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Support for the development of the SADC Blue Economy Strategy and Action Plan

Final Report

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Acronyms

AEC	African Economic Community
AIM	African Integrated Maritime Strategy
AIMS	African Integrated Maritime Strategy
AU	African Union
AU-IBAR	African Union International Bureau for Animal Resources
AV	Added Value
BE	Blue Economy
BESAPP	Blue Economy Strategy and Action Plan
CC	Climate change
COMESA	Common Market for Eastern and Southern Africa
EAC	East African Community
IORA	Indian Ocean Rim Association
LME	Large Marine Ecosystem
MASE	Maritime Security
MSP	Marine Spatial Planning
NDC	National Determined Contribution
NGO	Non-Governmental Organisation
PAFPF & RS	Pan-African Fisheries and Aquaculture Policy Framework and Reform Strategy
REC	Regional Economic Committees
SDG	Sustainable Development Goals
UNECA	United Nations Economic Commission for Africa

1 Context

The SADC region is richly endowed with natural resources; however, it is also characterised by high levels of poverty, unemployment, and high population growth rates. The wealth of Southern African countries is unevenly distributed. In order to address the challenge of poverty and unemployment, the Governments of the region's Member States have invested significant resources in various sectors. Increasing investments in the agricultural and mining sector, as well as major infrastructural developments, have often resulted in land use conflicts and low investment in and financing of natural resources management such as maintenance of protected and conserved areas. The global COVID-19 pandemic further exacerbated the socio-economic challenges in the SADC region, as important economic sectors, such as fisheries, maritime transportation, air passenger and freight transport, shops and restaurants, etc., were negatively affected. In this regard, the Blue Economy Strategy and Action Plan is an important aspect of the SADC region's recovery, by guiding the efforts of Member States and stakeholders to revitalise their economy in a resilient and sustainable manner while also preserving the region's natural and social heritage.

1.1 Global and Continental Blue Economy Context

The concept of the Blue Economy (BE) incorporates a new approach, the sustainable economic exploitation of the resources of the oceans, lakes, rivers and other water bodies, and the conservation of aquatic ecosystems (UNECA, 2016; AU, 2019)[1]. It suggests a new way of considering the economic valuation of aquatic and marine ecosystems, and the creation of jobs by referring particularly to circular economy principles[2] (see definition in box below). This concept constitutes a new basis for the use and conservation of natural resources and habitats. In this regard, the BE accommodates the logic of the United Nations' 2030 Agenda for Sustainable Development, and its associated Sustainable Development Goals (SDGs). It acts as a catalyst for creating a new inclusive dynamic articulated around the 17 Sustainable Development Goals[3] and in particular, SDG 14, *Life Below Water,* as well as the United Nations Decade of Ocean Science for Sustainable Development (2021-2030). To some extent, this BE prompts a collective positioning and allows to increase in the speed of realisation of the interventions.

Box 1: Definition of the SADC Blue Economy adapted from UNECA (2016) and AU (2019)

> In the SADC context, the Blue Economy (BE) encompasses both marine and freshwater environments. It thus relates to the sustainable use and the conservation of, oceans and seas, coastlines and banks, lakes, rivers and groundwater. The Blue Economy is a set of human activities that organises in an integrated, fair and circular manner the production, distribution, trade, and consumption of goods and services resulting from both the exploitation of aquatic resources[4] and from the use of supports that constitute aquatic environments[5], while contributing to improve the health status of aquatic ecosystems and people's livelihoods by implementing protective and restorative measures.

[1] United Nations Economic Commission for Africa (UNECA). African Union (AU).

[2] The circular economy is neither the waste economy nor the recycling economy. It brings together a set of practices, prioritised according to their impact, aiming at optimising the use of materials and energies. See https://www.ellenmacarthurfoundation.org/circular-economy/concept

[3] For a detailed presentation of the links between BE and SDGs, see Africa's Blue Economy: A policy handbook, UNECA (2016).

[4] For instance, fisheries, mining and petroleum, biotechnologies and alternative energies.

[5] For instance, maritime transport and coastal tourism.

The BE is also part of African policies, strategies and initiatives such as the African Union's (AU) Agenda 2063, the Africa Blue Economy Strategy (2019), the 2050 Africa's Integrated Maritime Strategy (2050 AIM Strategy), the 2014 Pan-African Fisheries and Aquaculture Policy Framework and Reform Strategy (PAFPF & RS), and the 2016 African Charter on Maritime Security, Safety and Development in Africa (the Lomé Charter).

The African Blue Economy Strategy was endorsed in October 2019 by the African Union Specialized Technical Committee on Agriculture, Rural Development, Water and Environment, and adopted by Heads of State and Government in February 2020. The Strategy recognizes that Africa's Blue Economy could be a major contributor to continental transformation, sustainable economic progress, and social development. Launched under the theme "Developing a sustainable Blue Economy; increasing momentum for Africa's Blue Growth", the Africa Blue Economy Strategy's vision is an inclusive and sustainable Blue Economy that significantly contributes to Africa's transformation and growth.

The objective of the African Blue Economy Strategy is to guide the development of an inclusive and sustainable Blue Economy that becomes a significant contributor to continental transformation and growth through advancing knowledge on marine and aquatic biotechnology, environmental sustainability, the growth of Africa-wide shipping industry, the development of sea, river and lake transport, the management of fishing activities on these aquatic spaces, and the exploitation and beneficiation of deep sea minerals and other resources. The Strategy reinforces the commitments of African countries to work towards the SDGs, particularly SDG 14 , the vision of Agenda 2063, and to accelerate the implementation of AU policies and instruments such as the AU 2050 AIM Strategy, the Lomé Charter, and the Revised African Maritime Transport Charter.

1.2 SADC Blue Economy Context

With this BE Strategy and Action Plan (BESAP), the SADC region[6] is building on several pre-existing regional strategies and protocols related to fisheries and aquaculture,[7] environmental and natural resources strategy,[8] climate change,[9] biodiversity,[10] environmental management,[11] tourism,[12] transport,[13] etc. The BESAP is also aligned with SADC's Regional Indicative Strategic Development Plan (RISDP 2020-2030), the SADC Industrialization Strategy and Roadmap (2014)[14] and SADC Vision 2050.

At the level of the SADC Member States, almost all have begun to engage in supporting the development of their national BE strategies. However, the development of appropriate, integrated policies and strategies remains uneven, with some countries more advanced than others in this respect.

Efforts to promote BE nationally are often pursued at a sectoral level, with insufficient focus on institutional mechanisms and tools for integrated governance. Consequently, the current

[6] Angola, Botswana, Comoros, Democratic Republic of Congo, Eswatini, Lesotho, Madagascar, Malawi, Mauritius, Mozambique, Namibia, Seychelles, South Africa, United Republic Tanzania, Zambia and Zimbabwe.
[7] Regional Aquaculture Strategy and Action Plan (2016-2026)
[8] Green Economy Strategy and Action Plan; Protocol on Environmental Management for Sustainable Development (2017)
[9] SADC Climate Change Strategy and Action Plan
[10] Regional Biodiversity Strategy (2006); SADC Biodiversity Action Plan (2013)
[11] Protocol on Environmental Management for Sustainable Development (2017)
[12] SADC Protocol on the Development of Tourism (2008)
[13] Regional Infrastructure Development Master Plan: Transport Sector Plan (2012)
[14] The SADC Industrialization Strategy and Roadmap (2014)

approach for most countries remains compartmentalised with little intersectoral consultation and articulation between the needs of the different sectors, and education and research. As such, what is presented resembles a standard policy for the development of the various sectors of the economy linked to the aquatic environment rather than an innovative policy based on unifying initiatives able to improve human well-being and the conservation of marine and aquatic ecosystems.

A further shortcoming of some approaches to the BE in the region is an inadequate focus on the environment as the source of natural capital that underpins a sustainable and prosperous BE. This includes consideration of the multiple drivers of ecosystem degradation and environmental stressors, such as habitat degradation, biodiversity loss, illegal and overharvesting of living resources, pollution and impacts of climate change. Specifically, the environment is only considered through the prism of protection, while it will play an increasingly preponderant role in the mitigation[15] and adaptation[16] of climate change effects through the range of ecosystem services[17] it provides. For instance, the blue carbon from CO2 sequestration by mangroves, seagrass beds, kelp beds, mudflats and other coastal ecosystems must be considered in the National Determined Contributions (NDCs)[18] and as an element to value in any BE policy. Detailed accounting for blue carbon and other ecosystem services[19] should be set up in order to monitor and measure the evolution of the contribution of coastal ecosystems to carbon sequestration.

Similarly, ecosystem-based adaptation[20] to climate change to harness nature-based solutions[21] and ecosystem services should be presented in national BE policies and strategies. Ecosystem conservation and restoration are some of the main environmental issues of SADC countries that contribute to the well-being of populations and to cope with future climate change-related events; the treatment of pollution from the land and the sea (in particular chemicals, and micro- and macro-plastics) being another major issue.

Regardless of the level of progress in the formulation and implementation of BE, all countries face the same need for knowledge and capacity in the structuring of BE. The classic sectoral approach followed by many countries has led to underestimating the role of strategic coordination for the implementation of BE. Drawing from practical experiences from Member States, notably, Mauritius and Seychelles, mandating the coordination and facilitating role for the implementation of the BE to an office with oversight responsibility over ministries, e.g.

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[15] Climate change mitigation involves reducing, through natural processes or technological means, the amount of greenhouse gases in the atmosphere (IUCN France, 2016). Mitigation includes all the actions to reduce sources of greenhouse gases or to improve carbon sequestration. As an indication, it is currently estimated that natural ecosystems absorb half of the CO2 emissions generated by human activities each year. Preserving and restoring functional ecosystems is, therefore, a major issue in mitigating climate change.

[16] Adaptation involves the reduction of risks and impacts of the harmful effects of climate change (storms, floods, droughts, etc.). As for mitigation, adaptation can rely on the functioning of natural environments or technical or technological solutions. Ecosystems provide ecological services that can help human societies to protect themselves from climatic consequences (mountain forests allowing to fight against landslides, wetlands acting as a buffer against flood or drought episodes, green spaces allowing to reduce heat in the city, etc.)

[17] See https://ipbes.net/

[18] See https://unfccc.int/fr/news/registre-interimaire-ndc

[19] See in particular the setting up of the specific "Water" account in Rwanda https://programme.worldwaterweek.org/Content/ProposalResources/PDF/2018/pdf-2018-7955-8-Rwanda%20NCA%20Water%20Accounts_26%20Aug%202018.pdf

[20] https://www.unep.org/explore-topics/climate-action/what-we-do/climate-adaptation/ecosystem-based-adaptation

[21] See https://www.iucn.org/fr/commissions/commission-ecosystem-management/solutions-fondees-sur-la-nature

under the National Planning Commission, Office of the Prime Minister or Presidency, proves to be more effective. Such a coordination process aims at ensuring coherence of all BE actions[22], managing conflicts[23], inducing synergies and generating positive externalities[24].

1.3 Overview of the Main Blue Economy Sectors of SADC Countries

SADC countries have excellent BE potential. Traditional sectors such as fisheries, tourism, mineral extraction, and marine and river transport, are showing evidence of significant developmental capacities, while emerging sectors such as aquaculture, marine biotechnology and bioprospecting, desalinisation, and renewable energy, require substantial investments.

