards to the northern exit of Lome to gain space for essentially port activities.*





Port Autonome de Lomé

Totale dématérialisation des opérations et procédures du port avec paiement des factures en ligne



**Paiement factures PAL
hors GUCE**

**Réception factures
par mail**

**Connexion
plateforme ISL**

**Paiement en ligne
via nos partenaires**

**Achats tickets
entrée port et
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Fax : (00228) 22 27 26 27 / 22 27 02 48
E-mail : togoport@togoport.tg
Site web : www.togoport.tg

Port Autonome de Lomé

NOS ATOUTS

Un Port franc

- Opérations portuaires et autres activités sans contraintes douanières
- Gain de temps dans le traitement des navires et des marchandises

Un grand domaine portuaire

- Plus de 900 hectares de domaine portuaire
- Pôle d'attraction pour le commerce et l'industrie grâce à une vaste zone franche industrielle d'exportation propice à l'implantation des entreprises et unités de production qui bénéficient d'une réglementation souple et des avantages fiscaux et douaniers.

Un port sûr et sécurisé

- Sécurité optimale des installations portuaires
- Mesures de sûreté répondant aux normes du Code ISPS: caméras de surveillance, scanners pour le contrôle des conteneurs et accès dans l'enceinte portuaire par des badges magnétiques.

Un port certifié Qualité, Santé-Sécurité et Environnement

Devenu un port moderne et sécurisé, le Port de Lomé est aujourd'hui certifié ISO 9001 version 2015 pour la Qualité, ISO 14001 version 2015 pour l'Environnement, ISO 45001 version 2018 pour la Sécurité Santé au travail (QSE).

UN PORT TOTALEMENT DEMATERIALISES

La totale dématérialisation des procédures d'enlèvement des marchandises avec le paiement des factures en ligne au Port Autonome de Lomé permet un certain nombre d'avantages tels que la facilité, la célérité, la transparence dans les formalités administratives d'entrée et de sortie des marchandises.

L'un des enjeux est de compresser chaque jour davantage les délais de passage des marchandises dans le Port pour faire de la plateforme portuaire de Lomé, un hub logistique dans la sous-région.

LA PLATEFORME INDUSTRIELLE D'ADETICOPE (PIA)

Aussi la Plateforme Industrielle d'Adetikopé (PIA) vient renforcer la gamme des infrastructures pour une meilleure fluidité du corridor Lomé-Ouagadougou. Cette plateforme inaugurée le 6 juin 2021, offre un parc à camion gros porteur, un parc à conteneurs d'une capacité de 12 500 EVP et des entrepôts modernes et permet un gain de temps, de coût et plus de sécurité des marchandises à destination des pays du sahel.

Le 3^{ème} quai : TOGO TERMINAL

UN PORT ET DES EQUIPEMENTS MODERNES

Le 3^{ème} quai : TOGO TERMINAL

- 450 mètres de longueur
- 15 mètres de profondeur
- 38 hectares de terre-pleins
- Equipements de manutention : 4 portiques de quai et 12 grues RTG

- Accueil de navires porte-conteneurs de plus de 7.500 EVP

La darse : Lomé Container Terminal (LCT)

- Profondeur : 16,60 mètres,
- Longueur de quai : 1050 mètres
- 53 hectares de terre-pleins
- Equipement de manutention : 9 portiques de quai et 27 portiques de parc

- Accueil de navires porte-conteneurs de près de 14.500 EVP

- Spécialisation dans le trafic transbordement pour la sous-région Ouest africaine.

Le guichet unique

- Implantation avec les structures partenaires : douanes, impôts, chargeurs, manutentionnaires, transitaires, consignataires, chambre de commerce, transporteurs, représentations des pays du Sahel, banques,
- Outil de simplification des formalités administratives
- Améliorer la sécurité et l'efficacité des procédures de dédouanement
- Suppression de faux frais

De nouvelles voies de contournement

- Contournement de la Ville de Lomé
- Contournement de la Faille d'Alédjo et du Col de Défalé
- Facilitation des conditions de la traversée du corridor togolais

Un Port ouvert 24H/24 et 7Jrs/7

- Rapidité des opérations portuaires
- Fluidité du trafic
- Compétitivité du Port de Lomé

DES PROJETS DE DEVELOPPEMENT

- Agrandissement du quai minéralier par le prolongement de 200 mètres du quai actuel. Ce nouveau quai permettra d'optimiser le temps d'attente des navires tout en offrant la possibilité d'immobiliser un navire à quai pour des entretiens et/ou des réparations ;
- Aménagement d'un port sec à l'intérieur du pays le rapprochement de la marchandise des opérateurs économiques du Burkina Faso, du Mali et du Niger ;
- Réhabilitation des voies ferroviaires pour assurer un véritable transport multimodal et l'acheminement à moindre coût des marchandises en provenance ou à destination des pays sans littoral.
- Le processus de la totale dématérialisation des procédures d'enlèvement des marchandises et le paiement en ligne des factures. (En cours de réalisation)

REPRESENTATIONS DANS LES PAYS DU SAHEL

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“... Yes, a regional or sub-regional approach will be necessary. I believe we must work towards the advent of an African Maritime Organization (AMO) ...”

**Kokou Edem TENGUE,
Minister of Maritime
Economy, Fisheries
and Coastal Protection**

**Interviewed by
Pascaline ODOUBOUROU**



Interview

1. “If shipping were a country, it would rank among the world’s top ten emitters,” said the U.S. and Norwegian governments when they presented their Green Shipping Challenge in Sharm El-Sheikh during COP27... source Le Monde. Do you think green shipping is possible ?

New fuels, new technologies and new “modus operandi” are necessary for this evolution towards green shipping. However, many options are on the table today. And unfortunately, the hesitation of many shipowners to choose one is perceptible.

The objectives set by the International Maritime Organization (IMO) for the year 2050 are ambitious and require investments in hydrogen infrastructures on land. Liquefied Natural Gas (LNG) presents an intermediate option with lower emissions than fuel oil and “dual fuel” ships offer an interesting option for this purpose. Choosing this dual-fuel LNG/hydrogen option has many advantages for ship owners today and in the future. It means they can invest in new ships with the certainty that they will meet the International Maritime Organization’s 2050 standards without relying on investments in shore-based hydrogen infrastructure and requiring only existing LNG bunkering facilities. Engines are powered directly by hydrogen and LNG, with increasing percentages of hydrogen used

over time to maintain the ship’s CII (Carbon Intensity Indicator) rating.

Other practical measures to reduce emissions today include slow steaming, although the impact on supply and demand needs to be studied.

Digitization is also an avenue. As ships become more digital, it will be easy to understand more and more about the fleet’s emissions performance, the impact of measures taken to reduce emissions, and best practices for optimizing energy efficiency, which will facilitate investment decisions. In the future, reliable data will be needed to track energy efficiency and reduce emissions.

2. What do you think are the best initiatives for reducing carbon dioxide (CO₂) emissions in the maritime sector ?

I cannot predict here and now which fuels or technologies will become the winning options for the future. Hydrogen will most certainly play a role as an energy carrier and may even open up new opportunities for shipowners who need to transport hydrogen or ammonia.

We need to prepare now if we are to meet the goals in the future, but this is an evolutionary transformation process and as we move forward we need to ensure that the solutions are both

practical and sustainable.

Some solutions are not yet ready for deployment. For example, there is no ready supply or supporting infrastructure to move to green hydrogen or ammonia bunkering today. However, dual-fuel and biofuel solutions present an excellent opportunity for transition while staying on track with the International Maritime Organization’s 2030 and 2050 targets. Fuel cells, which run on methanol or hydrogen, will also likely be part of future ship designs. In addition, and beyond shipping, carbon capture technology will be needed if we are to meet climate change goals as a whole.

3. What can the maritime industry expect from COP27 ?

Shipping must adapt to a new era. Pledges are not progress, but there will at least be a broader conversation about shipping at this year’s COP27 climate summit in Egypt.

The shipping industry expects to see its CO₂ reduction efforts integrated into National Reduction Plans (NRPs) and a greater recognition of its role in the overall emissions reduction effort. It expects to be seen as an opportunity to develop green transport corridors rather than a problem. There can be no environmentally friendly global economic prosperity without decarbonization of maritime transport and this



Interview



year's COP must affirm this.

4. What is Africa's role in the advent of green shipping ?

Africa is the continent that will experience the greatest growth in maritime transport as it integrates into world trade. This is evidenced by the many port infrastructure projects in Lekki in Nigeria, the port of Abidjan, the port of Dakar, the deepwater port of Kribi in Cameroon, and the port of Lome, which remains the largest container port in sub-Saharan Africa.

It therefore has a responsibility in the development of green shipping, which will be a growing demand in the future. It must therefore prepare for this.

Today, it is the only area in the world that does not have emission control areas. It must remedy this in order to be able to follow the application of the International Maritime Organization's standards in its ports.

5. Can African countries take initiatives in this direction ?

Yes, a regional or sub-regional approach will be necessary. I believe we must work towards the advent of an *African Maritime Organization (AMO)*. The Maritime Organization of West and Central Africa (MOWCA) offers an embryo on which we can build.

This will allow us to talk about a common path and to weigh in at

the IMO on decarbonation issues as well as on all other issues.

6. Your closing remarks.

The African maritime industry must prepare itself. It will not be able to avoid decarbonization. What is only a recommendation today will very quickly become a binding standard. The reflection must therefore begin.

It must pursue the development of maritime trade through its ports without compromising on the objectives of reducing CO2 emissions by ships.

And Africa should be assisted in the establishment of the necessary infrastructure by the various climate financing mechanisms.

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You know something with the tendency of seeing experts coming from abroad who does not know the country much. They come, they give you advice and finally we see that the social impact analysis does not concern them, for example.

**Colonel Andre CISEAU,
Secretary General for
the Port Management
Association of Eastern
& Southern Africa
(PMAESA)**

**Interviewed by
Pascaline ODOUBOUROU**



1. Good Morning, please do you introduce yourself to our dear readers ?

I am Colonel Andre CISEAU. I am the Secretary General for the Port Management Association of Eastern & Southern Africa (PMAESA). PMAESA is a non-profit intergovernmental organization which draw membership of port authorities, port operators, government line ministries, logistics and maritime service providers, and other ports and shipping stakeholders from Eastern, Western and Southern African and Indian Ocean region. We have 25 countries in the Association. We are governed by a Council and Board of Directors, representing coastal countries, island countries and land locked countries. The Association is currently chaired by Transnet National Ports Authority (South Africa).

The objective of this association is to build consensus amongst its member ports, with a view to promoting regional cooperation and therefore working towards regional integration. PMAESA provides a framework for exchange of information and ideas amongst members, it enables members to interface with one another from the port, transport, trade, spaces to exchange benchmarks and best practices.

We are working towards the continued improvement of conditions of port operations and

management of ports, coastal and inland ports in the region of our coverage, with a view to enhance efficiency.

There are considerable amount of ongoing port developments in sub-Saharan Africa, and the ports are positioning themselves as vital maritime gateways in our region, similar to other regions as well.

2. Can we have a view of your professional cursus in the maritime sector ?

I'm a former military officer of the armed forces and I served in the Army, the Navy, and I helped create the Coast Guard in my country, Seychelles. I was also tasked to set up the Seychelles Ports Authority. I served the Coast Guard for 12 years, the Port Authority for ten years. And now, I'm working for Port Management Association of Eastern & Southern Africa. I have been there for four years now. So I believe I have experience in matters pertaining to commerce and the regional maritime industry.

3. Why have you decided to work the Maritime industry ?

My country requested me to move from the Army to the Navy because we have more water than land. It's a small country. So, through that, I managed to attend lot of training abroad and gain experience while working with key decision makers in different

parts of Africa.

Then, I joined PMAESA as a Board Member representing my country and the region of the Western Indian Ocean Islands.

I have gained considerable experience through my participation with PMAESA at the Board level and they approached me to take over as caretaker during a transition period at the Secretariat and then during the interview to recruit a Secretary General. They approve my candidate amongst 11 other participants.

I have a vast knowledge because I am able travel widely and gain experience.

4. What are the biggest challenges faced by the ports members of PMAESA ?

As we know in Africa right now, there are several economic challenges and then there is a lot of infrastructure development that is taking place without proper strategic calculation for the future, because all ports want to be a hub or a transshipment hub, this despite existing ports in the same country.

Often times, you see huge port infrastructure developments taking place with funding from foreign powers with strict conditions attached. There is a huge risk of national sovereign assets being taken over by the lenders for instance in Sri Lanka.

So, our major challenge that we face as an association, is to try and create the awareness that we cannot, all of us, be competing hubs.

Because the maritime transport of the future is changing very fast. And as difficult it is to admit, owing to geographic position, hinterland markets and established inland linkages, there are a few countries in the future that stand to be excellent candidates for transshipment business and the other ports served by feeder vessels.

Therefore my word of advice is for the port's authorities to be very cautious in the strategy of borrowing and then investing to be a hub when the future of maritime transport is changing very fast, and dynamics of it, will challenge the investment even before they complete the repayment of the debt.

5. Do you do that through seminars or conferences ?

We partner with our members to organize a lot of forums. We also participate in many forums where we exchange ideas, where we debate on these different challenges. But you know, there is that political will, the commercial vision, and it's not always easy to create that awareness because everybody wants to develop the economy because the port is the gateway to the economy.

We have to admit that sometimes, there is little to no consideration for the socio-economic impact assessment. And finally, you find that the strategy of moving goods now creates new problems.

6. According to you, is Africa taking good advantage of its potential in blue economy ?

I don't think right now, but at least they have the idea that we need now to work together to develop our capacity because we find that our exclusive economic zone (EEZ), for example in Seychelles, which is the main asset that we have for development of blue economy, are still being exploited illegally through unregulated fishing.

And very few countries have the capacity to patrol or to control their own EEZ. Therefore, it is important to work in solidarity and in partnership with others, to jointly manage exclusive economic zones, so that countries can derive benefits for socio-economic development. I feel this is a better approach instead of granting foreign fishing fleets to pay a small license fee and collect resources without proper safe-guards and monitoring.

7. So according to you, we have to take control.

We have to take control of our blue economy. There is adequate capacity in the region to

undertake this, however, it has to be done collectively and in the spirit of regional collaboration and not as competitors.

We also need a commercial approach to derive benefits from it. What value addition can we can provide locally because, let's say we have a canning factory, we can create thousands of jobs and we can control the resources, manage the stock. We cannot just harvest offerings without sustaining it.

8. Since you have been the secretary general of PMAESA, what have been your biggest achievement ?

There are more challenges, than achievements because of the global factors. But, at least now I feel we are in the right direction.

We are trying now to bring in the maritime single window framework for countries. In some countries, they have some system that they're trying to work towards the harmonization of this.

And, to achieve that, we are working with the Indian Ocean Commission and we are covering all the islands and the east coast of Africa.

You know, there is another industry that we are working hard to bring back. It is the cruise industry. We want to develop it because this is direct cash in the hands of the ordinary citizen

who sell handi-crafts. I have just asked this question this morning is that, when we develop ports, we talk about the cargo, cargo, because we think of competing. But, this is another source of blue economy, the maritime pleasure industry.

We are not exploiting to the fullest potential. But the region is blessed with beautiful tourist attractions, perhaps the best amongst the best in the world. We need to reorganize and focus on this important industry.

9. So, is PMAESA working on that ?

We are working on that for our area of coverage. We bring experts from Europe who works in the industry to come to have some dialogue, to bring everybody together, maybe to create the idea that we call a cruise club. A cruise club, meaning the government get the stakeholders to come and sit together, to decide on what we need to improve, how best we can derive maximum benefit. It cannot be a government only business. It is the private sector, but and with the leadership of the government, we developed this industry. Because it is a growing industry.

10. Are there some things that you would like to share with us about PMAESA ?

PMAESA is a platform that is being under-utilized right now.

Not, only PMAESA, may be PMAWCA the association for the West and central Africa, the UAPNA in the north and the Pan-African Port Corporation (PAPC) these are platforms that countries, ports authorities should acquaint themselves more with. It is also our duty to continuously create awareness to the members.

I serve in the east and now I'm in the west coast and we are sharing what can we do. So to participate, to acknowledge, identify challenges, develop ideas, how we can mitigate challenges these are issues that we can work with. We have all the associated members that does not come from Africa who build infrastructure, tags, equipment for boards that work with us and then we can partner. We have lot of experts from within Africa. That the African can come in, to come and give African knowledge to solve African problems.

You know something with the tendency of seeing experts coming from abroad who does not know the country much. They come, they give you advice and finally we see that the social impact analysis does not concern them, for example.

Any development that you want to do is to generate economic benefit. Yes, but sometimes it takes over the social wellbeing of the popular society. So these are what Africans, because they born

here, they grew up here and they know the challenges that maybe outsiders doesn't know. So we have to relook at all this and that's why we're trying to develop programs for capacity building members on the Association. So we are collaborating with some training institutions to sort of try to bring people together.

If you don't get knowledge alone, you have to learn from somebody, exchange with somebody else, regroup landlock, coastal islands discuss challenges and best practices.

So the wealth of the world is on the continent so we have to derive maximum benefit from it. We need to learn how to exploit to do value added. I know it is a big challenge because there is loss of interest nobody else outside Africa want to become Africa when Africa become Europe, for example. I am not accusing anybody, but it is the philosophy of life and we need to unite and we need to identify who is creating fighting amongst us.

Once, we know who is creating the fight we can solve our problem.

11. Your final word.

I see that we do lots of talking but less working. I think people like you the media outlet need to work hard and to help walk the talk.