Fisheries and aquaculture – The fishery sector produces several benefits for SADC countries, including nutrition and food security, livelihoods, employment, exports and foreign currency, and conservation and biodiversity values, that are of global significance. The sector includes both marine and inland capture fisheries together with aquaculture. The potential for aquaculture in SADC countries is immense. Overall, SADC countries thus show tremendous BE potential.

Despite the consensus of this potential and that under sustainable management, fisheries can provide Africa with resources and infinitum, these resources are under threat. This is largely due to the lack of effective governance, and poorly conceived and implemented policies with limited collaboration among countries and regions. These factors have resulted in the current situation of overexploitation of many fisheries ranging from small-scale to industrial. Elements such as the open-access character of capture fisheries, inadequate or weak governance at a national level, management of transboundary resources and ecosystems, institutional weaknesses, and inadequate financial investment opportunities, have resulted in overfishing, illegal, unreported, and unregulated fishing, and a poorly developed, underutilized, and unmanaged aquaculture sector. Therefore, these factors have to be at the forefront in the development of an effective BE strategy as the current situation is negatively impacting fish stocks, the economies of SADC Member States, as well as vital food supplies and jobs.

The fisheries sector in the SADC region only contributes on average about 3.5% to the SADC Gross Domestic Product[1], with total exports in 2020 averaging US$152 million and average imports of US$100 million[2]. In total, the fisheries sector employs approximately 2.6 million people[1]. The overall capture fisheries production trends indicate that this industry has stagnated, with the entire region producing 2.92 million tons in 2020[25]. Most fisheries production, both capture and aquaculture, are however unreported, so despite the seemingly low levels of reported fish capture, stocks are still overexploited in many areas, including

[22] In particular, regarding the SDGs. In other words, the development (or maintenance) of one activity should not be at the expense of another one that has a greater overall contribution to the achievements of the SDGs. The compatibility of the actions between them is central to the implementation of BE.

[23] Conflicts related to the occupation of the same spaces for different activities (seaside hotels and aquaculture farms on the same body of water, port extension and ecosystem services provided by the mangroves, etc.).

[24] Negative externalities result from the effects of one activity towards another such as visual and organic pollution, as well as the risk of the presence of sharks generated by mariculture towards coastal tourism, or the development of touristic activities that generate pollution and nuisance towards protected areas with high biodiversity, without any compensation for the damages caused. On the contrary, positive externalities are the fact of providing to others a utility or an advantage free of charge, i.e. without monetary compensation. It is particularly the case for the protection and regeneration of the coastal environment that benefits fisheries as fish, crustaceans and mollusks benefit themselves from spawning and nursery areas before adding to the fish stock exploitable by fisheries.

[25] https://www.sadc.int/news-events/news/sadc-records-increase-fish-production

marine protected areas. Recently, SADC has experienced a steady increase in total fisheries production which was largely driven by an increase in aquaculture.

The last three decades or so have recorded a surge in global aquaculture production primarily due to the diversification of farmed species, intensification of production, technological innovation, multi-trophic integration, industrialisation and advances in genetics, nutrition, husbandry and fish health management[26]. This sub-sector has seen substantial growth, with an increase in aquaculture production from 92,773 tonnes reported in 2019, to 100,950 tonnes in 2020. This growth has been attributed to the implementation of the SADC Regional Aquaculture Strategy where Member States have focussed on developing national aquaculture programmes in line with the regional strategy. The scope and purpose of the SADC Aquaculture Strategy and Action Plan is to provide strategic direction for the rapid, environmentally responsible, development of aquaculture in SADC Member States, while simultaneously safeguarding the ecological integrity of aquatic ecosystems, conserving common genetic resources and supporting the maintenance of regional aquatic biosecurity. Aquaculture is responsible for the employment of only 145 000 people in the SADC region, however, more than a million people indirectly benefit from this sector. The per capita fish consumption in SADC is 12.5 kilograms per person[27], which is 16% of the total animal protein intake and 5% of the total protein intake, making fisheries a significant contributor to food and nutrition security in the region.

There is a growing awareness about the potential impacts of growing the SADC BE by optimally exploiting aquatic resources and growing the fisheries sector. Through proper management and by developing a sustainable strategy that allows for the region to work together to grow the economy, alleviate poverty, and together with conserving aquatic ecosystems and meeting global climate goals, there is massive potential for a Blue Economy in the SADC region.

Blue Tourism – The protism Programme (2020-2030) 'serves as a roadmap to guide and coordinate the development of a sustainable tourism industry in the region and to facilitate the removal of barriers to tourism development and growth'. The programme is being implemented with the policy and planning guidelines provided by the SADC Protocol on the Development of Tourism (1998) as amended in 2009. One of the objectives of the Protocol is 'to use tourism as a vehicle to achieve sustainable social economic development through the full realisation of its potential.' The SADC Tourism Programme takes due cognisance of global and continental tourism programmes including the United Nations World Tourism Organisation (UNWTO), AU Agenda 2063 as well as tourism programmes for sister RECs, notably, COMESA and EAC. Despite its potential, tourism only constitutes a small proportion of the SADC economy. For example, it is estimated that all forms of tourism contributed only around 5.8% of the GDP of the SADC region in 2013[28]. According to The Regional Tourism Organization of Southern Africa (RETOSA), the main attractions of the region are its wildlife, extensive wilderness areas, natural wonders of the world, beaches, mountain ranges and rich historical and cultural heritage. All coastal and island Member States of the SADC region offer various tourism products including diving, whale watching, fishing and many other nature-based activities, while inland water bodies such as the Zambezi River, Okavango Delta and others are also important drawcards for tourism. Following the impact of the COVID pandemic on the global and regional tourism industry, there is a need to rebuild the sector. This provides an

[26] SADC Regional Aquaculture Strategy and Action Plan (2016-2026)

[27] Schmidt, V., 2019. The Southern Africa Development Community and FAO join hands to strengthen development and management of fisheries and aquaculture. *FAO Aquaculture Newsletter*, (60), pp.39-39.

[28] https://saiia.org.za/wp-content/uploads/2014/10/141125_EDIP_GIZreport_pg53-60_CS5.pdf

opportunity to integrate marine and coastal tourism more effectively into national and regional tourism campaigns and products. More work is required to monitor and analyse the contribution of maritime and coastal tourism to the economy of the region. Such information can support further development of coastal and marine tourism, with significant job creation potential for communities. Consideration must also be given to the social and environmental impact of tourism, especially mass tourism models, with appropriate governance responses implemented to mitigate these impacts.

The tourism sector has not reached its full potential due to political instability, safety issues, poor infrastructure, health risks such as malaria, and the remoteness of locations. According to the World Tourism Organization (UNWTO) visa policies heavily influence international tourism, with the development of policies and procedures related to visas being very closely linked to the development of tourism. It has been determined that the Southern African region is lagging in terms of visa openness which has contributed to the hindered development of the tourism sector in the region[29].

All coastal and marine tourism activities depend on the ocean, necessitating that growth in this sector is done sustainably to preserve marine ecosystems and allow for the continued use of these resources. The sector needs to be climate resilient, especially considering that the SADC region is prone to extreme weather events such as tropical cyclones and severe thunderstorms. Tourism has a multiplier effect and results in a large, diversified workforce with a substantial number of opportunities for the local population. Thus, tourism can be a driving force in developing a BE strategy, and the SADC region has immense potential to increase its tourism industry due to its wealth in natural beauty and biodiversity.

Mineral Extraction Industries: Offshore mining has existed for decades in areas of Africa, starting with the De Beers' extraction, in 1961, of diamonds at sites near the Orange River mouth that were some 35 m below the surface. Currently, Namdeb – a joint venture involving De Beers and the Namibian government as equal partners – is dredging diamonds at depths of up to 150 m. De Beers reports that in the future some 95% of the diamonds it mines will come from sites off the Namibian coast. Coastal mining for construction sand and minerals sands has also expanded significantly in many countries of the region in recent years. While there are undoubtedly significant opportunities, it must be recognized that coastal and marine mining may also have significant environmental impacts. In many countries in the region, such activities have been vigorously opposed by local communities and civil society organizations, who argue that these extractive activities undermine the natural capital on which coastal communities depend. While the decision to proceed with such activities is something that should be navigated through inclusive national processes, with due regard to the precautionary principle, it is recommended that at the regional level greater coordination of research and policy is pursued to enhance the knowledge of available resources and share emerging practice regarding environmental and social safeguards and impact assessments.

Within the SADC region, the oil sector is a major contributor to the economy of Angola and is likely to remain so for the foreseeable future. Offshore diamond mining is a lucrative activity in Namibia and also in South Africa. A common problem in all of the countries is the need for more research and information on the offshore biophysical environments in which this sector operates. The impact of seismic noise, for example, is where further research is needed. Limited human capacity and in Angola particularly, a lack of specialised laboratories and equipment for monitoring impacts, is recognised as a problem.

[29] https://www3.weforum.org/docs/TTCR/2013/TTCR_Chapter1.3_2013.pdf

Recent discoveries indicate that about 11 offshore oil reserves have been discovered in Namibia with a potential of 11 billion barrels[30]. Several offshore gas fields were discovered in Mozambique and Tanzania with a potential of 50 to 100 trillion cubic feet in depths of 1,000 to 3,000 metres. In South Africa, offshore oil and gas exploration has indicated a viable potential of producing about 9 billion barrels of oil, which is equivalent to 40 years of South African oil consumption.

Marine, River and Lake Transport, Ports and Related Services such as shipping and Shipbuilding – The objectives of SADC Protocol on Transport, Communication and Meteorology (1996) are to establish transport, communication and meteorology systems which provide efficient, cost-effective and fully integrated infrastructure and operations which best meet the needs of customers and promote economic and social development while being environmentally and economically sustainable. Further, the Regional Infrastructure Development Master Plan and Transport Sector Plan (2012) identify key hubs and gateways for rehabilitation and development to ensure transport competitiveness in terms of passengers and goods and access to the markets. The Plan further guides the development of an appropriate integrated, safe, secure, and efficient infrastructure capacity along strategic corridors concerning road and railway networks. A notable gap in the provision of infrastructure in the surface transport subsector across the SADC is currently perceived. While roads have significantly improved, the railway system has had minimal improvement with degradation in many parts of the region; this has knock-on effects on marine and coastal-based activities that depend on terrestrial transport for the distribution of goods and services.

SADC's coasts and shipping lanes continue to be extremely vulnerable to piracy, illegal fishing, and trafficking, which continue to impede the development and stability of the region. With increasing pressure from NATO and EU maritime patrols off the coast of Somalia, maritime criminal activity has been shifting into the Mozambique channel. There is also an increased frequency of piracy off the coasts of Angola and Namibia[31]. The British Marine Assessment Group estimated that illegal, unreported, and unregulated (IUU) fishing costs Africa nearly US$ 1 billion annually. In Angolan waters, it is estimated that the amount of IUU fishing comprises one-fifth of total Angolan fish exports. In Mozambique the same group estimated illegal fishing of tuna and shrimp to be nearly US$38 million[32]. There has been a considerable effort on the part of the SADC to combat these issues.

Despite considerable efforts, especially given limited resources, of SADC Member States to improve infrastructure, lubricate trade barriers and improve maritime security, there is considerable room for development within the framework of a Blue Economy.

Renewable blue energy – SADC formulated the Regional Energy Access Strategy and Action plan (2010), as a step towards realigning the energy sector to emerging issues such as climate change. The strategic goal of the Plan was 'harnessing of regional energy resources to ensure that all people of the SADC region have access to adequate, reliable, least cost, environmentally sustainable energy services, while its operational goal was 'to endeavour to halve the proportion of people without such access within 10 years for each end use and halve

[30] https://www.kearney.com/energy/article/-/insights/southern-africas-oil-and-gas-opportunity
[31] https://www.sadc.int/themes/infrastructure/transport/
[32] https://www.biofund.org.mz/wp-content/uploads/2018/12/1544699608-Reviews-of-Impact.pdf

again in the successive 5-year period until there is universal access for all end uses.' Challenges including finances hampered the implementation of the Plan.

The Renewable Energy and Energy Efficiency Strategy and Action Plan (REEESAP, 2016-2030) provides a long-term regional framework for achieving sufficient, reliable, least cost, sustainable, clean energy services for SADC by 2030 through the acceleration of scaling up of renewable energy and energy efficiency uptake. The key objectives of REEESAP include achieving energy security by closing the current supply/demand deficit; increasing availability, accessibility and affordability of modern energy services particularly to the poverty-stricken communities that largely depend on inefficient traditional forms of energy for their livelihoods; achieving low carbon development paths and climate resilient energy in the Member States and hence in the region and contribute to mitigation measures globally.

Based on SADC Renewable Energy Report (2018), energy security is an area of policy concern in the region and is being addressed, among others, by expanding interconnectivity and transmission capacity and by accelerating the generation capacity and allowing increased inter-country sales. The Report further pointed out that by mid-2018, the region had 21,760 MW of installed renewable energy capacity of which 15,996 MW was hydropower. Nonetheless, the region has a tremendous shortage of energy with 8 out of the 16 SADC countries having less than 50% electricity access, and countries such as Malawi and the Democratic Republic having less than 20% access to electricity. This means the governments of Member States need to focus on the energy sector and invest in renewable energy in particular. This shortage presents both a challenge, and an opportunity for development. Traditional means of generating energy have low employment opportunities and significant environmental impacts. This highlights the need for utilising a variety of energy sources, aided by the inclusion of innovative industries.

In terms of offshore wind energy, the southern coastal parts of SADC countries specifically South Africa and Madagascar, are endowed with high wind energy potential. Recent findings indicate that South Africa has an annual offshore wind energy production potential of 44.52 TWh to 2 387.08 TWh[33].

Wave Energy Conversion, like offshore wind energy, in SADC countries, especially South Africa, has one of the highest WEC potentials reaching greater than 60 kW/m. In 2019, in the Western Cape of South Africa, a 1millionWEC project was proposed as a pilot project. The project was estimated to cost about US$15 million with equity investments from the Industrial Development Corporation, angel investors, and the aquaculture group Abagold. This implies that private sectors have realised the potential of ocean energy for power generation.

Ocean thermal energy conversion (OTEC) is the type of ocean energy, which uses the temperature difference between surface warmer water and deeper colder water encountered in tropical oceans as the source of thermal energy. In SADC, the potential countries for OTEC with a potential annual production in GWh include: Angola (750 GWh), Democratic Republic of Congo (750 GWh), Tanzania (1000 GWh), Madagascar (800 GWh), and Mozambique (850 GWh).

Over the last 6 years, the SADC has been growing its renewable energy capacities by about 1.5 GW a year. An increase of 1.3 GW will allow for the above-mentioned goals to be achieved,

[33] Rae, G., Erfort, G., 2020. Offshore wind energy - South Africa's untapped resource. Journal of Energy in Southern Africa vol.31 n.4 Cape Town Nov. 2020.

thus allowing the region to meet its energy needs, increase economic growth, employment and well-being.

Desalination – Water insecurity is a serious challenge in the SADC region due to the increased frequency, duration and intensity of droughts caused by a combination of increasing demand for water and climate change. In 2019 the SADC made a historic agreement to consider desalinating seawater to mitigate the scarcity of water in the region. Namibia – the driest, mostly desert country in Southern Africa – has the largest reverse osmosis seawater desalination plant in southern Africa, located north of Swakopmund with a capacity of up to 20 million litres per year and supplying portal water to coastal towns and the mining industry in the area. The Western Cape and Northern Cape provinces of South Africa are vulnerable to droughts that threatened the existence of Cape Town in 2018. There are several smaller desalination plants in South Africa, including at Mossel Bay, Lamberts Bay and Knysna in the Western Cape. The blue energy potential can play a role in providing energy for desalination which is an energy-intensive process.

Marine Biotechnology and Bioprospecting – For ages, mankind has utilised biological materials from plants and animals for a variety of purposes, including medicinal purposes of which terrestrial origin predominated. However, the potential of aquatic organisms is yet to be adequately explored, and bioprospecting has already proven to benefit society through the development of pharmaceuticals and cosmetic products, among others (Bhatia and Chugh, 2014[34], Shweta, 2020[35]). SADC's marine biodiversity is generally poorly described especially from marine biota found in the more remote and largely inaccessible areas in EEZs.

The global marine biotechnology market is expected to grow by US$2.5 billion between 2020-2024. While Africa's bioprospecting economy is not yet advanced, there has been progress in some SADC such as South Africa which plays a leading role in bioprospecting with dozens of marine natural products being patented, including those for their anti-cancer activity (Chibale *et al*., 2012)[36]. In recent years, the Seychelles, Madagascar, Mauritius, South Africa, Angola, Namibia, and Tanzania have shown commitment to the sustainable development of the seafood sectors and marine biotechnology, which is the creation of products and processes from marine organisms through the application of biotechnology, molecular and cell biology and bioinformatics[37].

Overview – As highlighted above, there is inadequate data to determine a full overview of the economic importance of the Blue Economy in the SADC countries. SADC's Blue Economy is central to the region's long-term sustainable development, industrialisation and inclusive growth. The region's Blue Economy is an increasingly active and contested domain. This is exemplified in the tensions between emerging sectors such as seabed or coastal mining and the fisheries sector, the ongoing debates around inclusive growth and sustainability as it relates to the relationship between small-scale and industrial fisheries, ambitions to expand mariculture and offshore renewable energy resources, and continuing exploration and

[34] Bhatia, P and Chugh, A. 2014. Role of marine bioprospecting contracts in developing access and benefit-sharing mechanism for marine traditional knowledge holders in the pharmaceutical industry. Global Ecology and Conservation, Volume 3, January 2015, Pages 176-187. https://doi.org/10.1016/j.gecco.2014.11.015.

[35] Shweta, P. 2020. Marine Bioprospecting: Bioactive Compounds from Cnidarians and Molluscs - A Review (April 2, 2020). Proceedings of the National Conference on Innovations in Biological Sciences (NCIBS). http://dx.doi.org/10.2139/ssrn.3567752.

[36] Chibale et al. In book: Drug Discovery in Africa (pp.193-209) Chapter: Publisher: Springer Berlin Heidelberg Editors: Kelly Chibale, Mike Davies-Coleman, Collen Masimirembwa. 2012. DOI:10.1007/978-3-642-28175-4_8.

[37] https://allianceforscience.cornell.edu/blog/2022/02/blue-economy-seen-as-catalyst-for-africas-economic-resurgence/

development of offshore oil and natural gas resources. While recognising the sovereign right of Member States to develop their resources and pursue national development visions, the principle of regional cooperation to address challenges and exploit opportunities is entrenched in the vision, institutional mechanisms and policy instruments of SADC, as well as other regional mechanisms (e.g. Nairobi Convention, Abidjan Convention and Benguela Current Commission). As such, it is recognised that SADC can play an important part in guiding a regional response, aligned with continental and national frameworks, towards an inclusive, sustainable Blue Economy.

2 BE SADC Vision

By 2032, the SADC BES envisions socially and economically inclusive, environmentally resilient and sustainable use of the blue economy resources that significantly contributes to SADC's mandate for regional integration and sustainable development.

3 Objectives of the BE Strategy and Action Plan

The SADC Blue Economy Strategy and Action Plan intends to guide the implementation of BE activities at both national and regional levels while increasing cooperation and regional integration and strengthening support to the Member States to effectively translate policies into concrete actions. It will also contribute to the effective implementation of all relevant global, continental, regional and national policies, strategies and programmes. More specifically, the SADC Blue Economy Strategy aims to:

- improve the implementation of the BE in all SADC Members States;
- develop strong harmonized regional BE initiatives;
- increase cooperation and regional integration by using the BE as a catalyst in order to stimulate a converging dynamic of interests and efforts.

The strategy and the action plan are thus articulated around four axes of intervention. The first, at the national level, is to structure the implementation of the BE; the second, to initiate pilot projects for reinforcing the sectors of the blue economy; the third and fourth, at the regional level, are to design and develop harmonized regional initiatives, and to implement key regional cooperation and integration actions. The former two axes are not articulated around the development of sectors[38]. They aim to infuse a new cross-sectorial dynamic that is vital for the development of the BE by ensuring an overall cohesion and synergy between stakeholders.

4 Basic principles for the implementation of Blue Economy in the SADC Region

The three main principles that underpin the implementation of Blue Economy are: the green economy, good governance, and environmental and social sustainability.

Green economy — The Green economy catalyses the socio-economic transformation of the SADC Region towards a resource-efficient, environmentally sustainable, climate-change resilient, low-carbon development path and equitable society. It will achieve this through the transition towards sustainable production, distribution and consumption of goods and services activities and practices. This results in improved human wellbeing and economic growth over the long-term, while mitigating the exposure of future generations to significant

[38] Such as in the African Union BE strategy.

environmental risks and ecological scarcities, in line with international trends and sustainable development commitments. This way, the Green Economy is seen as an action-oriented approach, or a vehicle to reach sustainable development in the Blue Economy space.

Good governance — This is divided into 11 sub-principles which aims to assist countries and the SADC to improve their blue governance[39]: Fair Representation and Participation; Responsiveness; Effectiveness and Efficiency; Openness and Transparency; Ethical Behaviour; Skills and Abilities; Innovation and Openness to Change; Long-Term Orientation; Sound Financial Management; Cultural Diversity and Social Cohesion; and Accountability. An effective political and regulatory framework is also necessary to guarantee investments in the sustainable exploration of the sea and lakes, as well as a solid policy for innovation, technology transfer, and adaptation, aimed at encouraging innovations. This should be implemented to strengthen institutional capacities in key national and regional agencies and organisations (SADC and institutional partners). This requires a strong collaboration between key entities/structures and a consensus on defining common initiatives. Finally, this implies strengthening human capacity and to provide technical support in the face of inequalities between countries in the region. The issue of governance is cross-cutting and should be at the centre of Blue Economy development. This calls for establishing regional and national blue governance mechanisms in the SADC region that integrate all the critical sectors of the Blue Economy.

Environmental and social sustainability — Climate change and climate variability are already impacting aquatic systems and overall food production in the region. SADC Member States need to strengthen the resilience of blue ecosystems and the reduction of communities' vulnerability in the face of climate change within the framework of the Blue Economy to guarantee food security and livelihood. Furthermore, mining, oil, gas and energy production in deep water should be developed following the strict precautionary[40] and compensation[41] principles (avoid, reduce, compensate) and following civil society approval, since healthy ecosystems are of vital importance for the survival of living aquatic resources (both inland and oceanic ones). Thus, collective reflection and decisions should take place beforehand to allow deep water resource exploitation. In addition, countries must adhere to national, regional and international pollution control standards and practices, including those relating to chemicals and plastics. Socially, many coastal and lacustrine poor communities in the SADC region lack education and entrepreneurial capacity. They have few property rights over their livelihood, and they are often excluded from the decision-making processes. SADC Member states must therefore address efforts to implement a Blue Economy to fight poverty, strengthen capacity for climate resilience and environmental sustainability, and include these communities in the process of developing a Blue Economy (see 1st principle of good governance). Coastal and waterway communities would thereby have better access to the economic sector, which would positively influence their well-being.