Port Management Association of Eastern and Southern Africa



The Port Management Association of Eastern and Southern Africa (PMAESA) was first established as the Port Management Association of Eastern Africa, in Mombasa, Kenya, on April 1973, under the auspices of the United Nations Economic Commission for Africa (ECA), following a recommendation made at a meeting of the African Ministers in charge of transport, held in Tunisia in February 1971.

PMAESA is a non-profit, inter-governmental organization made up of Port Operators, Government Line Ministries, Logistics and Maritime Service Providers and other port and shipping stakeholders from the Eastern, Western and Southern African and Indian Ocean regions.

PMAESA Member States include:

- Angola
- Burundi
- Djibouti
- Eritrea
- Ethiopia
- Kenya
- Madagascar
- Malawi
- Mauritius
- Mozambique
- Namibia
- Rwanda
- Seychelles
- Somalia
- South Africa
- South Sudan
- Sudan
- Tanzania
- Zambia
- Zanzibar
- Zimbabwe



PMAESA's primary objective is to strengthen relations among member ports with a view to promoting regional cooperation and subsequently regional integration. The Association offers an appropriate framework for exchange of information and ideas among members and to create an enabling environment whereby member can interface with one another in the port, transport and trade arenas.

PMAESA also works towards improving conditions of operation and management of ports in its region of coverage with a view to enhance their productivity.

Maritime safety and protection of the marine environment, transit transport, port operations issues such as port statistics, the public sector-private sector partnership, communication, the cruise industry and regional cooperation are PMAESA's main areas of activity.

SECURE ACCESS TO MARINE TERMINALS AND VESSELS

by Moustapha GAYE, AFRICADEX



Photo : Tom Fisk

Major ports are subject to the ISPS code (International Ship and Port Facility Security) which requires 24/7 surveillance of port facilities. This code imposes the definition of Restricted Access Zones, around ship accesses, with reinforced surveillance measures.

Warehouses and storage areas in ports are vulnerable to theft. Security teams must therefore fight against intrusions and theft in port areas. They must also prevent the entry of prohibited goods.



This usually involves the implementation of a video surveillance system in the port area combined with routine rounds to ensure the removal of doubts.

In addition, large ports often house sensitive infrastructures, which require drastic security rules to guarantee the safety of these infrastructures and ships.

Therefore, the port authorities now have a powerful and autonomous tool that can overcome the vulnerability of conventional devices and at the same time promote the strengthening of security.

The drone system is fully automated. Thanks to its artificial intelligence, it can take off automatically, fly in a secure way (trajectory calculations), then land with precision on its base.

Therefore, the SECUPORT solution from AFRICADEX requires only a basic training of the security teams to the remote piloting. They can follow or control the missions of the drone, in a very simple way, directly from the VMS (Video Management

System).

The SECUPORT UAV Docking Station is operational 24/7. It recharges and protects the drone and resists the most severe climatic conditions (IP 56).

The SECUPORT drone is thus ready to take off at any time.

Moreover, the station ensures a secure and latency-free communication between the SECUPORT drone and the VMS to guarantee the good execution of each mission.

It is also equipped with predictive maintenance software to detect the slightest risk of failure.

In addition, the SECUPORT autonomous UAV displays a level of reliability and safety close to aeronautical standards, thanks in particular to the double or triple redundancy of all vital equipment (engines, electronics, power sources, etc.).

The SECUPORT drone is equipped with a visible HD camera with high zoom and a high precision thermal camera,

mounted on a highly stabilized brushless gimbal.

These sensors, selected for their perfect adaptation to day and night security missions, allow the identification of a person at several hundred meters.

Thus, autonomous drones improve the efficiency and responsiveness of security teams in seaports.

They help secure access to terminals and monitor port facilities, day and night. The missions are numerous:

- *perimeter patrols in restricted areas in addition to human and dog patrols;*
- *rapid confirmation of the threat in case of intrusion or accident;*
- *follow-up of interventions;*
- *routine inspection of equipment and infrastructure, etc.*

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AFRICADEX CONTRIBUTES TO THE SAFETY OF HUMAN LIFE AT SEA, AS A LEADER IN THE INTEGRATION OF MARINE ELECTRONICS IN WEST AFRICA

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Ultima-DT is the latest solution in the ELT range from our partner Orolia, based on its proven Kannad technology.

Africadex commercializes ELT's (Emergency Locator Beacon) to aircraft to allow them to allow them to have a 406 MHz frequency. Our ELT's developed by our partner OROLIA are the reference in the field of air safety, the choice of Airbus and the world's leading aircraft manufacturers by meeting and exceeding the requirements of the future, today.

It was developed in response to recent aviation safety mandates to improve global tracking of aircraft, following the MH370 and AF447 accidents. In accordance with the ICAO recommendation on Global Aviation Distress and Safety Systems (GADSS) and the European Union mandate, all new aircraft delivered on or after January 2023 must be able to autonomously report their location anywhere in the world and determine the end-of-flight location to quickly assist rescue teams. Locate the aircraft and retrieve flight recorders.

Unlike traditional fixed automatic ELTs, which are stand-alone units, the Ultima-DT is closely connected to the avionics system. It activates upon detection of a potential distress condition and begins transmitting automatically while the aircraft is still in flight. This next-generation ELT autonomously acquires the aircraft's position and sends a real-time 406 MHz message, including precise position, to the Cospas-Sarsat distress alerting agency.



On the path of



*"Meet with Professor Martin NDENDE,
an accomplished academic and world-renowned
specialist in Maritime Law".*

Interviewed by Pascaline ODOUBOUROU



On the path of

1. Please introduce yourself to our readers ?

First of all, let me thank you for this invitation to your newspaper, and I would like to congratulate you on the remarkable work you are doing to circulate maritime information throughout the different countries of our region of West and Central Africa, and even throughout the entire African continent, since I have seen that you also have an English-language version that is developing. It is really a great opportunity for us to read your newspaper regularly.

That's it! So, I am Professor Martin Ndendé. I have been a teacher in France for many years. I've been living in France for almost 40 years, and I've been teaching at the University for exactly 35 years. So I have a long and extensive experience in the academic world. I am of Cameroonian origin, but I am a French civil servant in my capacity as a university professor. I am specialised in business law, maritime law and transport law.

Before working as a teacher, I was a student in Cameroon until 1984, and then I came to France to specialise. In 1990, I obtained my doctoral thesis at the University of Brest where I started teaching. In addition to teaching, I am a lawyer, a legal adviser to the United Nations, but also now the director of the Centre de droit maritime et océanique (CDMO) at the University of Nantes,

which is, as I often say, the oldest in France (we have just celebrated its fiftieth anniversary) and undoubtedly one of the best known in Europe and throughout the world.

Incidentally, and without in any way neglecting this status which also requires a great deal of expertise, I am also an arbitrator at the Maritime Arbitral Chamber of Paris, and I thus contribute to the settlement of numerous and often complex maritime disputes for which the parties concerned do not wish, for various reasons, to submit to the jurisdiction of the state courts. Arbitration is indeed an alternative dispute resolution method which is widely used in the maritime field or in the world of transport and international economic activities.

2. Can you tell us a bit about your professional background ?

As I mentioned, I did part of my studies first in Cameroon where I obtained my Master's degree in business law. I arrived in France in 1984, first at the University of Brest, where I obtained a first DESS (current Master 2 Professional) in "Law of the Sea and Maritime Activities" (obtained in 1985); and then I went to complete my training at the University of Aix-Marseille with a second DESS, this time in "Maritime and Air Transport Law" (obtained in 1986). I therefore have two DESS degrees, but also a DEA in "Political Science" obtained at the University of

Rennes. I then enrolled in a thesis in 1986. I obtained my doctorate in Private Law and Business Law (specialising in "Maritime and Transport Law") in June 1990, and while I was preparing my thesis (which dealt with state-owned shipping companies), I was recruited as an "Assistant" at the University of Brest, where I taught civil law and commercial law.

During these years, I started to develop my knowledge and experience as a teacher of Business Law and Maritime Law. I became a lecturer in 1991, one year after my doctoral thesis. In 1992, I obtained the Habilitation to direct research in Private Law and Criminal Sciences, and then in 1999, I was transferred as a lecturer in Business Law at the University of Nantes where I started preparing for my aggregation exams. So, since 1999, I have been based in Nantes and I became a full professor in 2003.

But although based in France, my academic activities are not limited to this great country. I am frequently invited to give lectures on maritime law at other major universities around the world, such as Ottawa University in Canada (on the law of maritime accidents and disasters); Oxford University in the UK (on international and EU legal instruments to combat crime and unlawful acts at sea); and Penn-State University in Pennsylvania (on the law of the sea); that of



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PennState in Pennsylvania in the USA (on the exploitation of ocean resources and in particular the resources of the continental shelves and the deep seabed), or that of Tulane in Louisiana, also in the USA (where I have been a guest since 2010-2011 during the period of the terrible disaster of the “Deepwater Horizon” oil platform, and it is a university with which I am going to re-launch a broader cooperation in international maritime law). But of course, I have not forgotten to remain very much involved with African Universities as well. I will come back to this later, with your permission.

So that’s a brief outline of my professional background as an academic. But as you know, I am also a Senior Counsel and as such I have been posted to the United Nations. I obtained this international secondment in 2014

and had the pleasure of spending almost six (6) years of my life in Addis Ababa, as a Senior Legal Adviser at the United Nations Economic Commission for Africa (ECA). This extremely rewarding position allowed me to diversify and amplify my skills there, throughout this period, entirely at the service of the continent, and in particular as a Jurisconsult in Mining and Natural Resources Law, in Economic Negotiations and Infrastructure Law, but also in the field of Ocean Governance and the Blue Economy, all of which are highly strategic sectors for the African continent and even for the entire global economy. I came back to Nantes in January 2020 and it is from there that I resumed my “normal” academic career, while continuing to work closely with the United Nations as a legal advisor and expert in my various specialties.

3. How did your career as a professor at the University of Nantes begin ?

My career began in Brest, since I taught for almost twelve years in this university town, where I was already an assistant (in 1987), then a lecturer (in 1991), before coming to Nantes in 1999. It has continued at the University of Nantes since then, where I teach business law, maritime law and transport law, since this university has had a Centre for Maritime and Oceanic Law (CDMO) for 50 years, with a specialised DEA, which has now become a Master 2 in the Law and Safety of Maritime and Oceanic Activities. So, from 1999 onwards, I taught in this DEA and this Master’s degree and I became the Director responsible for this degree as soon as I became a full Professor of Universities in 2003. At the same time, I was appointed Deputy Director of the Centre for Maritime and Oceanic Law in the same year, under the dual sponsorship of two eminent colleagues who have played a major role in my career in Nantes, Emeritus Professors Jean-Pierre BEURIER and Yves TASSEL. So, this is how my career continued at the University of Nantes until my secondment to the United Nations in 2014, and today since my return in 2020.

I was elected in February 2021 as the new Director of the Centre de Droit Maritime et Océanique (CDMO) at the University of Nantes.





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It is a centre that today occupies an important place on the world stage since we had the opportunity and the luck to be selected by the World Bank and the United Nations as a “Centre of Excellence and Academic Partner” in the framework of the Global Programme on Ocean Governance and the Development of the Blue Economy (known as “PROBLUE”). So my election as Director of the CDMO was accompanied by a generous wink from Heaven, since our Centre now benefits from this distinction of excellence and this privileged partnership with the World Bank and the United Nations, and I am very proud of this for the team I lead, and for our University. For an online visit of our Centre, see our website: <https://cdmo.droit-maritime.org/>

4. Why did you choose to teach?

It was really by chance at first. When I defended my PhD thesis at the end of June 1990, I immediately returned to Cameroon to look for a teaching position at the University of Yaounde. Unfortunately, these were very difficult years in Africa, since it was the period when the famous “Sovereign National Conferences” began, which heralded the very turbulent democratisation of the various states of the continent, after the famous “Franco-African Summit of La Baule” of 19-21 June 1990. In Cameroon in particular, it was a very turbulent period, marked by endless strikes, known as “dead cities”,

and crowned in 1994 by a terrible devaluation of the CFA Franc which caused a vertiginous and generalized fall of national economies, especially those of the French-speaking States, which were subsequently forced to submit to the forks of the “Structural Adjustment Programmes” harshly dictated by the IMF. All this to say that when I returned to Cameroon in 1990, I could not find a job, and in fact all employment policies were frozen, if not destroyed, the national economy being practically at a standstill and socio-political life being particularly tormented. My thesis supervisor who was like a father to me, the late Professor Alain Le Bayon, seeing that I was desperately going around in circles in my country and looking for jobs that were no longer available, called me back to France so that I could continue to teach alongside him (as an Assistant) at the Faculty of Law in Brest, while waiting for a more clement socio-economic sky in Cameroon.

So he advised me to prepare very seriously for the competitive examination for university lecturers. And by chance I passed the exam on the first try, in September 1991. This is how I became, by chance, a full professor in France. It was indeed a pure chance, because I had not foreseen this scenario in my life. I owe this unexpected fate to my two great “Masters”: on the one hand, of course, to Professor Alain LE BAYON (mentioned

above), who was an excellent “civilist” and extraordinary teacher and who introduced me to the teaching profession with rare dedication and on the other hand, to that very venerable and true “living monument” of Maritime Law, Professor Pierre BONASSIES of the University of Aix-Marseille (now 94 years old), who has been the absolute master of this discipline in France since the death of Dean RODIERE in 1981, and who initiated me and literally transmitted to me the marvellous flame of his passion for Maritime Law. He was indeed the co-director of my thesis, which he agreed to follow alongside Professor LE BAYON, right up to its final defence. These two pundits gave me both a taste for teaching and for high-level research.

It is also to say, in all sincerity, that when I returned to Cameroon in July 1990, I did not really want to work at the National Shippers’ Council of Cameroon (CNCC) or at the state-owned shipping company, Cameroon Shipping Lines (Camship). I had only one desire: to become a professor at the University of Yaounde, and follow in the footsteps of my two great masters. But in the end, as luck would have it, I returned to France in 1991 and became a professor directly in French universities, an immense privilege which, I must confess, was not at all part of my plans.



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But for all that, I have never disconnected myself from the African continent, since each year I organise myself to invest in a university of this continent, whether in Yaounde and Douala in Cameroon where I have taught and directed dozens of doctoral theses (at the invitation of the Deans BOKALLI, MODI-KOKO or NTUDA-EBODE); in Dakar in Senegal where I have created a Master's degree (formerly a DESS) in Maritime Law since 1994, with my friend Professor Ibrahima Khalil DIALLO; or in Rabat-Souissi in Morocco (with my colleague Nora TALBI), in Libreville in Gabon (at the invitation of the Rector and Professor Emeritus ROPIVIA, or of my brilliant colleague and brother, Professor ROSSA-TANGA-RIGNAULT); or even

in Brazzaville in Congo on the always warm and friendly call of Doctor DIBAS-FRANCK (today Secretary of State in charge of maritime and fluvial transport to the Prime Minister); but also in many other universities of the continent where I regularly organise courses, conferences and symposiums. In addition, I must add that I created the Eurafrique Export Institute to develop and expand this maritime cooperation with Africa in particular. In other words, I have never really "cut myself off" from the African continent throughout my now long and rich teaching career in France and Europe.

5. What are the difficulties of university teaching today ?

Oh, you know, teaching is not an easy job in general, then and

now. Why is that? Because it's a job where you really need to have a vocation. The philosopher Alain Mounier said that you need to have an "extra soul". He said this because when one teaches, one does not only transmit mechanical knowledge, one also transmits humanistic and even spiritual values.

Victor HUGO said it in his own way: "Each child we teach is a man we win". So, when you teach, you really have to have a vocation. And this presupposes that you are really made for teaching and transmitting knowledge. This is the first difficulty: to know if you are made for teaching, or to seriously build this vocation.

Then, there are other difficulties



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that are added in all African countries, but also here in France. Indeed, we note, with immense despair, a constant reduction in research resources and a deterioration in working conditions. It is almost a nightmare to want to do quality research in French-speaking countries in general. Teachers are almost everywhere a bit miserable, funding capacities are insufficient, working and documentation resources are mediocre, and future prospects are limited, which is a great pity and even detrimental to these same countries, if only in terms of demobilisation of skills, and even in terms of brain drain.

English-speaking countries give their researchers much more resources and seriousness. And the results are generally good: when you count the number of Nobel prizes or major scientific awards, English-speaking countries are often ahead, and this is because they give their teachers and researchers much more resources and seriousness.

So, a problem of vocation, of research resources, but I would also add that the additional difficulty is that today we are in a world where there is a crisis of values. You know, I don't know what it is due to, but the phenomenon is undoubtedly linked to the depraved use of new technologies and social networks. In these conditions, it becomes quite difficult to teach and to have

real authority. I'm not talking about myself, but about the teaching profession in general. The "Masters" of the past have totally disappeared and their successors are highly demotivated. So, it is quite difficult today to be a teacher because the values that we hope to develop are less and less easy to transmit. However, Victor HUGO said it, and I quote him again: "The school is a sanctuary as much as the chapel, because the alphabet that the child spells out with his finger contains a virtue under each letter". So, the teaching profession is a profession that consists of transmitting knowledge, but also moral, humanistic and even spiritual values. Nowadays, our children learn almost everything on the Internet or on social networks, which can offer treasures of documentation or, conversely, constitute veritable dustbins or nauseating gullies for them.

But having said that, I think we have to stay positive. We will always need the teacher. The teacher of yesteryear may have receded or disappeared, but there will always be a need to train people and new generations of young people. And it is precisely because of the new technologies that we can now reach many more people and thus democratise education and access to knowledge, which sometimes remains a real luxury, especially in developing countries. We must also be careful to master these new technologies perfectly.

Because anyone who wants to learn exclusively through a machine risks dehumanising himself in the long run. So teaching, even with the new technologies, must always be done under the control of a teacher. We must not think that we can teach just with the artificial intelligence of robots, software and other digital platforms. In other words, the teaching profession must be maintained and must not be dehumanised by the appearance of all these machines and new technologies, which are often used to commodify knowledge.

6. What are the qualities to be developed to become an international expert like you ?

The qualities to be developed are the classic qualities in any field, whether you are a carpenter, a bricklayer, an expert, a teacher, a lawyer or a doctor. These are the usual and unavoidable professional qualities. First of all, you need to be competent. You must always be at the top of your game to do your job well. Whatever the profession, you also need seriousness and moral probity. One must have real moral values to do one's job well and manage to sublimate it. And then you have to be efficient, that is to say, you have to give full satisfaction in your speciality or field. A carpenter, a bricklayer, a carpenter, a teacher, a lawyer or a doctor, must all have the same fundamental qualities in their respective fields.



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But as far as my own activities are concerned, as a teacher and an expert, I think that, in addition to the skills that are necessary, seriousness, probity, and efficiency, these activities also require me to work especially on “outreach”. You cannot be an international expert if you simply shine in your village, your town or your country. Outreach implies the ability to go beyond the boundaries of one’s professional or anthropological, primary or original ecosystem, to converge and rise to the universal. To be an international expert is therefore to be able to be ‘recognised’ in all the corners of the world where one passes, because true competence ignores our identity or anthropological origins and simply brings us back to our fundamental humanity. So, outreach seems to me to be something

essential.

But there’s one last thing I’d like to add: you can’t be a truly ‘recognised’ university professor if you don’t ‘go to school’. What is “making school”? It’s simply training the younger generation with the full awareness of wanting to pass the torch to the new generation. If you are only competent for yourself, your competence is dead beforehand. Competence is like a seed that you sow. I think you know the symbolism of the “august gesture of the sower” mentioned by Victor Hugo. The international expert and especially the professor is exactly that. You have to sow, water, and pass the flame to new generations so that the science and knowledge transmitted can germinate, develop, and produce fruit. We must keep this flame

alive, like the flame of Olympus, and with the hope that it may always remain lit, and thus pass from hand to hand to the young and to future generations. This is what my illustrious Professors and Masters have done for me, and this is what I try to do for my students and doctoral students throughout the world, and beyond their origins, colours, and national flags.

7. What are the challenges you have had to face during your professional career ?

The challenges, the challenges as you say, are always from my point of view, personal challenges first, and then challenges with the outside world. The personal challenges are above all the challenge of personal success. To succeed, you have to work. It is not witchcraft, it is not magic.





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You have to work, and even work a lot, just like the great sports champions, or the great virtuosos in music or the arts. As the ploughman in the Fable said, you have to learn to “dig, dig, and leave no place where the hand does not pass and pass again”. I was born into a poor family, and I knew from childhood that I could only get by in life through work, and thanks to work. So work was presented to me by my parents as my only lifeline. So I started working as a child. I have a work discipline that is quite exceptional, because I try not to suffer my work, even when it is sometimes exhausting. Work is indeed part of my existential mystique. LA FONTAINE and VOLTAIRE, whom I read a lot in my youth, taught us masterfully the ethics and mysticism of work: the first proclaiming “Work, take pains [...] Work is a treasure”, and the other revealing that “Work keeps away from us three great evils: boredom, vice, and need”.

But it is not enough to work. You have to persevere in your work. And I would add that if you fail, you have to know how to get up again because failure is often the prelude to success. Anyone who succeeds without failing has not yet fully understood the meaning or perceived all the delights of success. Success is only possible if one has mastered the risks of failure, and failure is a school. Therefore, all those who fail (and I personally experienced some

extremely formative failures in my youth) must know that they are already on the road to success, despite the disappointment and discouragement of the moment.

So, hard work, perseverance and the ability to pick yourself up when you fail. These are the personal challenges.

Now, as regards other challenges in relation to the ‘outside’ world, I must say that in Europe and in a country like France, we all know the fear of foreigners, especially in this period of rising extremism. Because when you have a foreign origin and a fortiori when you are black, you are not always looked at in the same way as the rest of the people, and you certainly don’t have the same chances in life. You are often considered an eternal foreigner, everywhere and all the time, and socially condemned to suffer from a kind of glass ceiling that constantly brings you back to your origins and your colour identity. And I’m not just talking about myself, but it’s a challenge that we have to face, yesterday and today, when we live and work in European countries and especially here in France. So, fear of the other, racism or xenophobia can sometimes become, for some, serious challenges to be faced on a daily basis. It is therefore necessary to reassure all the time and patiently develop one’s humanism and faith in life, so as to break down the false

barriers that divide our societies and our human communities. And in the end, it usually ends up quite well.

That being said, one should not generalise this problem. Because, like many other people, I have also personally had the chance to cross paths with some very fine people in France who have adopted me, protected me and reached out to me. I mentioned earlier my “Masters”, Professors Alain LE BAYON, Pierre BONASSIES, or Jean-Pierre BEURIER. But I could also add my magnificent friends, Professors Philippe-Jean HESSE, Alain SUPIOT, Philippe DELEBECQUE, Muriel FABRE-MAGNAN, and many others who will recognize themselves. In the face of life’s difficult trials, it is very reassuring to come across such good people. An eminent philosopher wrote this beautiful thing: “In the middle of a storm, there is always a bird to reassure us”...

But I have also had the good fortune, as a university professor, to work in a profession that is geared towards intelligence and the mobilisation of knowledge, including at an international level, and it is a status that inevitably breaks down barriers and annihilates primary reticence. So I am always sincerely delighted, after a lecture or a doctoral conference, to see the eyes of my students or my audience shining with happiness in the room or in the amphitheatre, simply



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because I have done my job well, and finally because the spirit has risen above our small existential limits. And there we become “ONE”, and simply human...

This is one of the things I really like about this profession, which indeed offers this capacity to transcend barriers and to bring our fellow human beings together thanks to the strength and the wonderful resources of the spirit. So I love my job because it gives me a lot of pleasure on a human and spiritual level. It is truly a humanist profession...

8. You have received several awards, including the “Price of the Marine Academy 2022” (Section “Law and Economy”), how do you feel about all these awards ?

The two awards I have received recently in France are mainly related to my academic and professional career.

First of all, I was awarded the medal of “Chevalier de l’Ordre du Mérite Maritime, a distinction that was given to me after the Erika disaster, and in particular after the conclusion of the resounding trial of this memorable oil slick that had very seriously polluted hundreds of kilometres of French coastline, especially here in the Loire Atlantique region. It was because, as a responsible citizen and academic, I had volunteered to work with local authorities, the State, lawyers and civil society to combat this disaster and ensure that the law prevailed over ecological crimes. I was then heard as an expert before the Paris Commercial Court, then before the Court of Appeal, and our arguments (particularly on the civil and criminal responsibilities of polluters) reached the Supreme Court. I am used to this type of battle, since the terrible sinking of the oil tanker Amoco-

Cadiz, and as a young doctoral student in Brest (1984-1990), I had already been involved in handling this type of case and was highly specialised in questions of shipowners’ responsibilities and the fight against maritime disasters. I have therefore systematically put my skills at the service of the French State, local authorities and the victims of these disasters. The outcome of the Erika trial was crowned by a resounding success for the arguments we were defending, since for the first time, and before the Court of Cassation, the French judges agreed to retain all civil and criminal responsibilities and to also admit compensation for “ecological damage” in a ruling handed down on 25 September 2012, which has now become a precedent. It is therefore all of this that undoubtedly prompted the Prime Minister to grant me the title of “Chevalier de l’Ordre du Mérite Maritime” in 2014. This was a tremendous advance in law, and a victory that I savoured with all the French people, and with all the lawyers in my speciality, in particular my friends in the French Maritime Law Association and the International Maritime Committee.

The Price of the Marine Academy was my second award, received in June 2022 from a member of the French Academy. According to the words of the eulogy pronounced in front of the Academy, this prize was granted to me to honour my “master’s



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degree in Maritime Law, but also in the field of Ocean Governance and the Blue Economy". So it is a recognition at the national level of my competence as a professor and as an expert in these disciplines. And the Marine Academy was keen to add that this prize seems all the more deserving as I have worked a great deal as an expert within the United Nations and international organisation in these particular specialties, but also at the service of French-speaking countries and developing countries.

This international commitment underlined by the Academy is still very active, as I was lucky enough to be asked to be an expert member of the "Global Programme on the Governance of the Oceans and the Blue Economy" (PROBLUE) created by the World Bank and run in partnership with the United Nations.

So it is the recognition of all this national and international work that led the Marine Academy to grant me this prize.

In short, these are two distinctions for which I am very happy and proud, and with all my heart I wanted to share them with my wife and family who support me tirelessly in my endless work and missions (sometimes encroaching on family life and holidays), but also with my colleagues and my doctoral students, because these fine results are never the fruit of a solitary work.

9. You were a civil servant at the United Nations, what was your role and what was the interest of your mission for the African continent ?

Yes, I was posted to the United Nations and in particular to the United Nations Economic Commission for Africa (ECA) in Addis Ababa, which is part of the General Secretariat and the Economic and Social Council of the Organisation. I have been on secondment there for almost 6 years (2014-2019). It was a very high level professional experience that brought me a lot and thanks to which I contributed enormously to serve Africa in terms of legal and political advisory services, especially in the sector of natural resources exploitation and international economic negotiations (mining, petroleum, energy, etc.), the infrastructure sector (transport, construction of roads, ports, airports, dams, etc.), but also in the sector of ocean governance and blue economy, which I was particularly happy about.

I had several portfolios of responsibilities in my work in these different areas: firstly, the "Legal and Policy Advice" portfolio, since I had to assist and advise (on request) the 54 States of the continent in their needs for expertise in these different sectors of economic activity; secondly, the "Capacity Building" portfolio, since I had to organise, on a continental scale, very high level training cycles for African government officials and experts

in all the above-mentioned areas. Thus, each year we organised seminars on the negotiation of international economic contracts (on natural resources or investments); and finally, I had the "Legislation" portfolio, since I had to help States to adopt legislation or codifications (mining, petroleum, maritime, air codes, etc.), or simply to assist them in revising or modernising their existing regulations in these different areas.

So I can say that I have served the whole continent during these 6 beautiful years, and I left the ECA really very enriched and fulfilled, because I learned a lot on the ground about African realities in all these sectors, whether it is the natural resources sector, economic negotiations, infrastructures or the blue economy. I am very pleased with this experience, which is not over yet, as I continue to serve as an expert and legal advisor to these countries. Just one example: a few weeks ago, I just finished drafting the "Blue Economy Strategy of the Congo", but also the "Blue Economy Strategy of the Economic Community of Central African States (ECCAS)", which brings together 11 member states of this region, including Rwanda and Burundi. So it's a great adventure that continues...

10. What is your assessment and what are your prospects for the African maritime sector ?

The African maritime sector is a



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sector that is today, it must be said clearly, in great difficulty. And yet, I can assure you that Africa has had a very fine maritime history in its recent past. First of all, you should know that in the 1970s, thanks to President Houphouët-Boigny and his peers, Africa was one of the first continents, among the developing continents, to think of organising itself in the maritime field. Thus, the Ministerial Conference of West and Central African States on Maritime Transport (WECA-OC-MT, based in Abidjan) was created, which enabled African shippers to negotiate freight rates with foreign shipowners. This maritime awareness, born in the 1970s, led to the powerful development of the African maritime sector. Thus, all the States of the continent had succeeded in setting up national shipping companies (the case of SITRAM, CAMSHIP, SOTONAM, COBENAM, COMANAV, COSENAM, NNSL, etc.). Even landlocked states such as Mali and the Central African Republic had set up shipping companies with chartered ships or by transferring their traffic rights to partner shipowners. At that time, people were talking about the advent of a “New International Maritime Order”...

So, all African states have had a strong “maritime conscience” since the 1970s. And then, unfortunately, with the dynamics of the globalisation of the market economy, the rules of the game

suddenly changed. African shipping companies no longer benefited from the Code of Conduct for Liner Conferences, which allowed them to carry 40% of their foreign trade. And as soon as this Code of Conduct was put on hold, all the shipping companies collapsed like a house of cards, and the Shippers’ Councils with them. So, from the 1990s onwards, African merchant shipping was completely wrecked, and to this day African states have not recovered from this slump.

Thus, the African maritime economy is in a state of disaster, since the continent no longer has the shipping companies of yesteryear, and has Shippers’ Councils that work without the partnership of local shipowners. The continent therefore no longer controls its supplies and foreign trade.

But the African maritime sector is not dead. The continent has ports that are striving to remain competitive and that are fighting admirably to conquer and control commercial traffic, and this gives hope.

Now, the real question is how to revive this maritime sector, which has long been in a state of disaster.

I think it will not be easy to recreate shipping companies in the same way as in the 70s and 90s. It will be impossible to recreate the same shipping companies,



especially on the model of the national state companies. The solution now seems to be to encourage states to develop private or mixed economy companies, and especially regional companies to begin with. It is indeed possible to imagine regional companies doing cabotage from Mauritania to Namibia on the Atlantic arc, and similarly on North Africa, from Morocco to Djibouti, and finally similarly on the Indian Ocean, from Djibouti to South Africa. We can surely develop coastal trade and support community shipping in Africa, while waiting for Africa’s return to the international maritime scene. This would be a considerable asset for the economy and integration of the entire continent, especially at a time when



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the AfTCA is being implemented. But well beyond maritime transport, I think that the great African challenge today is to have moved into the blue economy.

What is the blue economy?

The blue economy consists of developing all the potentialities (here those of the African continent) in the field of water, whether marine water or continental water, i.e. the water of rivers, lakes and streams. In all these waters, the continent can indeed develop all kinds of economic activities imaginable: maritime transport, fishing and aquaculture, oil and gas exploitation, tourism and leisure, renewable energies, nautical industries of construction and ship repair, etc. For example, Namibia has now become the world's largest producer of offshore diamonds, and this unexpected wealth is contributing to a very positive transformation of socio-economic life in that country. This is to say that Africa is sitting on immense wealth that must be developed and that can ensure its economic take-off and even truly sustainable development.

So the blue economy is first and foremost the capacity to develop all the marine potential, but also that of the continental river and lake waters. However, it is necessary to develop them in a "sustainable" way, i.e. by protecting the environment and the ecosystems. It presupposes rational



and responsible exploitation, i.e. protecting the environment and ecosystems, and even the climate. This means not plundering resources, polluting waters and destroying the environment and ecosystems.

However, the sustainability of the blue economy is also "social", which means that economic activities linked to the sea, rivers and lakes must benefit African populations and enable the fight against poverty. The sustainability of the blue economy therefore presupposes an important and even imperative social and human component. Therefore, any blue economy is only sustainable if it protects both the environment and the ecosystems, but also if it is beneficial to the populations in the context of the fight against poverty, and the improvement of their economic and social standard of living. But I would also add that the blue economy is only sustainable if it is develop-

ped in safety and security. If we have seas full of pirates, maritime crime, armed robbery, trafficking of all kinds, accidents, etc., our blue economy cannot be considered "sustainable".

11. Your last word to conclude this fascinating and very rich exchange...

My final word is the happiness of having been able to benefit from an advanced training that has given me superb expertise, and to have been able to put this high-level expertise at the service of my country of adoption and life, France, at the service of Africa, the continent where I was born and to which I will remain deeply and eternally rooted, but also at the service of the international community, thanks to my action within the United Nations or alongside the World Bank.

It is a privilege, a gift of life, and a real happiness, and I thank God for it...



The women of WIMOWCA DRC, strongly represented at the first Annual General Assembly and Conference of the Association in Dakar

From 06 to 07 December 2022, an important delegation of women from WIMOWCA DEMOCRATIC REPUBLIC OF CONGO (WIMOWCA DRC), led by Mrs. Chantal NGOIE, National President of WIMOWCA DRC and Mrs. Caroline MAWANDJI, co-founder and member of the executive committee of the said association, took part in Dakar in the first Annual General Assembly and Conference of the Women's Association of the Maritime Sector of West and Central Africa (WIMOWCA).

This participation of WIMOWCA DRC in this first Annual General Assembly and

Conference of WIMOWCA, was very enriching according to Mrs. Chantal NGOIE, who specifies that « *the conference which dealt with the main theme of the « Transition towards a more ecological, digitalized and sustainable maritime transport »*, resulted in important recommendations concerning :

- *the systematization of the use of ICT in port management;*
- *access to training in the sector and to management functions for maritime women;*
- *the rational and sustainable management of marine waste;*
- *the fight against maritime*



Mrs. Chantal NGOIE, National President of WIMOWCA DRC

piracy in the Gulf of Guinea and against IUU fishing. »

« *The holding of this AGM and conference is a happy outcome. I would not have missed for anything in the world this opportunity to physically meet my sisters of WIMOWCA as well as those of sister associations (Network of Women Maritime and Port Professionals of West and Central Africa, WIMAFRICA, WOMESA and others). In addition, the theme of the Conference*

is topical. The interests covered are economic, security and environmental, » said Mrs. Caroline MAWANDJI.

For the National President of WIMOWCA DRC: *« Marine biodiversity understood as the diversity of life in the seas and oceans, participates in the achievement of certain balances on the planet earth. As such, this attic provides products and services that contribute to the health, well-being and prosperity of humanity. The rational and sustainable management of the wealth resulting from this biodiversity is essential for sustainable economic, social and environmental development. »*

She emphasizes « I am of the opinion that this issue should be an integral part of the national development policies of African countries, in line with the 2030 Agenda for Sustainable Development as well as the SDGs; particularly SDG 14, which puts a special emphasis between marine biodiversity and the sustainable development goals of planet earth. »

Apart from WIMOWCA DRC, twelve other delegations of women from the maritime sector from different countries of the African continent, namely: Cameroon, Congo, Côte d'Ivoire, Gabon, Gambia, Ghana, Equatorial Guinea, Nigeria, Sao Tome

and Principe, Senegal, Sierra Leone, and Togo, were present alongside representatives of the International Maritime Organization (IMO) during these two days of fruitful exchanges, where the role of women's leadership in the promotion of a sustainable maritime sector was addressed..