5 Challenges for the implementation of Blue Economy for countries in the SADC region

The countries of the region and the SADC Secretariat are facing strategic and technical challenges in the implementation of the Blue Economy. These challenges are transversal to all sectors and components of the Blue Economy. More precisely:

[39] See https://www.coe.int/fr/web/good-governance/12-principles-and-eloge
[40] See https://www.europarl.europa.eu/RegData/etudes/IDAN/2015/573876/EPRS_IDA(2015)573876_EN.pdf
[41] See https://www.europarl.europa.eu/RegData/etudes/IDAN/2015/573876/EPRS_IDA(2015)573876_EN.pdf

Inappropriate and inadequate governance institutions for integrated management and development of the Blue Economy – Despite the progress made to date by SADC Member States in the development of the Blue Economy, important problems remain in the institutional organization to support effective Blue Economy governance. Consequently, this limits the region's ability to effectively formulate and implement blue growth policies as well as policies to protect the environment and improve ecosystem health in the context of promoting a sustainable Blue Economy.

Underdeveloped application of tools and approaches for integrated, area-based management – SADC Member States form part of several regional governance mechanisms, most notably the Benguela Current Convention, the Abidjan Convention on the region's Atlantic seaboard, and the Nairobi Convention and Indian Ocean Commission on the region's Indian Ocean seaboard. Despite significant progress, more can be done to enhance integrated, large marine ecosystem-based governance and coordination. This relates also to inland waters through transboundary river basin management institutions. Marine spatial planning is also lacking in several countries although it constitutes a public process aiming to achieve the objectives specified in the framework for the implementation of the Blue Economy by analysing and distributing spatio-temporal data on socio-economic uses[42] and environmental conservation zones.

Lack of knowledge of Blue Economy potential – Although significant research is currently carried out in the oil and gas sector, the potential of blue energy and mineral resources is far less developed. However, knowing the potential of sustainable blue energy and its monetary value is necessary to stimulate investments. There are also many new and emerging areas where lack of information has inhibited development initiatives, for example in the knowledge of marine and lake species, seabed and lake mapping, bioprospecting and biotechnology. Research and development are necessary to inform the development of innovative industries and support effective management and conservation of marine and coastal natural capital.

Absence of accounting for Blue Economy activities and components – Accounting for Blue Economy activities and components is not currently undertaken in a unified manner among SADC Member States. Currently, data are collected from different sources to provide a comprehensive view of Blue Economy's contribution to creating added value[43] and creating jobs. In the same way, ecological components of the Blue Economy are not integrated into national accounting systems despite the significant value of ecosystem services that coastal and marine areas provide. There is a need for regional coordination on ocean accounting to improve Blue Economy governance.

Insufficient value addition of natural resources – SADC Member States export many raw materials (fish, minerals, oils, etc.) that have undergone no or limited value addition. These products could benefit from processing and thus generate added value locally. Member States thus deprive themselves of opportunities to generate jobs, profits and foreign currency. Furthermore, technology transfer that would allow countries in the region to meet international requirements for processing, packaging and marketing remains incomplete. Service activities, such as tourism, suffer from the same deficit in creating added value: players only perceive short-term rents without developing innovative and environmentally

[42] Recreational among others.

[43] The added value corresponds to the differences between the income generated by the sale of a product or service and the cost of intermediate consumption (raw materials, energy, etc.) necessary for its production. The sum of the added values of all sectors of the economy corresponds to GDP.

neutral products. The blue ecotourism proposals in the current coastal and tourism sector, therefore, remain very weak although it can generate many jobs and a high added value.[44]

Pollution and ecosystem degradation – With expanding coastal populations and developing industries, the risk of undermining natural capital through pollution and ecosystem degradation is increasing. Greater efforts are required to support sustainable coastal development, effective waste management, and appropriate regulatory controls and monitoring capacity to address pollution and ecosystem degradation, including cross-boundary dimensions of these challenges.

Climate change – Climate change poses a significant threat to the region's coastal infrastructure and broader Blue Economy. Natural disasters such as Cyclone Idai have underscored the risk to human life and economic infrastructure posed by tropical storms, which are predicted to increase in frequency and intensity as a result of climate change. Sea level rise, ocean acidification and ocean warming have wide-ranging impacts on weather patterns and marine life, which in turn impact coastal communities and industries. Action is required to enhance the climate resilience of the regional Blue Economy, with a particular focus on the most vulnerable sectors of society.

Food insecurity – Food exports often occur at the expense of the nutritional needs of the local population. Many countries in the SADC region have a deficit in fish production and are dependent on imports to supply the domestic market. A substantial part of the production is exported without considering the need to cover the nutritional needs of the populations and more particularly of the most deprived. This is particularly the case for the least developed countries, while these countries are facing increasing health problems[45] linked to unhealthy eating. They are also facing an increasing demand for seafood from major global markets. While trade in seafood and other aquatic products can be an important source of income, including for small-scale operators, there is a need to consider the food security dimensions of the sector and ensure that the health and wellbeing of local populations are not being undermined by exports.

Limited financial resources and technology – Member States are faced with financial challenges to effectively implement SADC programmes without external support. Likewise, the SADC Secretariat does not have adequate resources to implement its programmes. Member States need to increase their investment in technology, infrastructure and innovation and implement policies to attract investors and development partners to translate their Blue Economy potential into meaningful and sustainable development. Equally important is investment in human and institutional capacities to be able to cope with the challenges facing the Blue Economy. Lack of information and technological know-how have inhibited development initiatives in areas such as marine and lake fisheries, seabed and lake mapping, bioprospecting and biotechnology. Thus, research and innovation should be encouraged to stimulate the growth of the region's Blue Economy. Targeted Blue Economy training and capacity development interventions must be conducted.

6 Opportunities for the implementation of Blue Economy for countries in the SADC region

With the combined inland waters of 16 countries and the exclusive economic zones (EEZs) of 10 countries, the potential for blue economy activities is considered a sustainable and viable

[44] Intermediate consumption is very limited due to ecological transport and local products.
[45] Overweight and obesity, and cardiovascular disease.

avenue for creating more value and long-term economic growth but has not been fully explored despite the existence of unique aquatic diversity of fauna and flora and non-living natural resources. The utilisation of the ocean and inland water space requires an understanding of the resources available and an environmentally sustainable approach to their exploitation, as the need to conserve the fragile resources even for the current economic activities, is a crucial priority for all economic sectors. The latter includes the need to have a detailed mapping of the inland waters, marine territory and resources and the real economic value of services provided by bot marine and inland ecosystem services[46]. In this regard, a Blue Economy development should be a factor of mitigation and adaptation to climate change (including natural hazards prevention along the East Coast).

Although traditional industries and sectors — fisheries[47], fluvial and maritime transport and blue tourism — represent a large portion of economic activity, pursuing the Blue Economy also enables diversification into many other new and emerging aquatic-based activities and sectors, including aquaculture, carbon sequestration, marine biotechnology, water renewable energy, deep-sea and lake oil and gas production, and deep-sea mining. Nevertheless, rectifying fishery and tourism problems and developing alternative tourism forms such as ecotourism, requires moderate funding and time, while developing deep-sea and lake mining and oil & gas exploitation requires significant investment and time (as shown in Figure 1 below).

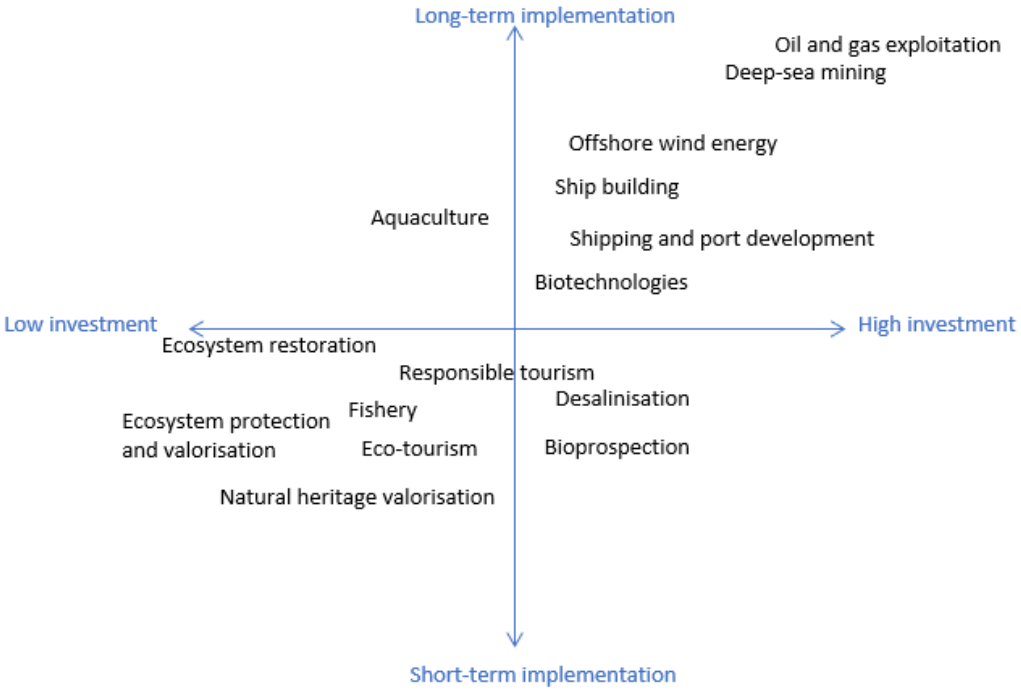

Figure 1: Funding and time scale of investment in some Blue Economy sectors
Source: own conception

[46] Following what has been done for the MPAs.

[47] This sector has been heavily impacted with climate change issues, and fishermen have experienced high losses in terms of gears and vessels because of the hurricanes of recent years. In addition, some of the species are in risk of being depleted due to overfishing (conch, lobster, grouper - restrictions are only in place for turtles and sharks.).

Furthermore, these opportunities require a national framework suitable for their development. This signifies the implementation of a proper Blue Economy policy together with a regulatory framework, as the investment strategy should be made within this structure (see section 7). For example, marine biotechnology should be a key asset of the coastal countries, particularly Madagascar, Mozambique, South Africa, Mauritius, Seychelles, and Comoros, thanks to the high level of marine diversity, requiring a long-term and intensive investment strategy that should be formulated collectively within such a framework. National Blue Economy framework should also tackle the research, data collection, education and capacity-building issues.

Overall, the harmonisation of water-based economic activities with the long-term capacity of ocean ecosystems to support such activities whilst remaining resilient and healthy, should be the core of a blue economy for the SADC region. A set of opportunities can be defined on the basis that they are not already addressed or partly considered and are not purely sectorial. Cross-sectorial and cross-cutting opportunities are privileged to sectorial ones as they are not benefiting from a specific policy support yet. Specifically, there is little value to define fisheries, ship maintenance, shipping and mass tourism as opportunities, as they are already covered by designated policies and regulations.