As such, Mrs. MAWANDJI testifies that *« The maritime sector is a sector originally male. »* She confirms that *« According to the IMO, the United Nations agency in charge of the maritime sector, there are only 2% of women in the world who work in the sector. »* And that *« The IMO encourages member states to put in place policies to encourage women to enter the maritime sector. »*

Also, she added: *« Young girls who want to enter the industry need role models. WIMOWCA's goals also include coaching and mentoring. »*

In addition to organizations such as the Women's Maritime Association of Africa (WIM-AFRICA), the Women's Maritime Association of Eastern and Southern Africa (WOMESA), the West and Central Africa Network of Women Maritime and Port Executives, the Women's International Shipping and Trading Association (WISTA), this AGM and Conference also saw the participation of several Senegalese governmental bodies, namely the National Maritime Affairs Agen-



Mrs. Caroline MAWANDJI, co-founder and member of the executive committee of WIMOWCA DRC



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cy (ANAM), the Senegalese Shippers' Council (COSEC), the Senegalese Consortium of Maritime Activities (COSAMA), etc.

As a reminder, WIMOWCA is the eighth regional association to be created as part of the IMO strategy to enhance the contribution of women as key stakeholders in the maritime sector. In line with the objectives and missions of WIMOWCA, the President of the DRC Chapter has placed her priority actions on the empowerment and promotion of women in the maritime sector, through :

- *capacity building of women through access to information and training;*

for women career workers, ensuring that they benefit from the training courses organized by the IMO for women in the DRC, but also taking advantage of online training offered by other organizations;

- *for women producers (fish-mongers, fish sellers, etc.), rely on their access to more efficient techniques and equipment in order to increase their profitability and their income;*
- *to encourage partnerships to be developed to support women producers in the sector;*

- *finalize two projects for the creation and development of fish processing and sales areas.*

Also, in order to increase the female representation in the Congolese maritime industry, beyond the capacity building actions, Mrs. NGOIE plans to set up an observatory to monitor the careers of women in the sector, to develop women's networking (interconnection of existing networks), to resort to mentoring thanks to the expertise of experienced women, and to carry out advocacy with the authorities of the sector.

**By Pascaline
ODOUBOUROU**



Preparatory workshops for the first edition of the Maritime Conference of Central Africa (COMAR-1) in Kinshasa

By Carlos KPODIEFIN

From Monday, November 28 to Friday, December 2, 2022, were held in Kinshasa, the preparatory workshops of the first edition of the Maritime Conference of Central Africa (COMAR-1) under the theme: “governance and securing the maritime space of the ECCAS for the development of a sustainable blue economy in Central Africa”.

The opening ceremony was chaired by the Minister of Regional Integration and Francophonie of the Democratic Republic of Congo, His Excellency Didier Mazenga Mukanzu, President of the Council of Ministers of ECCAS accompanied by the President of the Commission of the Economic Community of Central African States (ECCAS) His Excellency, Ambassador Gilberto Da Piedade Verissimo and the Ambassador, Representative of the European

Union Commission, His Excellency Jean Marc Châtaignier.

During the 5 days of work, several workshops were organized with the objective of reaffirming the leadership and sovereignty of the Member States through the control and development of the ECCAS maritime and river-lake space, in harmony with the continental maritime policy.

The main objectives were to :

- *Review the regional strategy on the blue economy in Central Africa;*
- *Review the ECCAS maritime safety and security strategy;*
- *Review the ECCAS maritime governance strategy;*
- *Identify the main axes of the ECCAS maritime policy.*

Additional workshops were also organized by the PASSMAR project with the following themes :

- *Evaluations of the implementation of the Yaounde architecture at the national level by ECCAS member states;*
- *Regional thematic studies on marine fisheries and the Yaounde Architecture;*
- *Awareness-training on communication and visibility of maritime safety and security issues and the development of the blue economy in Central Africa.*

Some participants give us their opinions at the end of the workshops:



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“I am pleased to share with the readers of “Maritimafrica” the experience of my participation in the recent preparatory meeting for the maritime conference of the Economic Community of Central African States.

My name is KENHAGO TAZO Olivier, Specialist in peace and security issues with a focus on maritime security in the Gulf of Guinea. Minister-Counsellor at the Embassy of Cameroon in Brussels, my work focuses in particular on the operationalization of the Yaoundé Architecture and the follow-up of the EU strategy for the Gulf of Guinea.

The upsurge in acts of maritime piracy and armed robbery in the Gulf of Guinea has led to an international mobilization that led the Security Council to adopt important resolutions (2018 (2011) and 2039 (2012)) calling on the riparian states and the international community to adopt and support a collective strategy for the Gulf of Guinea.

I took part, in various capacities,

in the process that involved both ECCAS, ECOWAS, the GGC and the States bordering the Gulf of Guinea for the organization in Yaoundé, in June 2013, of the eponymous summit that put in place what is now called the Yaounde Architecture. This endogenous approach to managing the security of African states, consistent with the African Peace and Security Architecture, served as a marker for the adoption of the EU strategy I mentioned earlier and the creation of other consultation frameworks such as the Group of Friends of the Gulf of Guinea, created in the wake of the Yaounde Summit.

You can therefore understand the personal interest I take in maritime security issues, and above all in the development and implementation of this entire architecture, which appears to be the manifestation of the political will of the States concerned. The organization by ECCAS of its very first maritime conference is therefore, for me, the proof of its political and operational maturity and of its will to happily appropriate the tools it has acquired to secure its maritime spaces. Moreover, it has not escaped your attention that this maritime conference, by focusing on both maritime security and the blue economy, ensures a sort of junction between the imperatives of security and development, thus putting into practice the continuum existing between the

Yaoundé Summit, which had a security bias, and the Lome Summit, which focused on the blue economy.

I am very satisfied with the progress and results obtained from the preparatory work of this first maritime conference. The organizers were well inspired to precede the work of government experts by plenary exchanges involving multisectoral experts. The latter allowed participants to revisit the theoretical aspects of maritime security and the blue economy, but also to evaluate the legal and institutional instruments resulting from the Yaounde Summit. In the wake of this exercise, the experts of the Member States, inspired by these theoretical insights, have begun the elaboration of decisions that will be adopted by the competent authorities to better implement the strategy.

Above all, I am pleased to have noted a convergence between the previous work carried out by ECCAS in the field of the green economy and the current orientations of the blue economy. This convergence should make it possible to bridge the gap in the ownership of the maritime strategy by civil society actors.

In short, it seems important to me to accelerate and strengthen the involvement of civil society, the private sector and the media in the maritime policies of the Gulf



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of Guinea. Ten years after the Yaounde Summit, it is clear that the States have taken ownership of their maritime strategy and have integrated the need to focus on the blue economy. The next decade should focus on a greater involvement of civil society, journalists and the private sector, in order to create a real synergy of action around this issue.

In conclusion, I would like to reiterate the recommendations contained in Resolution 2634 (2022) of the United Nations Security Council, which calls for :

- *that criminal acts committed at sea be made criminal offences under the domestic law of coastal States and that the perpetrators be investigated, prosecuted and extradited;*
- *that coastal states act, at the national and regional levels and with the support of the international community, to implement national maritime security strategies, including a harmonized legal framework to prevent and repress acts of piracy and armed robbery at sea;*
- *strengthen cooperation between regional organizations and the Gulf of Guinea Maritime Information Exchange mechanism;*
- *accelerate the implementation of the Yaoundé mechanism;*
- *the support of partner organizations and States to the States and regional organizations of the Gulf of Guinea.*

I would like to thank the EU for its support to the Yaoundé architecture and in particular to civil society and the private sector. Programs such as PASSMAR should, for the next few years, emphasize this aspect, which to date appears to be the poor relation of the architecture.

Thank you for your attention.



“ I am Mrs. Caroline MAWANDJI, Honorary General Manager of Lignes Maritimes du Congo, National President of WIMA-RD Congo, Vice President of WIMAFRICA and member of the Executive Committee of WIMOWCA. I participated in the preparatory workshops of COMAR as a resource person in Blue Economy.

Our participation in this first ECCAS Maritime Conference was an opportunity to bring our contribution to the implementation of the ECCAS maritime strategy. Indeed it is since 2015 that our WIMAFRICA (African Women in Maritime Organiza-

tion) works with the AU Commission for the popularization of the AIM 2050 Strategy.

WIMAFRICA already has several chapters in ECCAS countries (Angola, Cameroon, Congo, Gabon, Equatorial Guinea, Sao Tome, DR Congo) and in 2023 the chapters of CAR and Chad will be established.

We had high quality interventions from great specialists in the field of blue economy, including Prof. NDEDE. Bravo to ECCAS for having invited the intellectual cream.

In addition to the AU's Agenda 2063, the 2030 Agenda with the SDGs is imposed on States and de facto on the RECs in Africa, including ECCAS. Among the 17 SDGs, 169 targets and 244 indicators, there is the SDG 5 specific to gender equality and the SDG 14 on ocean life directly linked to the blue economy.

ECCAS, which has already institutionalized gender equality, cannot go backwards to integrate women in the implementation of its Blue Economy Strategy.

We congratulate the President of the ECCAS Commission and all his team. And we say to count with women and youth to bring the ECCAS blue economy strategy to a successful conclusion.



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“ I am Gerónimo NDONG MIKUE, junior consultant specialized in port logistics and international transport, passionate about the logistics, maritime and port sectors, originally from Equatorial Guinea.

I have been designated as focal point by the Ministry of Transport of my country, So, we can note that in the ECCAS space, talking about maritime conference is new compared to other places, as well as topics related to this world (logistics and transport), but I think it is the time. For this reason, when a maritime conference is held at the regional level, the motivation is very high and full of hope for those who are dedicated to the sector, because it is obvious that the development of this world is the basis of continental and global trade, creating jobs and added value.

This is a great competitive advantage for our space, and participating has been a great opportunity for me, I am very grateful personally and professionally.

If I had to give a grade to the workshop, I would probably qualify it as very honorable, first for the excellent work of the consultants in the development of the strategy (maritime governance), then for taking into account the various contributions made by experts from each country, who came to build a much more enriching document that integrates all the concerns in terms of maritime governance of the ECCAS area.

A document that can serve as an inspiration to many Member States in the development of their national strategy of maritime governance.

Very honorable.

During this event, topics on maritime governance and policy, maritime safety and security as well as the blue economy were discussed. It is also important to recognize the existing previous strengths.

Therefore, I expect an impact on the awareness of the maritime potential of the ECCAS zone.

With this awareness, act accordingly to make effective and operational what already exists as well as what is being developed to develop and protect the sector.

Thank you very much to you !!



“ I am Mr. Clauvice NYAMA MOUKETOU, Non Permanent Expert in PASSMAR in its Technical Assistance component provided by DAI International.

It is particularly important for the national consultants to participate in such a regional meeting to confront the preliminary results of the country reports with the reality of the field as presented by the main animators of the national and regional policies related to the control of the maritime spaces of the ECCAS and particularly the control of the Yaoundé Architecture and its components. The other interest resides in the diagnosis of the organs which underlie the securing of vital interests at sea stated by the Kinshasa declaration.

The work was of a very good quality. Organized in three (3) workshops namely: Blue Economy, Governance, Safety and Maritime Security, these three workshops have produced conclusions that I no longer present here. I would like to express my gratitude to Professors



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NDENDE, Guy-Serge BIGNOUMBA, NDJAMBOU and all the experts who pushed back the limits of our ignorance on the issue of the control of the ECCAS maritime spaces. All the reports are on the table of the decision makers including the one related to the Specialized Technical Committee exclusively reserved to the appointed experts.

This is an opportunity to thank the European Union, the UNODC via the PASSMAR. I thank you.



“ I am Anita Ntóngono NGUEMA OYANA, ECCAS focal point at the Ministry of Regional Integration of Equatorial Guinea. Considering the importance of the themes addressed during this maritime conference, it was necessary that all the States be represented. It is within this framework that I came to Kinshasa.

At the organizational level, it was a bit complicated at the beginning, because we had the impression that the program

had not been well planned. But during the work, it went well. We took the time to analyze all the files and for me it was a success. I hope that this great first step will be followed by practical actions and that we in our different countries will see the positive effects of the implementation of all the mechanisms studied, especially at the level of maritime safety, trade, etc.



“ I am Olivier MBÉA, a study engineer at the Studies and Forecasting Unit of the Douala Port Authority.

I made the trip because it is important for port authorities to master the rules and regulations and the fundamental role they have to play in the implementation of the blue economy within the States.

I have generally a good appreciation of the work, with especially a very good edification on the role of port authorities in the implementation of the concept of the blue economy.

As an impact, I expect the member states to assert their sovereignty by controlling the development of the ECCAS maritime and river-lake space and promoting common activities, necessary for the socio-economic development of the populations.



“ My name is Teófilo EJIDO MEJÍA, fisherman with decades of experience, professor of Biology and Environmental Sciences and non-permanent expert of the PASSMAR Project. It was important for me to participate in this work, because it was a special and unique opportunity to discuss all the problems related to maritime activities. The sea is the optimal space to manage the economic happiness of the present and future generations of Africa. I participated in the workshop on the blue economy.

The work went very well and the exchanges were very enriching. I expect from this work, a practical application of the solutions to the social and economic problems of the present and future generations of the ECCAS zone.

THE BLUE ECONOMY, THE MARITIME AND THE ECCAS



The blue economy, which concerns all direct and indirect activities related to water and its subsoil, is here.

« New frontier for Africa's renaissance »
(22nd Conference of Heads of State and Government of the African Union)

Long TRANG
Co-chairman of CCIBV - Asia Africa Cooperation
Maritime Arbitrator
Trainer in international trade

The global maritime space representing some 71% of the planet's surface remains unexplored in terms of its resources, whereas many decades ago, humans walked on the moon. The particular wealth of the Gulf of Guinea in terms of fisheries, minerals and mining and the threat of increasing food insecurity, especially for its population, are all factors that need to be taken into account in order to appreciate that the Yaoundé Architecture needs continued support (*Study of the Harmonized Framework for Food Security: the number of food insecure people in West Africa and the Gulf of Guinea has doubled in the space of two*

years. It increased from 3 million to over 6 million between June-August 2020 and June-August 2022).

IUU (Illegal, Unreported and Unregulated) fishing certainly bears its share of responsibility.

In spite of the efforts made by the States concerned and the creation of a series of legal and operational instruments to combat it, unfortunately, it must be recognized that the level of effectiveness is not yet as desired.

Difficulties in coordinating resources, insufficient political will, lack of funding, lack of motivation, weak communication

campaigns, *Perhaps a combination of all these.*

The annual global IUU fishing is estimated at about 10 billion USD, of which 2 billion USD come from African coastal States.

By 2050, with the estimated doubling of the population of the Gulf of Guinea, a food crisis is to be feared if effective measures are not taken without further delay to prevent the depletion of fish stocks. In addition to a food crisis, there would be the seriousness of uncontrolled population migration flows (*French Ministry of the Armed Forces*).

Another point of attention.

The conclusion of fishing agreements with international institutions and/or nations provides the

countries with approximately 400 million USD per year, whereas if they themselves practiced normalized fishing, the revenues would amount to approximately 3.3 billion USD (*FAO 2014*).

The issue of piracy and violence is also a major concern for these coastal states (French Ministry of the Armed Forces: 150 incidents and about 100 kidnappings per year without improvement since 2016).

Admittedly, the gains from piracy and violence do not come from these coastal states themselves, but they suffer direct and indirect losses of around 2 billion USD per year due to instability and insecurity (*AFP 7 December 2021*).

As far as ECCAS maritime traffic is concerned, it is subject to the Port State Controls (PSC) of the Abuja Protocol.

As a reminder, the members of the Abuja Protocol are Angola, Benin, Cameroon, Cape Verde, Congo Brazzaville, Congo (DRC), Côte d'Ivoire, Equatorial Guinea, Gabon, Gambia, Ghana, Guinea-Bissau, Guinea Conakry, Liberia, Mauritania, Namibia, Nigeria, Sao Tome & Principe, Senegal, Sierra Leone, South Africa and Togo (*Abuja Protocol, June 8, 2022*).

In 2021, 64,943 vessels visited the waters under the jurisdiction

of the PSC of the Abuja Protocol. 2,605 vessels were inspected, i.e., about 4%. The usual standard is 15%. 23 vessels were detained as a result of deficiencies under the requirements of various international maritime conventions (*Abuja Protocol Report 2021*).

The same report adds that the Abuja Protocol authorities are continuing their efforts to eliminate as many third zone or unseaworthy vessels as possible from their waters. These authorities also ensure the constant upgrading of PSC inspectors and compliance with safety standards, including the International Safety Management Code (ISM).

It also points out that only 13 out of 22 member countries have sent their reports. Because of these weaknesses, the effectiveness of government action is greatly affected.

However, Africa is on the move.

In November 2022, the G20 summit in Indonesia decided to examine the accession of the African Union in 2023.

On the eve of this membership review and following the statement of H.E. Macky Sall, President of Senegal and invited to this G20 in his capacity as current Chairman of the African Union:

Africa is the 8th largest economy by GDP ...