Identified opportunities can be classified into 2 categories. The first is dedicated to the valorisation of natural capital in the context of climate change and well-being. The second is specific to the valorisation of the cultural heritage and the enhancement of the tourism experience (see Table 1 below). The specific actions are presented in detail in section 7.

Table 1: Blue Economy Opportunities

Opportunities	Investment*	Timeline
Ecosystem restoration and resilient coasts	Moderate+	Short Term
Neutral carbon balance	Moderate++	Medium Term
A Region free of pollution and plastics	High	Medium Term
Exploration of blue energies and blue technologies	Moderate++	Medium term
Design of SADC blue tourism charter	Small	Short Term
Valorisation of blue cultural heritage	Moderate	Short Term

Source: own conception *: Small: less than US$ 10 million; Moderate: between US$ 10-20 million; Moderate+: between US$ 10-50 million; Moderate ++: between US$ 50 and 100 million; High: above US$ 100 million.

Digital technology can offer the opportunity for small businesses in using digital platforms to connect with suppliers and customers in other countries, reaching new markets and overcoming some of the natural constraints. Businesses that incorporate digital technologies into their business strategy will be able to drive digital transformation and create new and innovative business models that lead to growth. As such, they are part of the valorisation of the blue cultural heritage opportunity.

To fully capture these opportunities a series of immediate actions are required. A first set is linked to awareness, training, and networking, while a second set is dedicated to the Inland Waters and Ocean Policies (see Table 2 below).

Table 2: Set of immediate actions

Actions	Investment	Timeline
Awareness campaign of Blue Economy	Low, under USD 200 000	Immediate, for one year
Training for officials on Blue Economy and Blue Governance Principles	Low, under USD 500 000	Immediate and until the end of 2023
Create partnerships with other regions that are implementing their Blue Economy policy such as IGAD, IOC and ECOWAS.	Low, under USD 100 000	
Deep review the implementation of the Maritime Policy	Low, under USD 100 000	Immediate and by the end of 2023
Revision of the current legal framework (incl. regarding fees for maritime activities)	Low, under USD 200 000	Immediate and by mid-2023

Source: own conception

7 Strategic Pillar of intervention

In accordance with the objectives outlined above (Section 3), the SADC Blue Economy Strategy and Action Plan is based on 4 pillars of intervention:

- Pillar 1: Structuring of the BE in SADC Countries
- Pillar 2: Reinforcing sectors of the Blue Economy
- Pillar 3: Implementation of specific regional initiatives and
- Pillar 4: Strengthening of regional cooperation and integration.

Pillars 1 and 2 are dedicated to national BE implementation while Pillars 3 and 4 concern regional initiatives (Pillar 3) and processes for the enhancement of the regional integration (Pillar 4). Hence, they complement each other and are fully in line with the Africa Blue Economy Strategy (see table below).

Africa Blue Economy Strategy	**SADC Blue Economy Strategy**
Governance, institutions and social actions	Pillar 1 for national implementation of BE
Fisheries, aquaculture and ecosystems conservation	Pillar 2 for national implementation, and traditional and emerging sector development Pillar 3 for ecosystem conservation Pillar 4 for research and education at a regional level
Shipping, transportation and trade	Pillar 2 for national implementation Pillar 4 for research and education at a regional level
Sustainable energy, extractive minerals, gas, innovative industries	Pillar for national implementation Pillar for exploration of blue energy at a regional level Pillar 4 for research and education at a regional level
Environmental sustainability, climate change, coastal infrastructure and tourism	Pillar 3 for environmental sustainability and climate change Pillar 2 for coastal infrastructures (incl. tourism) Pillar 4 for tourism at a regional level

Each Pillar is presented in detail below, by incorporating the basic principles of the BE and the challenges mentioned above. The implementing scheme and organisation of the three axes are then presented.

7.1 Pillar 1: Structuring of the BE in SADC Countries

Implementation of any BE action requires the fully operational of a national BE framework. Thus, Pillar 1 relating to the structuring of the Blue Economy in SADC countries is centred around 5 elements which are the definition of the BE's field of application; knowledge of the potential and the constraints; coordination as a fundamental structuring element for the implementation of the BE; expertise and tools required; communication (visibility, awareness, and dissemination) and funding. This Pillar is in line with the Africa Blue Economy Strategy 'Blue Governance and Institutional change' area of intervention. More specifically, it addresses:

Definition of the BE's field of application — In order to remove the ambiguity which weighs on the concept of the BE, stakeholders must first agree on a single definition of the BE that is understood by all and comprehensible for society. They must then define the BE's field of application. Firstly, this consists of intervening in the present situation in order to address the current problems and to further enhance societal benefits resulting from the use of natural resources, and secondly, to develop innovative solutions for new forms of sustainable exploitation of natural blue capital. In addition to the paradigm shift presented earlier (inclusiveness, equity, and circular economy), defining the scope of the BE must be done in consideration of the following objectives that effect the economy and environment:

- ***To resolve recurring and one-off problems*** whether it be over-fishing, marine, aquatic and land-based pollution, etc. It is imperative to solve the problems that for many remain at hand. Environmental degradation must therefore end.
- ***To improve on the existing scenarios***, particularly by contributing to the increase in the added value created. Whether it be the fisheries sector where processing (apart from tuna production) is often not advanced, or in the area of port operations where the operating methods are not optimised, leading to low transhipment rates. Improving the health of coastal, marine and aquatic environments so that they can deliver ecosystem services sustainably in the best possible way (carbon sequestration, production of fishery biomass, protection against coastal erosion, and water treatment, to cite the major ones).
- ***To innovate and develop new ways to value blue potential***, whether it be through biotechnology or blue energy. The application of nature-based solutions also makes it possible to introduce new ecological functions that are precious for improving human well-being, especially in coastal urban areas. The application of innovative industries in all sectors of the Blue Economy in general and sustainable blue energy could substantially expedite the creation of a prosperous SADC region, based on advanced technologies

The definition of the field of application is punctuated by the establishment of priorities to best define the actions to be undertaken for each of the 3 goals mentioned above (solve, improve, and innovate). Also, it must benefit from the results of the work to be conducted with the knowledge of the potential and the constraints.

Knowledge of blue potential and constraints — The potential of blue capital for biotechnology and energy is the first area for which an inventory must be made in the marine,

coastal, aquatic and terrestrial environment based on what is carried out in the SADC region and elsewhere. Research and development should be encouraged to harness the potential of innovative industries. The inventory can be combined with research conducted in partnership with experienced research clusters. The blue potential must also be assessed in the more traditional sectors, for example, that of fisheries production where the use of by-products (skin, glue, bones, viscera, etc.) can be done by the food or pharmaceutical industry. Finally, it must be applied to the ecosystem services generated by coastal, marine and aquatic environments, being of importance for human well-being, their function of mitigation and adaption to the effects of climate change, and their inclusion in national NDCs. Knowledge of the constraints works in conjunction with the one of blue potential. They are linked to the environmental aspects (damaging effects for species and aquatic environments), technical[48] (absence of appropriate technology), societal (choice to exploit or not certain resources), legal (absence of regulatory framework or prohibition to exploit[49]), and financial (too low return on investment) which constrains the exploitation of aquatic and marine resources. In this regard, the technical possibilities must be known and well-informed in terms of environmental consequences to select the most environmentally neutral, or even postpone the exploitation of the potential in the absence of appropriate technologies. The deleterious effects of the development of one activity on another activity must also be documented.

Coordination — By ensuring joint efforts to implement the BE, coordination allows forward movement and makes the BE a coherent collective initiative which transcends sectoral divisions. The creation of a coordination unit is a prerequisite for the implementation of the BE. This must be at a sufficient level (supra-ministerial) to have the leverage necessary to ensure the participation of all sectoral ministries.

The role of coordination is multiple, it aims to:

- ***Ensure inclusiveness:*** The implementation of the BE is a collective project where all stakeholders must be involved at all stages (definition of areas of intervention, formulation, implementation, and evaluation), especially the most vulnerable populations whose voice is sparsely audible.
- ***Organise dialogue and the development of collective actions:*** Beyond understanding the BE[50], stakeholders often have different points of view; it is, therefore, appropriate to organise regular meetings to converge opinions and specify the primary fields of intervention. This work predominantly utilises MSP, which constitutes a tool for common dialogue and allows to better classify problems, their importance, and the means to solve them. It thus contributes to diminish each other's fears and related tensions. It makes it possible to propose and define actions that are well perceived and understood by all, consistent with the principles of good governance and others stated above. The work also consists in defining a roadmap and specifying the stages of implementation (section 8 identifies this in the implementing scheme).
- ***Reinforce the public-private partnership***: The establishment of such partnerships increases the intervention capacity tenfold, in particular in the fields requiring very specific inputs and skills such as the production of energy from marine origin,

[48] Bearing in mind that the technical aspects are very often closely linked to the environmental aspects: such as particular way of fishing, mining etc., and the environmental impacts of the use of a particular technology.
[49] In particular for the species included in the CITES list.
[50] Who was the subject, upstream of the definition of the field of application of the BE, of a definition understood by everyone.

biotechnologies, aquaculture, etc. It also helps to spread the risks and, more importantly, to ensure the sustainability of the action once the full-scale test phases are successful.

- ***Possess the expertise and tools***: The expertise required for the implementation of the BE must be clearly identified so that measures can be taken to ensure its availability in due time (see Actions of integration and regional cooperation Section 8, below). Alongside regulatory tools, MSP[51] and economic (value added and jobs) and environmental (blue carbon and other ecosystem services) accounting, are the two most useful technical tools for implementing the BE. The formulation of legislative and regulatory instruments is a task that the coordinating unit must fulfil from the start, in order to have the institutional levers which specify the framework and the methods of application of the BE[52]. As such, MSP helps to find a balance between the imperatives of sustainable use and conservation, mitigate conflicts, and create synergies between users, especially during the framing phase of the BE. In terms of accounting, an appropriate national system called the blue satellite account should be put in place to record in a centralised manner the periodic and annual changes in economic sectors[53].
- ***Periodically evaluate the progress made:*** The coordination unit must have skills in the monitoring and evaluation of projects/programs in order to monitor the progress made in detail, diagnose problems, and propose satisfactory solutions. Each coordination meeting must be the subject of an analysis of the progress recorded in order to agree on the changes to be made.

Communication: awareness, dissemination and visibility — Communication activities should start with important awareness-raising work with stakeholders and civil society as a whole. It will help create a favourable context for the implementation of the BE in each country. As a continuation of the awareness-raising activity, efforts should focus on the dissemination of the results obtained and the visibility of the achievements by highlighting the innovative nature of the BE and the collective approach deployed. Communication must use clearly identified media tools according to the target groups.

Financing — The financing of the implementation of the BE must be understood from an early stage. There are many financial solutions available, be it equity financing, the use of soft loans[54], bond issuance[55], exchange or cancellation of debt for blue investments[56],

[51] The MSP is a public process of spatial and temporal analysis and distribution of economic and social uses (notably recreational), and conservation areas in order to achieve the objectives specified within the framework of a political process. Focused on the ecosystem and area management, it aims to be integrated, adaptive, strategic and participatory. See: http://mspfr.SADC-unesco.org/a-propos/la-planification-spatiale-marine/

[52] The regulatory framework must also specify the use of the MSP and blue accounting for the implementation of the BE.

[53] The same is true with the ecological components of the BE that are not subject to accounting despite the ecosystem services that the coastal, aquatic and marine environments provide. With the implementation of the determined national contributions, green and blue accounting (limited to the services rendered by coastal ecosystems such as mangroves and meadows) should however emerge shortly and become the cornerstone for the evaluation of actions specific to climate change.

[54] For the least developed countries. For example, Bangladesh has contracted such a loan from the World Bank for US $ 240 million and is in the process of concluding a second loan from the same institution for US $ 500 million.

[55] Seychelles has issued securities valued at US $ 15 million.

[56] Also implemented by the Seychelles.

international aid in the form of donations[57] for the implementation of national and regional initiatives, etc. Each financial instrument must be carefully studied to ensure that it best meets the needs. States must stimulate a dynamic capable of attracting investors by giving clear signals of long-term institutional investment[58].

7.2 Pillar 2: Reinforcing Sectors of Blue Economy

Pillar 2 will contribute to the implementation of the sectorial priorities in line with the Africa Blue Economy Strategy (aquatic resources, transport, minerals, energy and tourism). Traditional sectors should be harnessed to capture the full potential offered in each country. Emerging sectors should also receive specific attention in order to create conditions for their emergence. As the potential of each sector would have been already assessed in the Pillar 1, the efforts will be directed to the implementation of a series of pilot projects dedicated to improving the status of traditional sectors and pilot initiatives to develop capacities in the emerging ones. More precisely:

For the ***Fisheries*** sector, pilot projects should be implemented to:

- Develop small-scale fisheries whilst minimising the negative impacts on the environment (environmentally neutral gears and practices)
- Promote conservation and sustainable management of aquatic resources by better informing and involving fishermen in decision-making processes
- Promote an inclusive blue value chain with a strong focus on quality improvement and achieving responsible and equitable fish trade and marketing
- Ensure security on board of fishing embarkations and overall create safe working conditions and security
- Strengthen resilience and reduce vulnerability to climate change

For ***Aquaculture***, pilot initiatives should be implemented to:

- Attract and promote private-public-partnership (PPP) investment for aquaculture to realise the full potential of fish farming
- Engage in the production of endemic species
- Develop hydronic aquaculture systems
- Accelerate the development of aquaculture fish processing capacities
- Empower women and youth in aquaculture

For the ***Tourism*** sector, pilot projects should be dedicated to:

- Enhance access to finance and business support services to small and medium scale operators and facilitate the entrance of new, local entrepreneurs in the tourism sector
- Assess the environmental and social impact of the tourism sector and establish initiatives to address potential negative impacts
- Strengthen the marketing of coastal, aquatic and marine tourism sectors in countries where terrestrial, wildlife-based tourism currently dominates

[57] Particularly within the framework of the cooperation of countries and SADC with the EU and the use of the European Development Fund.

[58] SADC Member States must therefore institutionalize MSP so that specific spaces are allocated to economic activities and the preservation of blue ecosystems. It constitutes a solid institutional base capable of guaranteeing long-term private and public investments.

For the ***Mineral Extraction Industries***, pilot projects should be dedicated to:

- Mapping the seabed and lakebeds
- Reforming unsustainable financial structures and creating conducive energy finance instruments
- Increasing knowledge of deep-seabed, coastal and seawater mineral resources
- Developing policy frameworks to accelerate the transfer and application of blue economy technologies
- Developing environmental impact assessment guidelines
- Promoting the application of innovative industries
- Creating innovative industry databases and support tools

For the ***Renewable and Non-Renewable Energy Sectors,*** pilot projects should focus on:

- Mapping and conducting technical studies to assess areas of high potential for renewable blue energy
- Promoting investment in renewable blue energy
- Strengthening national and regional oil spill contingency planning and coordination

For ***Marine, River and Lake Transport, Ports and Related Services***, pilot projects should focus on:

- Controlling sea freight rates and other transport costs
- Creating and developing transport corridors
- Promoting good governance of the sector
- Developing cabotage transport
- Ensuring security and safety in the maritime and lake areas

For ***Desalination***, pilot initiatives in coastal countries should be carried on to:

- Promote private-public-partnership (PPP) for the development of reverse osmosis desalination
- Develop integrated desalination-salt production systems
- Build small desalination plant in remote coastal areas

For ***Marine Biotechnology and Bioprospecting***, pilot initiatives in coastal countries should be carried on to:

- Develop a policy framework to accelerate the transfer and application of blue biotechnologies
- Promote the application of innovative industries
- Create innovative industry databases and support tools
- Ensure the establishment of PPP to run bioprospecting surveys and missions

7.3 Pillar 3: Implementing regional initiatives

The regional initiatives aim to consolidate the efforts of stakeholders around four key concepts that represent and symbolise the commitment of SADC and the Member States to sustainable development. These initiatives are in line with various SADC instruments including

the treaty, Regional Indicative Strategy Developmental Plan (RISDP 2020-2030), various protocols, climate change and strategic action plans and they are:

i. Combating pollution and securing plastic-free coasts, rivers and lakes
ii. Implementing a neutral carbon balance
iii. Promoting ecosystem health and human well-being
iv. Exploring blue energies

The above initiatives extend the efforts made by SADC in the BE area in recent years, notably through its cooperation with the Inter-African Bureau of Animal Resources of the African Union (IBAR-AU) for the formulation of an African strategy for the Blue Economy. The four regional initiatives correspond to the trans-sectorial areas of intervention of the AU BE Strategy. The first three initiatives correspond to the AU BE Strategy Area of Intervention titled "Blue Carbon & other Ecosystem Services and Resilience", while the last initiative is in line with the 'Energy' area of intervention.

The four initiatives complement each other and put the environment at the centre of the BE development model. They are cross-sectoral and require substantial collective investment. Specifically, these initiatives are:

Combating pollution and securing plastic-free coasts, rivers and lakes — Unregulated and mismanaged disposal of harmful substances from industrial and domestic activities, including plastics, significantly contributes to aquatic pollution as most of the pollutants end up in the oceans and/or inland water bodies, and their impacts on the environment cannot be underestimated. This initiative aims to eliminate harmful substances and plastic pollution from the ocean, seas and inland waters. It constitutes an extension of the current efforts made by countries to reduce waste pollution. It brings together, not only the actors who operate on the shores of freshwater, along the coast or at sea, but also those who compete upstream, directly (various users: citizens, farmers, industrialists, etc.) and indirectly (producers and distributors), to generate any form of pollution that is eventually found along the shores of freshwater, coastal areas and in the sea. The initiative is, therefore, a de facto, part of the logic of the circular economy which consists of generating a change of attitude towards pollution in all its forms. After taking an inventory of harmful substances and plastic pollution from the source to the shores of freshwater or at the coast and oceans of SADC, Member States, regional (ports, tourism, research, etc.) and supra-regional (AU, RECs particularly those closest to SADC, such as Benguela Current Convention, EAC, COMESA, IGAD, Nairobi Convention, Abidjan Convention, UNECA, UNEP and others) bodies and associations, will be conducted to define specific priorities and actions to be taken. These should aim at reducing the production and use of plastic, developing and implementing a regional programme on the control of single-use, changing habits related to the domestic use of plastic, harmonise awareness-raising and public education campaigns against plastic pollution in particular littering, engaging of general public coastal clean-ups, handling of current pollution and in particular that of microplastics, improve countries' recycling capacities and the related financial model, setting up of a SADC compensation mechanism between the countries issuing plastic and the receiving countries, and prepare a SADC strategic plan on aquatic plastic pollution. The success of this initiative would depend on the inclusivity of all stakeholders including the public sector, the general public, and the industry (suppliers, agents, and shop owners).

Implementing a neutral carbon balance — Climate change and its massive implication to aquatic ecosystems is a result of human activities in pursuit of unsustainable economic gains. This initiative is part of the current national, regional, and global movement to reduce CO_2

emissions as entrenched in various instruments including the SADC Regional Indicative Strategy Development Plan (RISDP), SADC Protocol on Environmental Management for Sustainable Development, SADC Climate Change Strategic and Action Plan and the United Nations Framework Convention on Climate Change (UNFCCC). It is based on the concept[59] of neutral carbon which consists in obtaining a neutral carbon balance, or to put it differently, the quantities of carbon absorbed and the ones emitted on the scale of a region, a country, a city, or a company are identical. This entails reducing emissions to the utmost extent while increasing the absorption capacity of natural environments, in this case, mangroves, seagrass beds and mudflats for blue ecosystems. The work takes place on two fronts, namely, the CO_2 emitters (companies and individuals), and the natural environments that absorb CO_2. Synergies between sectors in different countries will be encouraged by the SADC, to gain efficiency, synergy and complementarity in the implementation of sectoral actions. The prerequisite for launching this initiative is the creation of a tool to measure the blue carbon[60] absorbed by lakes, and coastal and marine ecosystems that will enable the recording of the variations in natural sequestration. The work is linear since all economic sectors (energy, industry, services, trade) and civil society will be involved. It also brings together the stakeholders in the countries' NDCs, which have currently endeavoured to develop technical remedies using, *inter alia*, climate-smart techniques, technological advancements, and climate-proofing strategies for all climate-sensitive sectors, as well as regulatory solutions to limit emissions and, to a lesser extent, design ecosystem-based adaptation measures and nature-based solutions[61] (limited for the moment to forest sequestration potential). Beyond contributing to the process of mitigating the effects of climate change, such an initiative has the merit of revaluing blue ecosystems[62] in the SADC region and therefore giving them the attention, they deserve in terms of protection. For each sector of the Blue Economy, this will result in defining specifications including alternative solutions to continue producing goods and services while minimising the carbon footprint as much as possible. As an illustration, for fishing, this will mean the development of local fishing[63] with the necessary rehabilitation of coastal or lake fish stocks. For river and sea transport, this will consist of using alternative renewable energy sources such as solar and wind in addition to the current propulsion systems[64] now powered by fuels generating less CO_2. The economic sectors will also be invited to invest in the restoration of the natural environments which support their activity (sea and lake bottoms and mangroves for fishing, beaches and seagrass beds for tourism, to mention a few), which contributes to sequestering more carbon. The link between industry and the environment must be made in such a way as to generate increasing economic responsibility concerning coastal, aquatic and marine ecosystems.

Promoting ecosystem health and human well-being — The SADC region is endowed with natural capital that provides numerous ecosystem services. Stemming from ecosystem processes, ecosystem services (provisioning, regulating, cultural and supporting) are the benefits that people obtain from ecosystems directly or indirectly (Millennium Ecosystem Assessment[65].

[59] Inspired by the principle of carbon neutrality which 77 countries joined in September 2019. They join 10 regions, 102 cities and 93 companies to achieve a zero-carbon footprint. See: https://sdg.iisd.org/news/77-countries-100-cities-commit-to-net-zero-carbon-emissions-by-2050-at-climate-summit/

[60] CO2 emissions are already accounted for as part of the CND's progress measurement.

[61] Defined by IUCN as actions to protect, sustainably manage and restore natural or modified ecosystems that address societal challenges effectively and adaptively, simultaneously providing human well-being and biodiversity benefits. https://serval.unil.ch/resource/serval:BIB_93FD38C8836B.P001/REF.

[62] The role of which is often reduced to the provision of services for human consumption.

[63] In order to limit emissions as much as possible.

[64] This is in line with the current IMO strategy to reduce greenhouse gas emissions from ships.