- *Let's capitalize on what has been built,*
- *Let's work for the perfect operationalization of the "Governance and Securing of the ECCAS Maritime Area for the Development of a Sustainable Blue Economy in Central Africa" and*
- *Let's apply, individually and collectively all sectors, to concretize the lessons learned from the preparatory workshops held in Kinshasa from November 28 to December 2, 2022, whose usefulness is more than proven. Among them, the human being.*

In the age of artificial intelligence, the human factor and its continuous training remain necessary to achieve excellence.

Those who win are those who know and know themselves.

(Popular saying)



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The first company specialized in the supply of maritime equipment in Benin, Marine Land Sarl was founded in November 1988 by the late ABDOU Mohamed Massourou, a harbour master and Inspector of Ship Safety.

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In order to satisfy the needs of the customers in constant evolution, the new team, directed by Mrs. ABDOU Ramziath, operates on the principle of sharing its expertise and its capacity of innovation. It works day after day to offer the best to its customers.

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We support the maritime industry in the sub region



“...I would like to assure you of my determination and firm commitment to continue working for the effective promotion of women in the maritime and port sector during my term of office...”

**Mrs. ADANLETE LAW-
SON** Akuélé Yévona,
Continental President
of the African Women In
Maritime Organization
(WIMAFRICA)

**Nominated in the list
of the most influential
African women in
supply chain in 2022
published by
(AWISCA) African
Women In Supply
Chain Association
and Sincpoint.**

interviewed by
Pascaline ODOUBOUROU



Interview

1. Hello Mrs. Lawson, you have been the Continental President of WIMAFRICA for one (1) year now, can you tell us a little about the different activities you have carried out ?

Hello ! I am Mrs. ADANLETE LAWSON Akuélé Yévona, the Continental President of the African Women In Maritime Organization (WIMAFRICA), a non-profit organization designed to answer the call for gender equality, women's empowerment as well as to establish cooperation for the development of African women entrepreneurship in the maritime sector.

I was invested on November 15, 2021, as the head of WIMAFRICA. One year into my tenure as Continental President of WIMAFRICA, we have promoted and stimulated gender in the maritime sector and related fields across Africa through the following actions:

- *the constitution of Country WIMAs;*
- *the census of women WIMAs in the formal and informal sector;*
- *the organization of biannual meetings with the leaders of the Country WIMAs;*
- *the establishment and strengthening of partnerships with national, regional and international organizations such as : IMO, ECOWAS, UNODC,*

AfDB, RECs, EU, MOWCA, PMAWCA, World Ocean Council, African Blue Economy Forum, Arab Women in Maritime Sector, African Administrators in Maritime Agencies, African Shipowners Association, African Women Leaders Network, Maritime Women Organization of the sub-region;

- *participation in regional and international summits and meetings;*
- *the provision of information to country WIMAs on forums, seminars and webinars organized by sister organizations and regional and international organizations;*
- *communication on our activities for a better visibility;*
- *information watch on major issues affecting women in the maritime world;*
- *advocacy to raise awareness of maritime issues, particularly those related to pollution, maritime piracy and the protection of the coastal and marine environment;*
- *contribution to the strengthening of coastal ecosystems;*
- *capacity building of maritime and port women around the blue economy, the AfCFTA.*

2. What is your assessment of the first year of your investiture ?

For this first year of investiture, the balance sheet is positive in terms of achieving our objectives.

3. On a scale of 1 to 10, how would you rate the achievement of your missions as Continental President of WIMAFRICA ?

On a three year mandate, I have barely completed one year but I can reassure you that on a scale of 1 to 10 we are above average in the achievement of our missions.

4. What are you planning for the new year 2023 ?

For the new year, which is coming up, we will:

- *continue the creation of WIMAs in all countries;*
- *strengthen the capacities of maritime and port women;*
- *encourage associations for the implementation of the African strategy of the blue economy;*
- *ensure the protection of the marine and coastal environment;*
- *promote partnership with international organizations in charge of the blue economy and the AfCFTA;*
- *collaborate with the structures in charge of security to fight against maritime piracy;*

- promote women's economic empowerment and gender promotion.

5. A word to the women of WIMAFRICA.

It is an honor for me to chair WIMAFRICA. I would like to assure you of my determination and firm commitment to continue working for the effective promotion of women in the maritime and port sector during my term of office.

I pledge to serve WIMAFRICA and to make it visible to regional and international organizations and to contribute effectively and sustainably to the development of the blue economy in Africa. I count on all the women of WIMAFRICA to be an example of professionalism that inspires the world of women beyond the maritime and port sector.



6. Your closing remarks.

At the dawn of this new year, WIMAFRICA and I wish you and your loved ones all the best for the new year. May it bring you happiness, health, family joy and professional success.

I hope that our association will bring you satisfaction in the activity that you practice and that

you will be among our most faithful members for many years to come.

I hope that the efforts to be improved within the framework of our association meet your expectations and requests. May this associative year be full of joys, meetings and exchanges and even more pleasant than the previous ones.





AFRICAN WOMEN IN MARITIME ORGANIZATION

2023

WIMAFRICA

Happy New Year to all of you and may God bless you!

I wish you all the best for a happy new year.

By working together on Wimafrica's strategic objectives, we will advance reforms on the inclusion and participation of African women in maritime sector.

Akuélé Yevona **ADANLETE LAWSON**
Continental President of WIMAFRICA



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A portrait of a young woman with dark skin and her hair in braids, wearing a white short-sleeved pilot's uniform shirt with epaulettes and black high-waisted jeans. She has her arms crossed and is looking directly at the camera with a neutral expression. The background is a plain, light-colored wall.

*“...There’s no
limit to what we
can achieve. We
are capable and
are worthy.”*

**Capt. Makhosi Mbokazi,
Surfer pilot engineer**



--I am Capt. Makhosi Mbokazi a surfer pilot engineer for vessels operated by Sonasurf/Bourbon. I am based in Angola. This is a Master in command position. The vessels I work on provide support to the oil and gas platforms offshore Angola. My job includes personnel transfer, diving support, cargo transfer and tanker operations to name a few. I am the 2nd Vice President for the South African Maritime Industry Development Task Force network which aims to accelerate maritime growth in the country, provide a platform upon which the country's maritime economic sector can combine seamlessly to form a social compact in execution of efforts towards rapid development of the country's maritime industry. I am a mentor for seafarers mostly around Africa at large. I am seafarer advocate and Founder of Marine crew welfare.

--I have a maritime Diploma from Durban University of technology. I have also done some behavioural/ soft skills development courses from Safebridge. Which I found quite useful and assist me a lot during my transition whenever I need to work onshore. I hold a Master licence from SAMSA.

--Marine Crew Welfare is a digital platform that promotes and support Seafarer well being through dialogue, information sharing. Marine Crew Welfare

was founded in 2020 during COVID after noting and experiencing a decline in seafarer wellness, which I experienced throughout my career of over 15 years at sea and ashore which became more apparent during Covid and really felt something needed to be done. I also use this platform to advocate for seafarers especially African seafarers and African female seafarers specifically. I specifically say African female seafarers because these women go through a lot in the maritime space especially in Foreign countries and foreign going vessels and the racial issue is one that is not discussed enough one that is not stressed enough in maritime policies that I feel should be looked into as it is one of the biggest contributors to women leaving promising careers in the industry and opt to work in government institutions and agencies. Solely for one reason, choosing mental health and stability than what May be. These women are in spaces where the majority in the room do not fully support their presence and are questioning their intelligence and competence every chance they get. This is why these women need more support. And why Marine Crew Welfare was formed.

The platform has been recognised fully in South Africa and has gotten myself as the Founder recognition globally by maritime and offshore/industry platforms,

by DOT & by another African leading maritime magazine - Maritime Review which saw me as a runner up for the Maritime Champion award and also contributed to my newest role in the South African maritime industry as a 2nd Vice President for the Maritime Industry development Task Force Network alongside Mr Prasheen Maharaj CEO of Sandock Austral and President of the network and Mr Lindani Mchunu who is first Vice President.

--I was Born and bred in Izinqoleni (Port Shepstone) in the South coast of KZN (South Africa). I have been in the industry since 2007 where I worked myself up from cadet at Safmarine/ Maersk and moved on to work on Container ships, Patrol boats, Research vessels, Drill vessels, Supply and Anchor handling Tugs as firstly a 3rd navigation officer, 2nd navigation officer, chief navigation officer and recently Surfer boats as a Master.

--I have also been involved in ship management where I worked Fugro as a vessel coordinator and recently worked for Denmarine cc as a Marine superintendent/ ADPA/ACSO. This position I learned a lot about ship surveys, legislature, stakeholder and crew management from the owners perspective, budgeting, machinery and ship maintenance, emergency management from

shoreside perspective, security and safety etc. The diversity of my career and skills has allowed me to work ashore during down-times or times where sea going opportunities are not available and to be able move back on board once opportunities open up. And this is what I always encourage my mentees, to grab every opportunities with both hands, you may not know or fully understand why you are there today but tomorrow it will make sense.

In 2020 I was scheduled to join a ship for an amazing opportunity to be a chief officer a position I had been really praying for. But I unfortunately tested positive for Covid and could not join but the company after looking at my cv and noting my ship management experience offered me a job working from home. A great experience. And really kept the lights on.

--I am Winner of 2020 wave maker award from Women offshore.org in America and was also named one of the Emerging Influential younger women in Africa for Maritime logistics oil and gas.

For the next month or 2 I am assisting in our company's HSE department as a "front runner" for one of our employees who is in Ukraine. And I have taken this opportunity to also enrol for a Nebosh course to broaden my HSE knowledge.



In high school I won mathematics and science awards. I was also in my high school debate team where I won best speaker certificates and medals. I passed my diploma with distinctions.

My challenges are the challenges of every single brown woman in the industry that is of discrimination & intimidation. Lack of opportunities due to gender, slow career advancement and less pay. These are the uncomfortable topics that we need to openly discuss if we really want to see change. Over the years I've kept my head down and tried to advance in my career and as slow as the advancement be it's happened and I am proud but I do not wish the ill treatment and sacrifice I have had to endure on our children. We need to do better.

Women seafarers stand up tall and be bold! You are here. Take up space where you are and do your best!

-- My closing remarks : seafarers are the frontliners who put their life at risk on a daily to transport goods, personnel and provide much needed services offshore for the world to continue moving. We need to recognise them all for this and give them the much needed support when they are facing difficulties May it be crew change, deteriorating mental health etc.

Women seafarers stand up tall and be bold! You are here. Take up space where you are and do your best! We will only multiply if we put in the work and we need to support one another now more than ever. There's no limit to what we can achieve. We are capable and are worthy.

Interviewed by
Pascaline ODOUBOUROU



Focus

PRINCIPLES OF CONTAINER TERMINAL DESIGN



by Lyes
CHEBREK, PORT DNA

The design and construction of a marine container terminal is a long and difficult task requiring multiple expertise and with almost irreversible choices, given the lifespan of the infrastructure which is estimated at 100 years on average and the average of concessions duration which is around 25 years.

1. Role of Container Terminals and Seaports

Ports and Container Terminals are a link in the global transport chain that ensures the transition from a maritime mode of transport to a land-based transport mode, or even another maritime mode via transshipment between services.

Before starting the design, development and implementation of a container terminal within a port boundary, it is necessary to clearly identify the functions and services that the port management wishes to see being provided by this port in the short, medium and long term.

We must therefore ask ourselves the 3 essential questions:

- *A port, to handle what type of goods? (Containers, Bulk Liquid, solid, RORO, ...)*
- *A Container Terminal to ensure what type of traffic? (National, Transshipment, Transit or Mixed)*
- *A Container Terminal with additional handling capacity of XXX TEU's per annum by year DDDD*

From the answer to these questions will emerge the overall context of the project which will become the ultimate guide for the designer and the project team.

2. Container Terminal Design Principles

The regional and global economic, competitive and environmental requirements in the



In-depth knowledge of the functioning of container terminals, their technical and operational specificities as well as the port management mode are crucial elements for the port designer, because without understanding these fundamental internal operating mechanisms, the design may not meet the functional and operational requirements. Any correction of design errors after construction starts or after the contract has been awarded to a construction company tend to generate significant additional costs, extended lead time for execution leading to delayed go live measured in months, as well as risks of descopeing or compromise on the quality of the build.

The number of factors to be taken into account in the design of a container terminal are extremely high and covers a wide variety

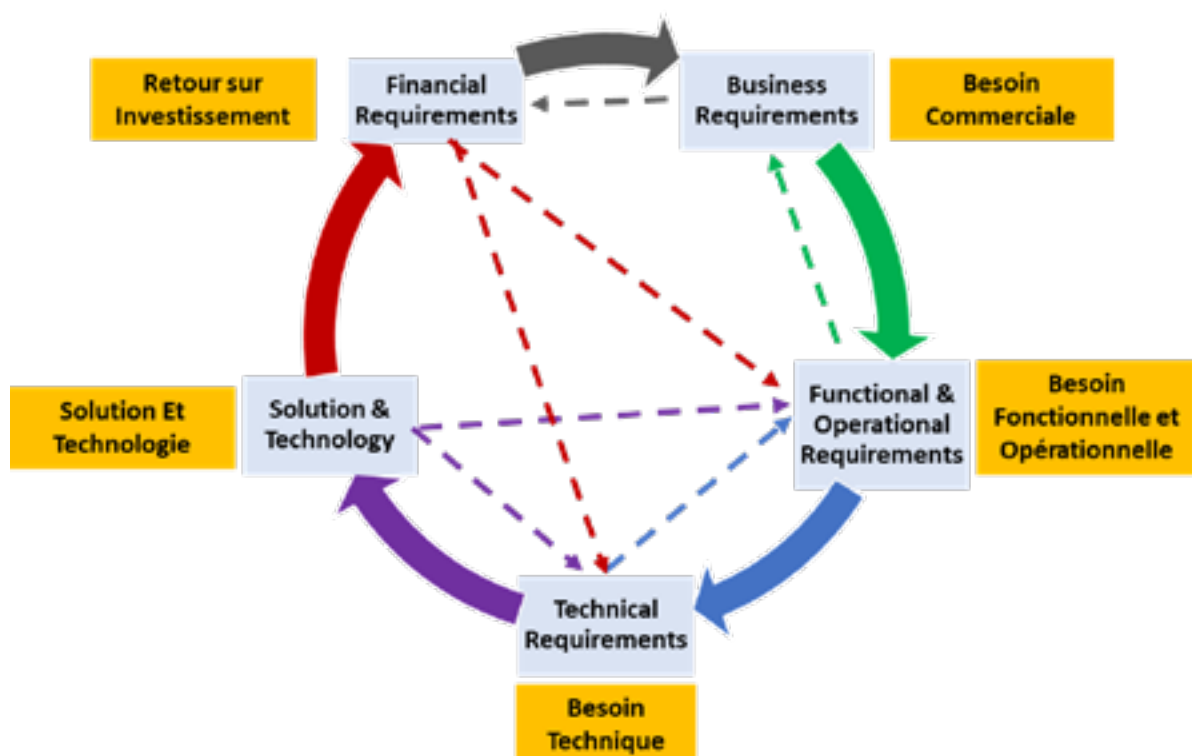
of areas. In order to organize them and thus facilitate the conclusions to be drawn, it is quite appropriate to carry out a SWOT analysis of all the project's attributions and its criteria.

SWOT is the acronym for "*Strengths, Weaknesses, Opportunities, Threats*" which is a powerful strategic analysis tool in infrastructure development policy. large scale which allows the mapping of Opportunities and Threats as well as determining the points of attention.

The design of a container terminal must follow the business development cycle as illustrated in the diagram below, this methodology is often followed by project development teams, it allows constant feedback of experience and requirements while ensuring the improvement of the design.

maritime sector leads to the design requirements for a sustainable container terminal infrastructure, capable of ensuring future growth over time, taking into account the scarcity of port spaces, the development costs, the external competition while maintaining the environmental standards and social requirements.

The design involves a multitude of studies and multidisciplinary teamwork within a well-defined timeline, to meet business, operational and strategic needs.



As shown by the business development cycle above, the multidisciplinary studies are executed in a well-defined chronology, which aims at a progressive and complementary compilation of the needs and requirements of the future port management team as well as the establishment of definitions, functional needs and technical specifications (Term of References) not only for port infrastructure, but also for other transport and logistics infrastructure (access roads, connection to the motorway network, to the rail network, pipeline, etc.) necessary for proper functioning of the terminal. All the stages of the design must be carried out in sync to allow the design decisions to be integrated into the project planning.

3. Port planning

Port management is directly linked to various planning activities such as the use of resources to meet customer's needs. These planning activities can be grouped into Short, Medium and Long-Term planning.