[65] www.millenniumassessment.org

Human well-being is a complex concept based on five dimensions: basic material for a good life, health, security, good social relations, and freedom of choice and action[66]. Thus, ecosystem services are fundamental in supporting human well-being which is an endpoint and central component of sustainability[67]. This initiative aims to improve human well-being by restoring and maintaining the state of health of blue ecosystems. With a population of over 350 million in 16 Member States in 2018 that is growing at the rate of 2.5% [68], the urban and coastal/lake population is even growing faster and will continue to grow in the years to come. The population pressure along the lacustrine and coastal areas generates a decrease in the capacity of ecosystems to provide **regulatory** services (including flood protection, carbon storage and carbon regulation, protection from extreme events that are at present times increasingly frequent and in intensity, coastline protection, and wastewater treatment, to mention a few. The **provisioning** services are extracted from nature such as food, medicinal products, and oil to support human well-being. Beyond the above-mentioned services, blue ecosystems contribute to the improvement of human well-being through the **cultural** services (non-material benefits) they provide which are associated with recreational, aesthetic experiences, spiritual activities and contribute to the mental health of populations, more particularly in urban areas, where the link with nature is weak. The **supporting** services sustain fundamental natural processes such as primary production, nutrient cycle, and the water cycle.

Ecosystem-based adaptation measures for restoring or recreating coastal ecosystems should be considered. In addition to these ecological recovery activities, several initiatives to integrate blue ecosystems into the urban landscape can be launched to help revitalise the human-nature relationship. The restoration of urban beaches which are often neglected because they are unsanitary, the creation of urban aquatic and educational underwater courses, and many others, are going to bring a blue ambience into cities. The work carried out in the discovery of the 'blue world' by NGOs in Mauritius in schools, is a commendable example of the benefits of healthy blue ecosystems and can be replicated in other SADC Member States. The regional scope of the initiative makes it possible to develop synergies between countries and cities, and to gain efficiency in the implementation of actions.

Strengthening disaster risk management – Building on ecosystem health and human well-being, in the face of climate change effects on all blue economy sectors and societies, sufficient measures should be in place to prepare nations for the increasing frequency and intensity of natural disasters. Maintaining ecosystem health is key to disaster mitigation, particularly in the cases of flooding and erosion, where coastal ecosystems help to maintain structure and buffer from extreme weather events. In this regard, healthy ecosystems have a significant role in maintaining the quality of human lives.

There needs to be sufficient capacity to anticipate, manage and respond to recurrent shocks associated with climate change (food crises, natural hazards-related disasters). In this regard, regional cooperation is needed to link with national information systems and support quality control and harmonisation for improved information sharing and coordinated action. Similarly, regional climate and specialized meteorological centres will improve the quality of regional climate, water and weather services and products in climate-sensitive blue sectors (fisheries, aquaculture and food security, water management, health, and energy) and

[66] Ibid.

[67] Summers, J.K., Smith, L.M. The Role of Social and Intergenerational Equity in Making Changes in Human Well-Being Sustainable. *AMBIO* 43, 718–728 (2014). https://doi.org/10.1007/s13280-013-0483-6

[68] SADC Regional Indicative Strategy Developmental Plan (2020-203). https://www.sadc.int/pages/regional-indicative-strategic-development-plan-risdp

contribute and complement to the capacities of national centres (such as National Meteorological and Hydrological Services).

Marine Spatial Planning (MSP) is a key tool relevant to risk reduction strategies that can identify and aid in the assessment and monitoring of disaster risks and intervention sites. MSP can also play a role in identifying protocols for the resettlement of persons displaced by natural disasters, through identifying areas for relocation ahead of natural disasters. Through climate-integrated MSP, investments can be encouraged that account for key climate change impacts at the planning stage and support sectors to transition to lower carbon pathways, thus de-risking and leveraging the private sector.

Exploring blue energies — As captured in the Regional Indicative Strategy Development Plan (2020-2030), blue energy has long been recognised by SADC as an important ingredient of the energy mix to accelerate industrialisation and sustainable development in the region. The SADC Industrialization Strategy and Roadmap (SISR, 2015-2063), emphasised the development of the green and blue economies. Further, the Regional Energy Access and Strategic Action Plan (2020–2030), as well as the Renewable Energy and Energy Efficiency Strategy and Action Plan (REEESAP, 2016-2063), provide strategic and policy guidance for the rapid development of, and access to, affordable renewable energy as well as the delivery of cost-effective and diversified energy. The SADC Centre for Renewable Energy and Energy Efficiency (SACREEE) was formed as part of the implementation of the REEESAP focusing on the development and implementation of holistic regional renewable energy and energy efficiency programs.

This initiative focuses on implementing a real strategy for exploring blue energies on a regional scale. Just as the energy production potential of solar and wind energy is substantial but underutilised, that of the marine domain is unknown and suffers from a lack of suitable technology. The willingness of Member States to implement projects, whether from floating wind power, technologies using swell and waves, tides, current or thermal, clearly show that the potential exists although the technology is still in its infancy. This does not prevent the SADC Member States from being ready to use technologies as soon as they prove to be functional, and as much as possible to participate in their development. Public-private partnerships must be established to catalyse and accelerate blue energy development. Furthermore, Member States must cooperate with other African countries and other countries with appropriate technologies, to develop and boost renewable energy production. Member States must also develop their capacity to attract investment in these emerging areas and mobilise the funds necessary for exploratory work.

7.4 Pillar 4: Strengthening regional cooperation and integration

In the Blue Economy, there are several regional cooperation actions currently underway. One of the exciting regional cooperation actions in the Blue Economy arena is the creation of a regional Monitoring, Control and Surveillance Centre (MCS) in Mozambique, with some support from AU-IBAR, initiated a process to establish a regional MCS Coordinating Centre (MCSCC) in 2013. In August 2017, the SADC council approved a charter establishing the centre to be in Maputo. Some of its key functions are to coordinate the implementation of the regional fisheries observers and fishing vessel registration programmes.[69] The SADC Member

[69] Elaboration of the Strategy for Monitoring, Control and Surveillance (MCS) system in Mozambique STUDY 3: FINAL REPORT Study for a long-term sustainable financing of the MCS industrial, semi-industrial and small-scale components. www://efaidnbmnnnibpcajpcglclefindmkaj/https://www.proazul.gov.mz/wp-content/uploads/2021/07/190704_MOZ_MCS_Study-3_Final-Report_EN_financing_v1.0-3.pdf

States have ratified various international instruments of relevance to safety and security at sea[70]. Enhancing national and international cooperation to strengthen coastal safety and security is vital as this will not only guarantee the attainability of Blue Economy goals but will also restore confidence in prospective foreign investors. Striking the delicate balance between sustainably exploiting the ocean resources while creating numerous jobs for millions who rely on this ecosystem for survival, coupled with a concerted and firm approach to addressing maritime threats, will herald a thriving economy that is prosperous for the population and environment.

The SADC also maintains close links with the AU and the other RECs, such as COMESA and the EAC, through some of its Member States. The RECs that facilitate regional economic integration between members of the individual regions and through the wider African Economic Community (AEC), constitute the pillars of the AU for the implementation of continental policies. The African Continental Free Trade Area (AfCFTA) launched in 2019, to ultimately integrate all states of the African Union into a single free trade area, will strengthen RECs and country trade balance. This should help facilitate intra-SADC trade between the Member States and other African countries.

In terms of the Blue Economy, the RECs will also constitute the pillars of implementation of the AU's BE strategy. This will provide the necessary guidance and reference point for AU Member States, RECs, and regional organisations, to ensure the development of a coherent Blue Economy at national and regional levels.

The key actions for strengthening regional cooperation and integration include research and joint training and innovation, boosting intra-regional trade by sea, and drafting a regional blue tourism charter. Each of these actions responds to a specific need as identified in SADC policy instruments, notably, the Regional Indicative Strategy and Development Plan (RISDP, 2020-2030):

- Research, training, and innovation must be organised on a regional scale to meet the challenges caused by a lack of knowledge and expertise in the fields of the BE (both scientific, technological and practical).
- The development of intra-regional trade is part of the regional integration scheme advocated by the SADC and in the broader context of the African Continental Free Trade Area[71] which should help boost regional trade.
- The development of a blue tourism charter is in line with a sustainable tourism objective.

These three regional integration actions correspond, respectively, to the African Blue Economy Strategy's Area of Intervention entitled "Blue Governance and Institutional change", "Shipping, Ports and Trade" and "Coastal tourism". More specifically, the three actions aimed at strengthening regional cooperation and integration will consist of:

Research and joint training and innovation — Research, training, and innovation are at the centre of the SADC programme of actions. Considerable progress has been observed in the SADC region in terms of the adoption of science, technology, and innovation (STI) policies, as 14 Member States have adopted STI policies. All Member States have a dedicated government department responsible for STI, as well as specific institutions assigned to

[70] These include, among others, the International Ship and Port Security (ISPS) Code70; Safety of navigation at sea is internationally regulated by a number of conventions including International Convention for the Safety of Life at Sea (SOLAS, 1974)71. African Integrated Marine Strategy (AIMS 2050).

[71] See : https://au.int/sites/default/files/treaties/36437-treaty-consolidted_text_on_cfta_-_en.pdf

implement STI programmes.[72] This action, therefore, consists of articulating the research and the training (education and capacity building), as well as innovation with the development and implementation of the BE to have the necessary expertise at the regional level. The acquisition of skills, competencies, and qualifications, ensures that education and training systems are responsive to the labour market needs of the Blue Economy sectors. The identification of research and training needs is done following the definition of the field of application and must be periodically reviewed as the BE actions[73] are implemented. A rapprochement work between universities and research institutes must be undertaken both at the country and regional levels to maximise the use of available human and technical resources, and minimise duplication as much as possible in training programs, and then in research programs. This will cover the areas of research, education, and innovation identified for the assessment of blue potential and environmental challenges, in particular pollution. Moreover, additional training programs should be developed to encourage inter-regional mobility of students,[74]and centres of excellence should be established and strengthened. The development of partnerships with institutions outside the region must also be encouraged to benefit from external skills and knowledge at low cost, and the ability to train national specialists. The European Erasmus+ and Marie-Curie programs of the RISE[75] type are to be mobilised to facilitate training and exchanges of researchers, particularly in the marine field where better knowledge of the marine and aquatic environments is required. The impact[76] of such exchange-based training programs is considerable, both for students who substantially increase their skills, especially their cross-functional knowledge and skills abroad, and for institutions which benefit from skills that are trained at low cost.

Development of intra-regional trade by sea and rivers — The development of the BE in the region is irredeemably dependent on the introduction of an efficient and affordable maritime and river transport network. State strategies must therefore come together and ensure that maritime and river transport becomes a continuous link between the countries. The current competition between the countries for the monopolisation of maritime traffic to and from the outside, is currently stimulating the port development of each coastal country. This dynamism must be used to develop complementarity between the countries in terms of maritime and river logistics. This will allow better management of maritime and river traffic between the countries and the rest of the world, which will have a significant increase in the future. Both international and regional flows should be thought of in a logic of interconnected bursting ports and proximity ports. Thus, inter- and intra-country cabotage must be developed in the continuity of the existing international network. The Member States must therefore commit to the facilitation of transhipment conditions (priority to regional traffic), and customs clearance of products, as well as payment mechanisms. Regional trade should be further boosted and generate significant effects on national economies. The development of the emerging ocean liner cruise industry must also be done in this spirit of inter-country complementarity. It should, to the extent that shore calls are well organised, benefit country economies[77].