In order to distinguish between the three categories, it is important to better understand the differences:

a) *Long-term planning* is essentially dedicated to the port designer (designer) or to the development team within the existing port, it encompasses the strategic positioning, the development

of facilities and the acquisition of equipment to face the future requests for port services. It is finalized by a master plan for the development of the port infrastructure, the plan is transmitted to the senior management or to the competent ministry for approval. This planning activity analyses the current trends, types and quantities of ships and cargoes served by the port and establishes a forecast of future demand for port services that will become the basis for future development. Since new facilities require significant time and capital to be developed, the long-term planning horizon is generally between 10 to 25 years; to facilitate future extensions of the port, it is also essential to take appropriate measures such as the acquisition or control of the lands surrounding the port to secure future growth opportunities.

b) *Medium-term planning* is generally undertaken by the terminal management, it therefore constitutes a methodology of management, it includes two types, financial and strategic planning.

i. *Financial planning* involves adapting to potential changes in costs and revenues by modifying resource allocations to meet projected demand. It is carried out each year as part of the annual budget cycle. This activity extrapolates from the previous year's income and expenses and

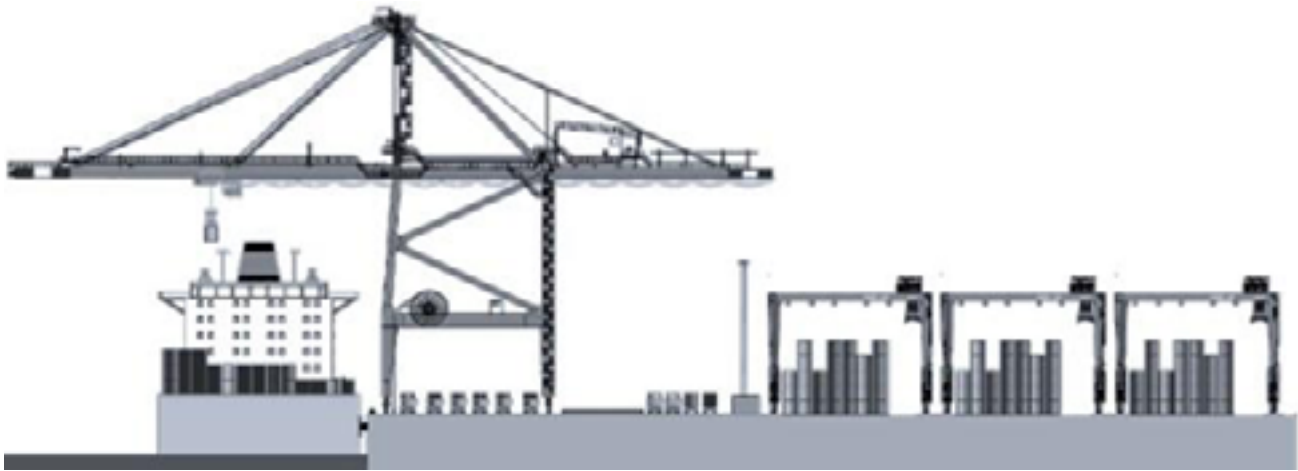
makes adjustments where major changes are expected. This is done with varying degrees of sophistication in all ports, regardless of their size and the markets they serve.

ii. *Strategic plans* are prepared every two to five years but reviewed annually. In these plans, existing port resources are allocated to different activities in order to meet specific objectives. Financial and strategic planning focuses on the allocation of the port's existing resources as well as resources to be acquired in the medium term.

c) *Short-term planning* is the responsibility of the operations/execution teams, it involves the current allocation of port facilities, equipment and manpower to meet the needs of ships and cargo in the port. The planning responds to the short-term needs of port users. The purpose of this planning is to ensure efficient handling operations, quick turnaround of vessels and reasonable levels of use of assets, equipment's and manpower.

4. The feasibility Study of a project

Before launching the project, a series of multidisciplinary analysis and feasibility studies will have to be undertaken to cover the different aspects of the port business.



- *Commercial feasibility or market study.*
- *Operational feasibility or Operational study.*
- *Technical feasibility or technical studies.*
- *Financial feasibility or financial study.*
- *Economic feasibility or economic study.*

- *The type (s) of cargo and their split % ;*
- *Future Volume forecast and Growth rate ;*
- *The vessel types calling the terminal as well as the Design vessels that the port is intended to serve safely. (Draft, Air draft, number of containers under and on deck.) ;*
- *Development of a master plan, completed by variants and by subsequent phases according to the law of supply and demand and taking into account disturbances that one terminal can cause to another (noise pollution, Pollution by debris and particles, Odour pollution, etc...) ;*
- *Development of a traffic plan and segregation of the various flows in order to reduce the effect of a congestion in one terminal on the Traffic of neighbouring terminals ;*
- *Planning and optimization of space usage in order to reduce the terminal foot print ;*
- *Identify the availability of*

local labour, the availability of graduating students and the establishment of a training strategy and continuous improvement ;

- *Static Operational numerical modelling and advanced dynamic simulation to estimate capacity, equipment needs, utilisation, operating expenses, capital Expenditure, container flows by type of transaction, human resource requirements.*

5. Operational feasibility & Analysis

The operational nature of the container terminal which is comparable to a subset of production systems all linked to each other through a chain of command and chronology (input / output), the operational feasibility studies follow the same principle of input and output where several aspects must be addressed during these studies, including those relating to:

- *Identify of the natural environment of the site ;*
- *Identify the planned traffic in terms of tonnage and TEUs ;*

The aim of the operational feasibility studies is to identify the real needs and to propose adequate solutions for the design of modern container terminal, efficient, adapted to the current economic climate and ready to meet future needs (Scalable).

6. Definition of the Operational mode

The definition of the operational mode and the selection of the related infrastructure must

imperatively be based on the results of the analyses and the operational feasibility. the selection of the operational mode must be carried out on the basis of the best compromise between the various requirements and constraints, such as the availability of land and berths as well as the key performance indicators of a Modern Container Terminal such as the Gross Moves per Hour per equipment, the throughput per meter of quay, the throughput per hectare, the operational cost, the annual treatment capacity, etc.

7. Technical studies

Technical studies are the second step in the feasibility analysis of a project. They represent a prerequisite in the sense that they lay the first foundations of the project. However, they are required to evolve according to the various information and feedback from operational and financial

requirements that will be received throughout the preparation of the project. They should provide clarification to a set of technical questions such as:

- **Study and geographic feasibility**
- **Topographic study**
- **The bathymetric study**
- **Hydro-sedimentological modelling**
- **The current study**
- **The seismic study**
- **The study and technological feasibility**
- **The environmental feasibility studies**
- **etc.**

Beyond the specialized studies above, the technical studies also cover what the product consists of? What are the necessary means to execute the construction work and meets operational and financial expectations (quality, cost price), define the national or international standards and

regulations to be adopted, etc. The technical studies cover the following stages :

- ***Description of the production process***
- ***Define the capacity and level of production***
- ***Identify the needs for means of production***
- ***Define the Locations and Building Requirements***

Technical studies make it possible to better define the project and to move from an idea to something more concrete and better controlled. It is not an independent step since it is influenced by the results of financial and operational studies, which may lead to more or less significant technical changes. This study will therefore initially be in perpetual change to be more and more defined and precise as the analysis of the other feasibility studies of the project progresses.

Conclusion

The container terminal Design involves a multitude of studies and multidisciplinary teamwork within a well-defined chronology and timeline. With four major focus

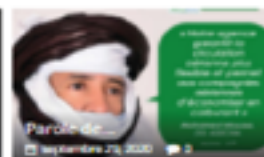
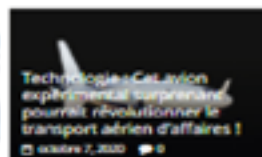
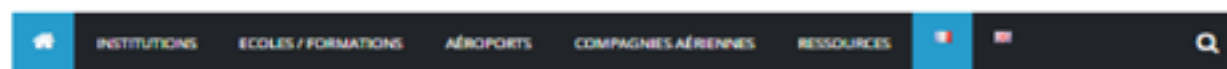
- a) In-depth understanding and knowledge in the operation and management of container terminals*
- b) A Detailed feasibility studies and analysis, conducted with thoroughness and discipline, in order to highlight the requirements as well as the risks and constraints of the project.*
- c) A functional, versatile and flexible design capable of meeting future needs and changes.*
- d) Staged development to meet future needs and market changes.*

Jeudi, décembre 3, 2020

Récents

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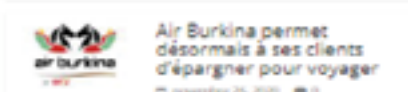
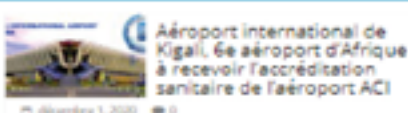
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Created in 1992 as part of the continuous training program in the field of maritime transport and ports, launched in 1979 by UNCTAD (United Nations Conference on Trade and Development) and UNDP (United Nations Development Programme), the Centre Trainmar de Dakar (CTD) welcomes today learners from Senegal and from several other African countries: Benin, Congo, Togo, Guinea, etc.

Over the years, it has become a center of excellence that trains new students as well as professionals seeking to improve their skills.

MISSION OF THE CENTER

At its inception, the CTD's mission was to promote the maritime, para-maritime and port sector, by improving the qualification of executives and supervisors involved in the management and organization of maritime activities in Senegal.

It should meet the training needs of all operators in the maritime transport sector of Senegal and related activities.

To accomplish this mission, which now exceeds the sole Senegalese territory, the center uses all appropriate means to :

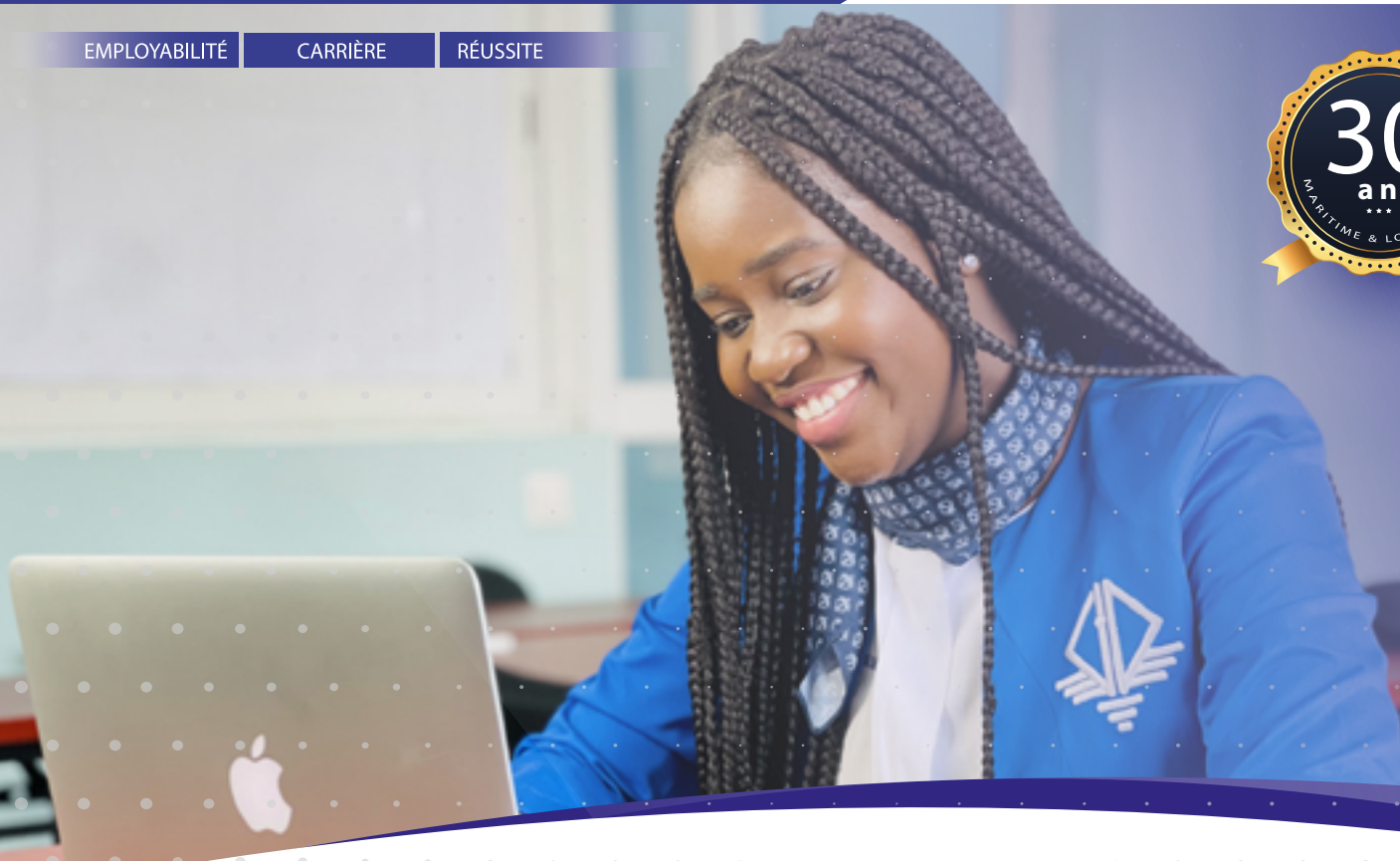
- *Propose and implement a training policy for users of the maritime transport sector ;*
- *Develop and implement a program of seminars and training workshops that meet the specific needs of operators in the sector ;*
- *To ensure the training of training managers, designers and instructors in sufficient numbers ;*
- *To develop with other TRAINMAR network centers around the world, exchange and cooperation relations in the field of training.*



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- Gestion des Opérations



Job



Discovering the job of RTG Operator with Mrs. Mariam DIABATE in service at Abidjan Terminal in Ivory Coast

**Interviewed by
Pascaline ODOUBOUROU**

1. Introduce yourself to our dear readers, please ?

My name is DIABATE Mariam of Ivorian nationality. I work as a RTG Operator in Abidjan Terminal in Côte d'Ivoire. I have an A'Level+2 in Maritime Transport and Logistics that I had to perfect by obtaining a Master in Logistics Engineering.

2. When you were a child did you dream of becoming a Park Gate Operator (RTG) ? If not, what was your childhood dream ?

When I was still a child, I dreamed of working in the field of Transit, international trade. Although I didn't know exactly what it was all about, I wanted

to do it anyway. After the A'Level, I joined the ARSTM in Abidjan in its school of maritime transport and logistics (ESTM) where I specialized in Transit, Consignment Armement and there I say it is exactly what I want to do.

3. What does the job of RTG Operator involve ?

The job of RTG operator consists in carrying out the operations of: loading, unloading, reception, delivery, transfers of containers on the park.

4. What made you decide to do this job ?



Job



5. What are the diplomas and/or qualifications required to work as an RTG Operator ?

The diploma is of A'Level+2 and thereafter carry out a complementary training for this position.

6. What are the challenges (difficulties) you face especially as a female RTG operator ?

The challenges are usually the stereotypes of some men and even women.

7. What do you like most about this job ?

What fascinates me in this job is that from the height of 18 meters, to be a major player in the satisfaction of all stakeholders in the supply chain of containers.

8. A word to your young sisters who wish to practice the same profession as you ?

Bravery, self-sacrifice at work, and not listening to bad things. We have the same capacities as the people who allow us to stand out.

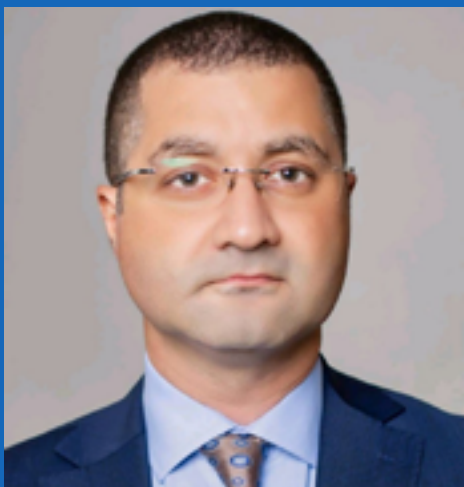
So, let's go for it and have an optimistic vision.

Abidjan terminal being specialized in the port handling of containers, I wanted to add another string to my bow to diversify my skills.



Vox pop

The contribution of the implementation of the AfCFTA for the African maritime transport



Ziad Hamoui,
National President - Ghana,
Borderless Alliance

“ Indeed, AfCFTA has a significant impact on African economic development, by offering the opportunity to boost intra-African trade.

But to realize this potential, we need to enhance intra-African transport by improving Africa's connectivity by air, road and sea.

Specifically for maritime connectivity, what we need is a common framework for African

short sea shipping (cabotage), instead of the current situation where a few national and regional different policies exist.

AfCFTA is currently finalizing its protocol for trade in services, which includes transport as one of the priority industries for the state parties.

Let us hope that they conclude by liberalizing access to transport services in the various modes of transport.



Vox pop



Achil YAMEN, Expert in transport and international trade, Doctoral student in Law, IRJS, University Paris 1 - Panthéon Sorbonne, Deputy Director of Training and International Cooperation - CNSC

“Today, about 70% of international trade is based on global value chains and the trend is growing with the advent of regional free trade agreements that seek to build development strategies based on regional value chains.

The latest one that stands out with the largest number of member states for a population of nearly 1.3 billion and a combined GDP of USD 3.4 Trillion is the Agreement Establishing the African Continental Free Trade Area. Adopted in 2018 and entered into force in 2019, the AfCFTA has only been operational since January 1, 2021, due to the Covid-19 crisis.

The AfCFTA is a flagship project of the African Union's Agenda 2063, whose objective is to create a single market that will increase the current volume of trade on the continent to more than 16%.

If the first challenge of regional trade lies in the difficult complementarity in the regional value chain, the other constraint that could take precedence over the first is logistical, as it is true that it accounts for nearly 60% of the cost of the goods. The optimization of these costs requires the use of affordable modes of transport for shippers, such as maritime transport.

Indeed, maritime transport contributes to the routing of nearly 90% of goods in the world. This position will be further strengthened by the recent decline in ocean freight rates, which will have peaked in the midst of the Covid-19 pandemic.

The rise in ocean freight rates driven by the scarcity of containers had caused major disruptions to shipping on the continent.

In its search for benchmarks, intra-African trade will have no choice but to rely on maritime transport, which is the backbone of international trade, especially since even countries without a

coastline depend heavily on the sea for their foreign trade.

For the time being, it is established in Africa that road transport is the locomotive of intra-African trade development, according to a study by the United Nations Economic Commission for Africa (UNECA).

However, the infrastructural and procedural bottlenecks faced by stakeholders in this mode of transport make it necessary to accelerate integrating projects such as the Trans-African Roads or the PIDA project in order to take full advantage of road freight transport, especially since the trade infrastructure deficit on the continent is estimated at more than USD 100 billion per year.

However, another ECA study suggests that the AfCFTA could double the volume of intra-African maritime trade from 58 million to 132 million tons by 2030, provided, of course, that a number of projects are implemented to provide the continent with competitive ports, multimodal transport infrastructure, regional shipping lines with hubs on the continent to facilitate regional services, etc. It is only at this price that the connectivity index of regular maritime transport on the continent could improve and



Vox pop

increase maritime connections on the continent.

Africa can count on organizations such as the Maritime Organization of West and Central Africa and its network of specialized bodies to carry the maritime sector development policy from the sub-regional level to the continental level. The Protocol on Trade in Services of the AfCFTA Agreement provides for some criteria to be taken into account for maritime transport, including registration, chartering and other conditions.



Anab Abudu, Executive Director, African Landlocked Countries Research Centre

“Transport is one of the key sectors that plays crucial roles in achieving the goals of poverty eradication and sustainable development and is not only linked to but also influences developments in other sectors of the economy.

According to the UNECA, the AfCFTA is not only expected to boost intra-African trade in goods and services by up to 25 per cent by 2040, it also estimates that the effective implementation of the agreement is expected to increase intra-African trade in transport services by nearly 50 per cent.

While road transport is the most dominant mode of motorized transport in Africa, accounting for 80 per cent of the goods traffic and 90 per cent of the passenger traffic on the continent, maritime transport remains the dominant mode of transport for moving freight from and to Africa, accounting for over 92 per cent of Africa's external trade. .

UNCTAD's 2022 Review of Maritime Transport reports that Africa's maritime trade in 2021 accounted for 6.9% of total goods loaded and 5% of total goods discharged; amounting to 1.3 billion tons. Even though this is a 5.6% increase over the 2020 figure, it is also testament of the continent's low share of global trade.

The expected increase in intra-regional trade must be complemented by investments in port infrastructure and facilities to create efficient ports and reduce trade costs for traders to realize

the full gains of the FTA.

African maritime trade is heavily reliant on foreign-owned ships even though as of 1 January 2022, the top three flags of registration in terms of dead-weight tonnage and commercial value included Liberia. Notwithstanding this, these vessels are foreign-owned, and their commercial deployments as well as 'commanding heights' of the supply of shipping services are also not in the hands of Africans.

Apart from having a limited fleet capacity, Africa is the region with the oldest bulker, container ship and oil tanker fleets and environmental standards and regulations could make it even more difficult for the few owned vessels to be competitive.

Therefore the AfCFTA presents great opportunity to promote the establishment of African owned private, national and regional shipping lines to serve the continent's trade in line with the objectives of the African Maritime Charter. It is also another opportunity for Africans to take a more controlling interest in the supply chain of shipping services.

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marine governance at the University
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Host:
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généralistes / Spécialiste des infrastructures
aéroportuaires, Développement des Ports

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BlueNose uses AI to improve the aerodynamics of container ships and reduce their fuel consumption

BlueNose is a young start-up aiming to reduce fuel consumption in global shipping.

BlueNose designs, thanks to its algorithm, optimized aerodynamic shapes to be installed at the front of container ships. This solution reduces air resistance (aerodynamic drag) and therefore fuel consumption by up to 5%.



It is the promulgation of the IMO 2020 law (International Maritime Organization) that accelerates the creation of the start-up. The law obliges ship owners to reduce their sulfur oxide emissions from 3.5% to 0.5%. Most of them are then forced to turn to a fuel that is less polluting in terms of sulfur

oxide emissions, but also significantly more expensive. This law has caused a real earthquake in the industry, as it has led to an increase in operating costs of up to 45% in some cases.

As a result, there is a strong demand from the industry for solu-

tions to reduce fuel consumption. This trend is expected to increase with the implementation in 2023 of the CII (Carbon Intensity Indicator) which is a rating system for the carbon footprint of ships. Vessels with a poor rating could be banned from sailing.





Startup



The management team is now composed of three members Léon Grillet (co-founder), Prof. Elie Hachem (partner), Joë Sangar (co-founder).

The start-up is looking for new collaborators to meet its growth ambitions and attack a market estimated at more than 10 billion dollars. It is currently supported by institutions and companies such as AETS (Africa Energy Transition Services), Imperial College London, Ecole Polytechnique and IBM.

BlueNose has identified the African continent as one of the strategic regions for the deployment of its solution.

In this context, the startup won first place in the African Next Entrepreneur competition organized by the African Business Club in June 2022.

In this context, the startup is looking for local investors who will allow it to navigate within the local industrial fabric.

If you are interested in the project or you know people who could be, please contact the startup (BlueNose Technologies) or the members of the management team on LinkedIn.

 [Joë Sangar](#)

 [Leon Grillet](#)

 [Elie Hachem](#)



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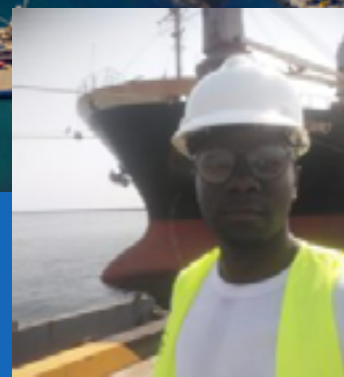
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IMPACT OF CLIMATE CHANGE ON PORT INFRASTRUCTURES



by **Aubin Médard MFOU'OU AWANA**,
Geologist, Engineer in integrated management of coastal and marine environments

According to the United Nations, “climate change” refers to variations in temperature and weather conditions over the long term. It is the term to be used when referring to the influence of factors other than temperature increase (RABENKOGO N., 2012).

According to the 2021 report of the Intergovernmental Panel on Climate Change (IPCC), many of the changes noted are unprecedented in thousands or even hundreds of thousands of years, and some phenomena already underway, such as the continued rise in sea level, are irreversible over hundreds or thousands of years. The IPCC in 2021 highlighted the anthropogenic drivers of warming and alerted policy

makers and the public to the urgency of addressing this challenge. Given that more than 80% of the volume of world trade is transported by sea, international maritime transport and ports are essential links in global supply chains and play a key role in the ability of all countries, including landlocked countries, to access global markets (UNCTAD,¹ 2019).

For example, seaports in developing countries account for more than 60 percent of global cargo loaded and unloaded, reflecting the intertwining and interdependence of economies at these key transport nodes and networks. While they are catalysts for growth and economic development, they are now increasingly vulnerable to the

impact of climate change. This is particularly due to their location in coastal, low-lying and delta areas (UNCTAD Secretariat Note, 2020).

The impacts of climate change on port infrastructures could thus be of several kinds, depending on the type of port, infrastructure, or environmental issues in which they are located. These impacts would result from climate and anthropogenic changes in marine and coastal environments.

¹ United Nations Conference on Trade and Development

I. Ports and port infrastructures

1- The Ports

A port is a man-made infrastructure, located on the sea coast, on the banks of a lake or on a river, and intended to receive boats and ships. On the other hand, there are dry ports installed in addition to a seaport or river port as a port parking lot connected to a land-based infrastructure allowing storage of small units, such as sailboats, as well as transfers to rail and road networks.

A port can fulfill several functions, but first and foremost it must provide shelter for ships, especially during loading and unloading operations. It also facilitates refueling and repair operations. It is a place to stay. Unlike an anchorage or a harbor, which generally consists of a roadstead protected from the prevailing winds and waves by the land, a port is protected by one or more dikes or moles. It can be composed of several docks², parts isolated by dry or floating docks. It may require dredging in order to maintain a sufficient depth.

The port itself is developed with piers, wharves, pontoons and must be connected to other means of transport (road, rail, etc.).

1.1- Types of ports

Ports can be classified according to their location, status and activity(ies). According to their location, we distinguish between seaports, lake ports, river ports and dry ports.

- **Seaports** : They are located on the coast of a sea or ocean. They are often the main ports for a country with a maritime façade, receiving the largest tonnages. These ports need more protection from waves and wind because of their exposure. According to ESPO³, in 2007 European seaports handled about 3.5 billion tons of cargo and about 350 million passengers per year.

Seaports handle almost all the freight involved in foreign trade and half of that involved in domestic trade. Many seaports are traditionally located at the bottom of estuaries or rias, at the point where there is a break in the load between maritime navigation and other modes of transport (including river navigation if the river is navigable further upstream), giving rise to important bridge towns, since it was at the bottom of the estuary that the last bridge over the river was located before modern technology made it possible to build bridges further downstream.

However, these estuary bottom

ports are often unsuitable for modern maritime navigation because of the shallow draught and narrowness of the navigable channels that allow the estuaries to be navigated upstream, hence the creation of outports, usually located at the entrance to the estuary or next to the delta, which can accommodate large vessels with a deep draught, in particular oil and mineral tankers, but also container ships, cargo ships, etc.

- **River ports** : River ports, or inland ports, are public or private. They are located on the banks of a river or canal (quayside, possibly with an inland waterway), often built on a dead end, a diversion or a natural widening of the waterway to prevent the current from interfering with port activities; some river ports are created artificially by digging out the land to create basins accessible from the river or if they are built on the banks of entirely artificial canals (they are not canalized rivers). The very large river ports are often near the mouths of large rivers, accessible to ships coming from the sea (small cargo ships, sea-going barges, small coasters).

They are therefore also considered to be seaports if they receive both river and sea vessels. Various sea ports have one or more docks connected to the waterway network by a lock. The distinc-

² A dock is a rectangular basin intended mainly for the berthing of cargo ships. In large industrial port areas, docks are separated by piers or jetties and are located at the end of the access channel.

³ The European Sea Ports Organisation is an association of the management and administrative authorities of European seaports.

tion thus becomes difficult near the mouth. More or less inter-modal depending on the quality of their connections with the road, rail, air, bicycle and tourist networks, they are “important nodes in the transport system”.

- **Lake ports** : They are located on the edge of a lake. While they are not subject to the vagaries of tides, waves can be a problem on large bodies of water. Lake ports include small marinas, but also commercial ports, such as on the North American Great Lakes.

- **Dry Ports** : Relatively recent (first introduced in the 1960s in the United States), dry ports allow for onshore storage of small vessels such as recreational sailboats and yachts. These ports are located near a marina or at least a slipway.

2- Port infrastructures

Port facilities include basins with sufficient draft, bordered by quays generally equipped with fenders⁴ and secure platforms, handling equipment (cranes, gantries, etc.), night lighting, bunkering stations⁵ and freshwater delivery stations, jetties (a rigid structure built to extend into the sea, a lake or a river), breakwaters and an electrical network (high voltage in large ports). The entrance channel is marked out.



Photo : Nampont, Port of Walvis Bay

The infrastructures are linked to their hinterland by communication routes.

Since the 1990s, each major port has also had a digital infrastructure superimposed on it, which is becoming increasingly important for the management of flows and security in particular (Laurence Bottero). As soon as a port reaches a sufficient size, a certain number of ship infrastructures and services are based there. They are not part of the port's traffic but are used for various port operations. These include:

- *dredges, of different types depending on the nature of the bottom and the area to be covered (trailing sling, bucket dredges, etc.); they are used to maintain a sufficient depth in the port and access channels, despite the addition of sediment due to rivers and currents. The extracted materials are transported by a tide*

gauge⁶ ;

- *pilot boats used to bring pilots on board commercial ships arriving in port. In medium-sized ports, there are a few pilot boats operating from the port; in large commercial ports, there is sometimes a large ship in the landing zone housing the pilots, from which the pilot boats depart;*
- *harbor tugs which are used to help large ships maneuver during docking and turning operations;*
- *supply ships: there are notably oil tankers to fill the bunkers, and various barges to*
- *bunkers, and various barges for bunkering when this is not done from land. The lightering barges are used to transport goods between the quay and the ship, but are no longer used;*
- *Beaconing: the entrance to a port must be identifiable by day and night, and by non-*

⁴ A fender is an element used by boats and ships to protect themselves from contact, either between the hulls of two boats or between the boat's hull and the dock.

⁵ Operation consisting of taking bunker oil or “bunkers” on board a ship.

⁶ A sluice is a barge designed to receive mud and sand extracted by dredging.

visual means in fog (radar, foghorn...). The marking is based on natural landmarks, buoys or beacons using the lateral or cardinal system, lights and lighthouses.

Services to ships, cargo or passengers are also added to the list of port infrastructures. We could thus have in the ports :

- *In those areas deemed difficult, and in order to prevent groundings and collisions, the presence of pilots on board vessels may be made mandatory for certain vessels. This obligation is set by the State and according to specific criteria (length, tonnage, ...). Marine pilotage is an assistance given to the captain of a ship to advise him on the maneuvers to be carried out in difficult passages such as narrow waters, channels and harbor basins, or to navigate on a difficult seaway such as the St. Lawrence River in Canada, or the Rio de la Plata, between Uruguay and Argentina;*
- *Towing: is a technique in which a boat or a vehicle without means of propulsion is pulled by another to which it is attached. At sea, it is usually used to move vessels with propulsion failure or non-motorized floating structures, such as oil platforms or barges;*
- *Boatage refers to operations to assist in mooring and releasing ships on their arrival,*

departure or also their movement (deballasting: change of berth) inside ports. As the ships' crews were limited and busy, it was necessary to create a shore-based service. The stevedores are sailors specialized in ;

- *Stevedoring is all the operations of loading and unloading of merchant ships in commercial ports;*
- *Storage, guarding, pre- and post-carriage;*
- *Shipping terminals, shopping malls, access gangways, parking lots.*

II. Impacts of climate change on port infrastructure in estuarine environments

The term estuary refers to a low relief surge. The mouth of a major river that flares out downstream, and into which the tide quietly enters. An estuary has the particularity of having three components (the land, the sea and the river). It is an advantageous and privileged route of penetration because it allows to reach the interior of the land at lower cost (Laborde, 1998). The large French estuaries, because of their position as an interface between continental and marine waters, as well as the low altitude of their alluvial plain, are among the coastal areas that are expected to suffer significantly from the consequences of climate change (Day et al., 2008).

The impacts of climate change on estuarine infrastructure are driven by several meteorological and oceanographic parameters (precipitation, high temperature, tide, winds, waves and swells). Among these impacts we can mention :

1. Hydro-sedimentary changes

According to forecasts (IPCC, 2007, 2019; Robins et al., 2016) the influence of climate change in estuaries will be manifested mainly at the hydro-sedimentary level with a modification of the sea level, of the storm regime downstream, and a change in liquid and solid inputs upstream.

These hydro-sedimentary modifications will be at the origin of accidents of certain boats because of the blocking of the propellers of the ships in the sediments and will create additional costs for the maintenance of the channel because of the appearance of muddy plugs, This is a typical phenomenon in large estuaries due to the large inflow of fresh water and sediment from upstream, caused by heavy precipitation (climatic hazard) coupled with a large tidal spread in the estuary, carrying salt water and sediment from downstream. The hydro-sedimentary modifications cause important costs for the estuary ports for the dredging and the maintenance of the access channel to the port.

This situation leads to delivery delays due to long mooring times.

According to Onguéne Raphael, oceanographer at the University of Douala, “Cape Cameroon could disappear, because it is increasingly eaten away by water, combined with the anthropic activities of populations that destroy mangroves.

2. Sea level rise

According to the IPCC reports (2021, 2007), the rise in sea level throughout the 21st century will contribute to an increase in the frequency and severity of flooding in low-lying areas and to increased coastal erosion. Flooding due to the meeting at the same time of high tide and heavy rainfall, all this in a low-lying alluvial plain leading to periodic overflows of the river. Flooding due to the fact that episodes of extreme sea levels and precipitation that occurred once every 100 years in the past could occur every year by the end of the century. For example, in Douala, flooding occurs at least four times a year due to the uneven distribution of rainfall throughout the year combined with the intensity of rainfall over short periods of time and sometimes blocked drains.

The same report states that warming will amplify the thawing of permafrost and the loss of seasonal snow cover, the melting of glaciers and ice caps, and

the reduction of Arctic sea ice in summer. For example, Madoungou Ndjeunda’s work in 2017 emphasizes that the rise in sea level in the city of Port Gentil would pose three main problems for communities.

Firstly, the acceleration of coastal erosion, which would contribute to the weakening of buildings and to a shift in the sediment balance. Secondly, the progressive salinization of the oceans and water tables would cause problems on the duration of infrastructures (ship hulls, rusting of buoys, rusting of metallic stores). Finally, the rise in water levels would cause flooding and can create problems at the harbor master’s office (Madoungou Ndjeunda, 2017).

If it is established that the rise in sea level would lead to flooding, these floods could have significant economic consequences in the ports, with significant mate-

rial losses in storage warehouses and in the port buildings themselves.

3. Weather conditions

Wind conditions as well as frequency, duration and trajectory of storms will be modified by the climate. They will have consequences for the potential increase of swells and waves, creating instability of ships and on port operations. This includes harbour master’s office operations, ship loading and unloading operations. Waves and swells could be affected in different ways (heights, seasonal distribution, period and direction, frequency and trajectory of large waves and cyclones). These waves can cause large breakers on the infrastructures and weaken them, but also overflow the quays and penetrate the stores and many other port infrastructures. Ships will be affected according to their tonnage



and the potential impacts on port structures will be numerous (stability, crossing, changes in bathymetry). Storm surges may have a significant impact on the extremes, possibly greater than the rise in sea level. Favorable weather windows may be reduced and disrupt the mooring or waiting times of ships (heavy storms). A considerable rise in temperature over a long period of time could reduce the daily flow of water entering the estuary.

This situation combined with low tides leads to long waiting chains due to long mooring times. This situation will lead first of all to numerous losses in currency, time, and delays in the delivery of goods. Secondly, indirectly, it can lead to the invasion of so-called invasive species⁷ due to the uncontrolled propulsion of ballast water in the port basin to move the vessels. These species can cause harmful disturbances to the biodiversity of marine and coastal ecosystems, resulting in fish losses and obstructing the bed of certain rivers (this would be the case with the water hyacinth in the Nyong).

Global warming could have consequences on fisheries productivity and therefore on fishing ports by modifying the physico-chemical parameters of the spawning grounds that are the mangroves.

III. Impacts of climate change on port infrastructures in the marine environment

The IPCC report on the ocean and cryosphere, published on September 25, 2019, warns in particular about the problems posed by sea level rise. Offshore the impacts of climate change on port infrastructures stem mainly from variations in oceanographic parameters. While on the coasts and on the shoreline, these impacts are the results of energies due to oceanic parameters that originated offshore. These variations have consequences on the coasts and are increasingly accentuated by the melting of ice and glaciers.

1. Offshore

The marine environment, is the maritime area within and beyond the limits of a State's national jurisdiction. It is the totality of the natural elements and living and non-living resources of the sea. The formation of waves results from the movement of the air on the surface of the water, which causes the formation of oscillations by friction.

Due to the irregular nature of the wind, waves propagate in all

directions (Magdelaine, 2019; Konan et al., 2016). As the wind becomes stronger, a preferred direction appears.

More ripples of greater amplitude compound into ripples of greater amplitude giving additional wind grip and increasing in size. When waves have propagated over large distances outside the action surface of the winds that produced them, they are called swells (Konan et al., 2016). They then have an ordered appearance, and are quasi-regular in both height, period, and direction. Swells propagate without deformation as long as the depth is great, i.e., greater than half the wavelength (Konan et al., 2016).

As they approach the coast, they undergo strong modifications by refraction or breaking, by diffraction and reflection when they encounter obstacles. The modifications undergone at the approach of the coasts are directly related to the characteristics of the swell (period T , wavelength L , height H , direction D) as well as to the bathymetry, from which the water depth is derived.

A certain statistical analysis conducted on 25 years of swell produced showed that in deep water, the intensity of the swell was stationary over the period considered.

⁷ Alien living species that becomes a disturbance agent harmful to the native biodiversity of the natural or semi-natural ecosystems among which it is established.

However, this observation period is still too short to clearly identify trends (French Ministry of Ecology, 2007).

One of the impacts of climate change is the modification of storm regimes that condition winds and pressures, which will probably modify wave generation on the one hand, and surge regimes on the other (Konan et al., 2016). For example, the vulnerability of the Port of Long Beach in California was highlighted in August 2014, when storm surges from Hurricane Marie hit the southern California coast damaging the port. The Xynthia storm that swept through France on the night of February 27-28, 2010, caused the death of 53 people and was a turning point in the understanding of the risk of flooding. Several factors led to this disaster (episode of violent winds, storm surge, high tidal coefficient, high sea) creating a sudden and very strong marine submersion on the departments of Charente-Maritime and Vendée.

In view of the examples and explanations we have just given, we can understand that even in the open sea, extreme weather conditions can have repercussions:

- *strong winds and storms can directly create accidents of ships (LNG tankers) at sea by reversing them creating many losses of human life and material and therefore economic.*

Example of an accident of a ship flying the Italian flag occurred in France on March 10, 2019, it was carrying nearly 365 containers and hazardous materials;

- *These same conditions can modify the maritime lines of ships creating collisions between ships on the corridors and consequently losses in human life, material and economic, especially since on the high seas the intervention times for rescue are long and difficult.*

Indirectly, variations in these parameters would lead to :

- *delays in the delivery time of goods and economic losses;*
- *unplanned berthing and stopovers of ships, thus creating disruptions in navigation and economic losses;*
- *marine pollution (oil spills) linked to oil tanker accidents that will spill hydrocarbons into the ocean during accidents, resulting in losses to marine biodiversity that can last for generations;*
- *accidents in offshore oil extraction companies resulting in numerous economic losses and losses to marine and coastal biodiversity;*
- *silent pollution due to ballast water and sediment dischar-*

ges from ships, which can lead to losses in marine biodiversity and fisheries;

- *disruptions in loading and unloading due to the fact that the stability of ships travelling at sea must already be taken into account;*
- *global warming could have consequences on fisheries productivity and therefore on fishing ports by modifying the physico-chemical parameters of the oceans and therefore the spawning grounds and migration areas of certain species.*

2. At the coast

The coastal environment seems relatively complex because it is often linked to the sea. The difference between the coastal zone and the coastline is not always clear. The coast is the strip of land bordering the sea, while the littoral is the stretch of land along the coastline at the edge of the sea or the area of contact between land and sea. At the coast, the impacts would come not only from the rise in mean sea level and its consequences, but also from the induced consequences of the physicochemical parameters of the ocean.

This rise will have little impact on swells propagating at great depths, but a strong impact on those propagating at shallower

depths at the coast (Konan et al., 2016; WANG X.L., SWAIL V.R., 2004). The change in sea level, and depth, indeed play a significant role in the propagation of swells ((Konan et al., 2016) TEISSON C., 1992).

The increase in water depth will allow, due to a lower attenuation, larger swells in height and period to reach the coast. As a first estimate for flat bottoms, an increase in mean sea level of one meter would result in an increase of 80 cm in the incident swell (Mac Cowan, 1891; Munk, 1949). This effect will be more noticeable the lower the sea level. The energy dissipated due to the physical parameters at the coastline will be much greater than before.

Before reaching the coastline, in the “shoaling” area, where the waves swell and arch under the effect of the decrease in depth, the impacts on the swells could be the following:

- *at the greatest depths, the rise in mean sea level will have little effect ;*
- *at shallower depths, the effects of shoaling will be smaller for equivalent waves. But for larger waves that can propagate, the effects of shoaling will be stronger.*

Global warming on the coast could have consequences on fisheries productivity and therefore on fishing ports by modifying

the physico-chemical parameters of the oceans and therefore the spawning grounds and migration areas of certain species.

3. Impacts on the coastline

The coastline is the area of interaction between the land and the sea. It is usually a rich area in terms of aesthetics, resources, recreational industries, tourism, fishing and transportation. The coastline is therefore larger than the coast as it extends into the immediate, coastal hinterland and shallows. If the impacts of climate change will be more important in areas subject to breaking swells, in the shallows near the coast (Le Dez et al., 2017), these impacts will be more important on the coast because of its extent on the hinterland, its direct proximity to the coast, and the diversity of issues present in this area.

Thus, in addition to the impacts already noted above, we may also have :

- *A higher energy dissipation at the coastline increasing the erosion phenomena. The rise in sea level will be accompanied by a general recession of the coastline (Konan et al., 2016) WANG X.L., SWAIL V.R., 2004; TEISSON C., 1992), leading to significant damage to structures in shallow water (defense structures, ...), destabilization due to the*

departure of sediments, damage of shells. This can also have repercussions on land disputes due to the advance of the sea towards the continent, and considerable economic losses due to the destruction of certain buildings;

- *increase of the “run-up” leading to sea crossings and marine submersions. These submersions lead to contamination of the water table, which is a source of illness for the surrounding populations. Wave-related crossing events that are currently considered exceptional could become more common, leading to stronger breaking waves reaching the coastline and causing long-term damage to infrastructure;*
- *thanks to the salinity of the oceans transported by the winds to the coastline we have problems for the maintenance of port infrastructures (ship hulls, stores, signal buoys);*
- *Global warming could have consequences on fisheries productivity and therefore on fishing ports by modifying the physico-chemical parameters of the oceans and therefore the spawning grounds and migration areas of certain species.*



The impacts will be stronger on the coasts with low tidal range, because of the need on the coasts with higher tidal range of a concomitance between the high levels of open sea and strong swells. These impacts are also a function of the density of populations and infrastructures present on various types of coastlines.

Conclusion

In sum, climate change is now a reality. The coastal municipalities, like those of Cameroon, concentrate more and more issues on their territory, which increases

the coastal risks caused by climate change.

The management of these areas is therefore sometimes difficult, especially in the current context of rising sea levels and climate change, which provides for an increase in the frequency of storms. This work can be the beginning of a general predictive analysis of the potential impact of climate change on port infrastructure.

In a context of significant population migration, it would be interesting to set up a coastal observatory to monitor and

estimate the return period of major phenomena on the Cameroonian coast with a precise determination of the factors.

Under the current conditions of rising sea levels and climate change, the management of these coastal areas becomes essential.

It is a question of re-evaluating the regulatory zoning reserved for investments and urban planning, taking into account the effects of exceptional events (storms and tsunamis) and erosion. The evaluation of their long-term impact requires an in-depth analysis of the phenomena.

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Maritime Dictionnary

Tugboat

A tugboat is a relatively small, very powerful and highly maneuverable vessel, whose essential function is to assist ships or floating craft during port entry and exit, berthing and unberthing, etc.

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Zoom



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Container ships

Container ships are vessels designed solely for the transport of containers. They are very powerful and fast.

The handling method of container ships is vertical handling or lift on/lift off (Lo/Lo).

Containers are handled by gantry cranes and mobile cranes.

At the platform level, highly mobile reach-stackers and

straddle-carriers are used for moving and stacking.

All containers have the same fastening system with corner posts on the eight corners of the parallelepiped and twist-locks on trucks, trains, ships and handling equipment.

The lifting is done from the four upper corner pieces by means of the twist-locks that engage them. This lifting can be carried out by

a multitude of machines whose common point is the presence of a rectangular frame carrying the twist-locks: called spreader.

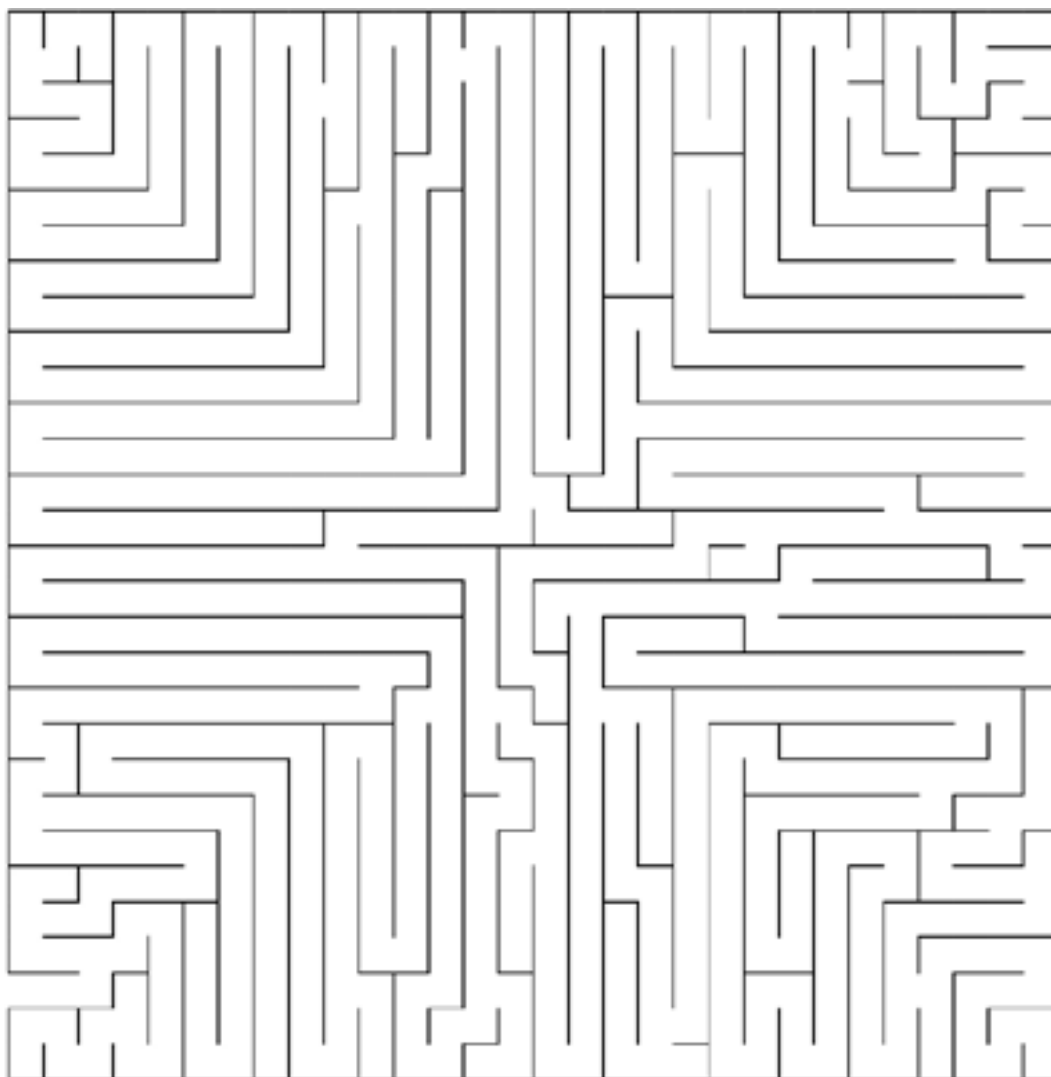
For example, in Senegal, the Dakar Port Authority (PAD), has dedicated the mole 6 for the commercial operations of these ships. Mole 6 or container terminal is managed by the giant DP World, which carries out all container ship handling operations.



Game-Fun

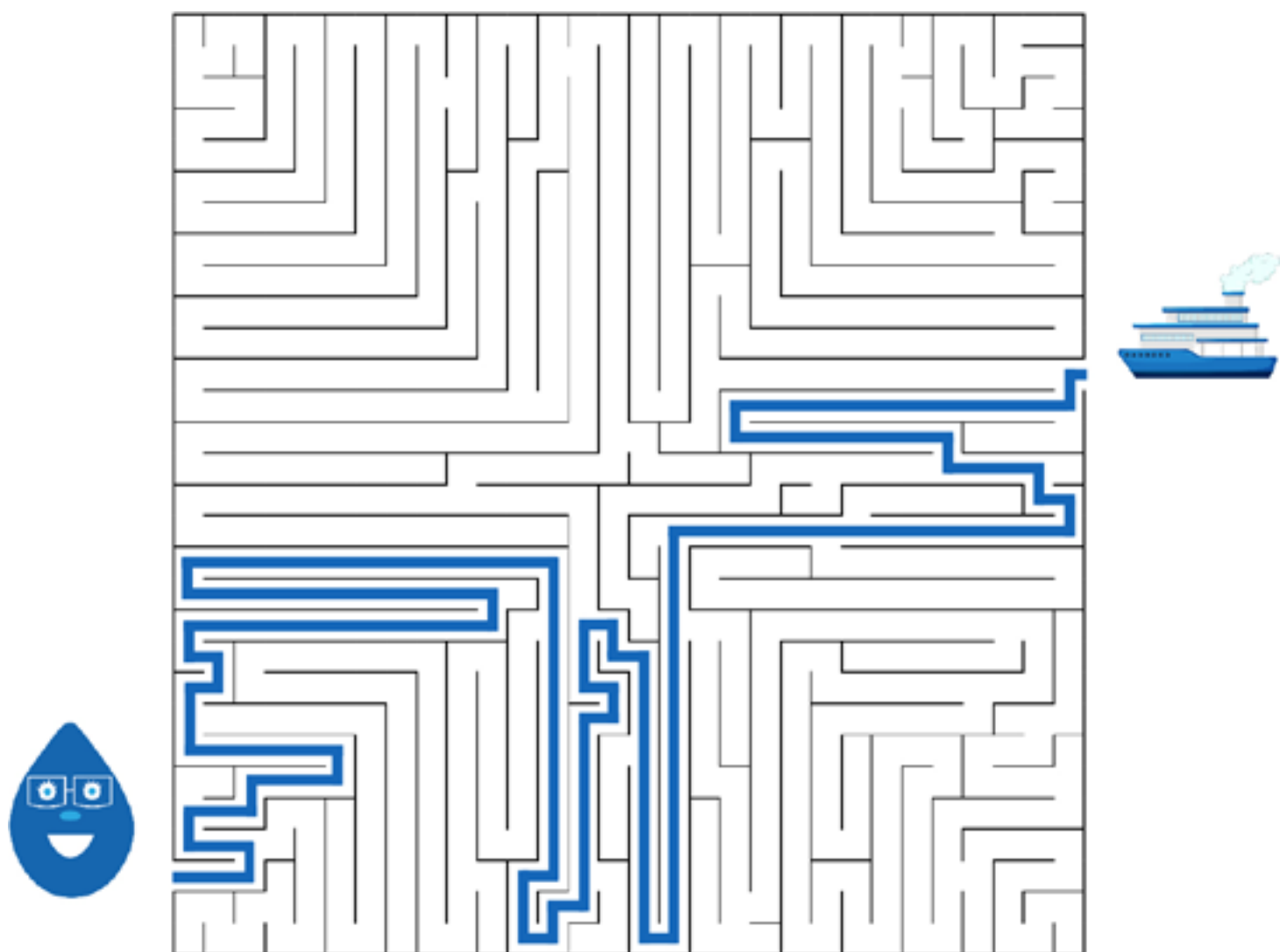
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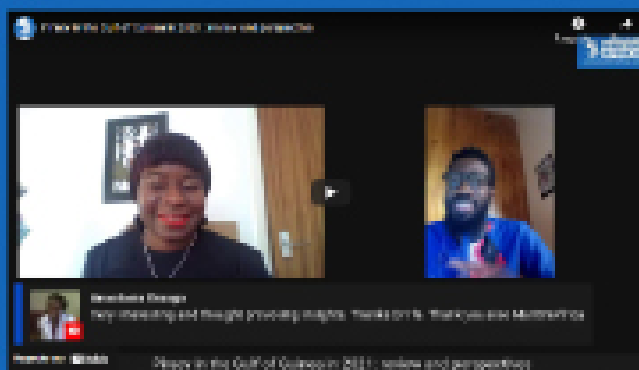
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