[72] Refer to the Regional Indicative Strategy Developmental Plan (2020-2030): Pillar 3: Strategic Objective 3, Increased access to quality and relevant education and skills development, including in science and technology.
[73] Occasional capacity building actions will also have to take place in order to fill the knowledge and expertise gaps that do not require enrolment in a long-term training program.
[74] Such as the progress of the higher education course in at least two countries.
[75] *Research, Innovation and Staff Exchange.* See : https://ec.europa.eu/info/h2020-msca-rise-2019_en
[76] See : https://ec.europa.eu/programmes/erasmus-plus/resources/documents/erasmus-impact-study_en
[77] With, as an indication, an average expenditure of around 100 US dollars per person per stopover in the Caribbean countries.

Design of a regional blue tourism charter — The RISDP (2020-2030) calls for the enhancement of cooperation and regional coordination on matters relating to tourism[78]. The development of tourism must be promoted to achieve a form of sustainable and resilient tourism whose implementation is environmentally friendly and contributes to the well-being of local populations. A blue tourism[79] charter would have the merit of providing a distinctive signature that is much appreciated by a growing segment of the world's population in search of harmonious and sustainable tourism. It must comply with the SADC Protocol on Tourism and respond to, among others, the SDGs. The design work of the charter can be based on the master plan recently developed by other SADC Member States such as Seychelles[80] (sustainable tourism label) and the Comoros charter[81] that considers the promotion of ecotourism, consideration of the carrying capacity of the environment, and the limiting of arrivals, among others. The charter will apply to tourism products (including cruise, tourist, domestic, and intra-regional tourism), as well as provide strategic guidance to enhance the resilience of the tourism industry to disasters and pandemics. It should be developed in conjunction with the Regional Tourism Organisation of Southern Africa (RETOSA) as well as with the World Tourism Organization and UNESCO, since many sites are classified as World Heritage Sites. It will also integrate the principles of the circular economy, positive carbon and ecosystem health, and human well-being. Building on such principles will be an effective way to combat the effects of mass tourism, over-consumption of resources, and poverty. The economic added value to be achieved and the reduction of environmental and societal damage will therefore be substantial. The number of jobs generated in this sector of the Blue Economy should increase considerably[82]. In this regard, links with the International Labour Organization (ILO) need to be strengthened to create a sustainable working future and a correct transition to the Blue Economy in the SADC Member States. The creation of decent jobs, youth employment, fair labour migration and the transition from the informal to the formal economy will need special attention.

8 Implementing scheme

The implementation of the BESAP requires a specific organisation that the SADC must take care to establish. Firstly, this would assist in defining the steering and monitoring bodies, in particular:

- a steering committee comprising a representative of the SADC and of each country whose experience is broad enough to provide the expertise that covers several areas of the BE. The task of the steering committee will be to represent the interests of the Member States, to ensure overall consistency between geographic scales (national and regional), to ensure the effective management of the implementation of the BE in countries (Pillar 1), and of regional initiatives and actions (Pillar 2 and 3). It convenes twice yearly.
- a technical monitoring and evaluation committee made up of 8 regional and international experts from the world of research, civil society, education and business.

[78] Pillar 1: Industrial Development and Market Integration.

[79] For a recent review of the Blue Tourism, see : https://www.iddri.org/sites/default/files/PDF/Publications/Hors%20catalogue%20Iddri/20190620_BLUE%20TOURISM%20STUDY_EN.pdf

[80] See http://tourism.gov.sc/tourism-master-plan/

[81] Under completion.

[82] About 1 job created per average expenditure of 4000 US dollars.

The purpose of this committee is to monitor the implementation of regional initiatives and actions and to decide on the improvements to be undertaken. It convenes yearly.

For the operationalisation, a technical team, based at the SADC, will provide support for the national implementation of the BE and its initiatives and actions, to strengthen cooperation and regional integration. Comprising 2 experts specifically recruited for these tasks, and a person for the secretariat, the technical team will be responsible firstly for facilitating the development/implementation of national activities (Pillar 1 and Pillar 2), and secondly for ensuring the operationalisation of regional initiatives and actions (Pillar 3 and 4).

This technical team will also have the mandate to:

- design financial arrangements for the mobilisation of funds intended for regional initiatives and actions: both the usual technical and financial partners will be approached in order to specify the financial vectors to be used and the foundations[83] and international NGOs[84] who finance specific actions for the Blue Economy;
- assist Member States to develop financial schemes relating to the implementation of national BE activities, participate in approaches to financial partners, and ensure a coherent overall approach between the national and regional level;
- mobilise national, regional and international skills (companies, design offices), ensure coordination (project management) of operations and ensure monitoring/evaluation of actions undertaken;
- design detailed documents for each regional initiative and action plan in order to manage them correctly: these documents must contain a simplified logical table, the steering system, the programming of the initiative or action, and the budget;
- define the content and method specific to societal mobilisation activities, capacity building, and mobilisation of stakeholders responsible for their implementation and monitoring.

Member States have an important role to play in the implementation of the BE at national levels, but also in the implementation of regional initiatives and actions that the SADC will coordinate.

The procedures for implementing the process of structuring the BE in the countries of the region are distinct from those necessary for carrying out regional initiatives, and integration and regional coordination actions. However, they follow a similar sequence of steps (see Table 3 below). In addition, the national structuring of the BE and the implementation of regional initiatives and actions requires a strong articulation so that the complementarities and synergies between the levels of intervention are effective.

Table 3: Implementation scheme

Stage	National Level (Pillar 1 and Pillar 2)	Regional Level (Pillar 3 and 4)
Preliminary stage	The structuring of the BE at the country level begins with a strong signal from the government as to the direction to follow and the coordination mechanism to set	Member States must express their willingness to implement initiatives and actions to strengthen cooperation and regional integration. In this regard, close

[83] Like, for example, the Ellen Mac Arthur Foundation, working for the circular economy.

[84] The Nature Conservancy (TNC), World Wide Fund (WWF), Blue Venture, bl'Union mondiale pour la nature (IUCN), etc.

Stage	National Level (Pillar 1 and Pillar 2)	Regional Level (Pillar 3 and 4)
	up to organise the development of the BE.	collaboration with other regional bodies must be implemented.
Step 1: identify and organise the stakeholders and define the portage of the national BE, regional initiatives or actions.	The implementation of the BE should be punctuated by as many general and specific coordination meetings as necessary with the participation of the parties concerned. The coordination unit, already identified in each Member State, ensures its organisation as well as the monitoring and evaluation of the process and the achievements underway.	Each initiative or action calls on different actors, who should be identified and then organised into a regional working group. The national coordination units will oversee identification while it will be up to the regional working group to organise the tasks and the operating mode, particularly with an identification of the structure / regional coordination unit which will carry the initiative or action and national focal points. The SADC, because of its experience in setting up large regional programmes, will bring its expertise and know-how for the formulation of the portage. It will also ensure coordination between initiatives and actions, and projects in progress (or in preparation for SADC).
Step 2: define the specific objectives, draw up specifications and seek funding.	The drafting of a specification (or similar document) will specify the actions, stages, timetables, and responsibilities allowing the BE to progress correctly. This editorial work will be done collectively[85] so that all stakeholders take ownership of the specification and have an overall knowledge of its content and how it will be implemented. The principle of subsidiarity[86] must be applied as much as possible to fully involve the stakeholders at the most appropriate decision-making and active level (economic sectors, local authorities, associations, civil society, etc.). The funding methods will have to be defined according to the tasks to be carried out. Several methods can be discussed with potential funders.	The overall objective of each initiative and action must be well understood by the stakeholders making up the group associated with the initiative or action in order to define a set of specific objectives to which activities, results, and performance indicators will be attached. The declination of the initiative or action into activities must be done to take into account all the parameters, including the constraints related to their feasibility and set up complementary activities. The concern for the articulation of activities between the national and the regional must be constantly in mind to ensure a strong anchoring at both levels. The SADC will bring its knowledge and ensure the link between the levels of decisions and actions. The drafting of a specification, where the implementation of the activities is marked out in terms of responsibilities, as well as the timetable and sequence, punctuates this step. The work is organised by the chosen portage unit. Funding options and mechanisms may be discussed with technical development partners and other

[85] By possibly having recourse to factual and concrete assistance for the formulation of the specifications.

[86] It aims to bring the exercise of powers as close as possible to citizens, in accordance with the principle of proximity and the most appropriate decision-making scale. See https://www.europarl.europa.eu/factsheets/fr/sheet/7/le-principe-de-subsidiarite

Stage	National Level (Pillar 1 and Pillar 2)	Regional Level (Pillar 3 and 4)
		partners such as foundations and international NGOs.
Step 3. implement the national BE, the regional initiative or action, and ensure their monitoring and evaluation.	A baseline situation must be done in detail to qualify and quantify the contribution of blue services (blue carbon and other services) and the production sectors of goods and services to the Blue Economy (in close collaboration with national statistical services). The operationalisation of activities must be given to service providers according to a rigorous selection. Monitoring will be carried out by the BE coordination unit.	Prior to the implementation of any initiative and action, the coordination unit must establish a baseline status and ensure that it has access to information relating to the indicators identified. The quality of monitoring and evaluation depends on it. The implementation of the initiative or action, whilst following standard operating procedures, must ensure consistency between the national and regional scales.

The implementation of national structuring activities (Pillar 1 and Pillar 2) as well as regional initiatives (Pillar 3) and cooperation actions (Pillar 4) thus requires the active participation of all stakeholders.

9 Annex: Detailed presentation of each of the areas of intervention

Overview table

Pillar	Objective	Actions planned
Pillar 1: Structuring SADC member's Blue Economy	To organise the development and the implementation of a Blue Economy in SADC countries	1.1 Defining Blue Economy scope of application 1.2 Knowledge about blue potential and challenges 1.3 Coordination 1.4 Communication 1.5 Resource mobilisation and funding
Pillar 2: Reinforcing sectors of the Blue Economy	To improve the status of current BE sectors and create conditions for the emerging ones	2.1 Develop a series of pilot projects to enhance the value of traditional sectors 2.2 Develop a series of pilot initiatives to develop emerging sectors
Pillar 3: Implementing regional initiatives	To implement four unifying regional initiatives (coasts and oceans without pollution and plastic, positive carbon balance, ecological health and human well-being, and exploration of blue energies)	3.1 Coasts and oceans without pollution and plastics 3.2 Positive carbon balance 3.3 Ecological health and human well-being 3.4 Strengthening disaster risk management 3.5 Blue energy exploration
Pillar 4: Strengthening regional coordination and integration	To strengthen coordination and regional integration by implementing three key actions: the joint organisation of research and training, the development of intra-regional trade by sea, and the design of a regional blue tourism charter	1.1 Research and joint formation 1.2 Development of intra-regional trade by sea and river 1.3 Design of a regional blue tourism charter

Pillar 1: Structuring SADC Member's Blue Economy

The objective of the Pillar 1 is to organise the development and implementation of a Blue Economy in SADC countries.

Action	Activity	Outputs	Indicator	Planning	Coordination/Partners
1.1 Defining Blue Economy scope of application	1.1.1 Design a single definition of Blue Economy from the regional definition (proposed in this report)	Each Member State has a definition of Blue Economy inspired by (or compatible with) the regional definition	Definition of Blue Economy is available in an official document	Nov 2023	Coordination (C): National coordination unit Partners (P): All stakeholders
	1.1.2 Identify Blue Economy sectors that require intervention in each of the socio-economic sectors (solving actual problems, improving the existing, innovation and development)	State of reference of each of the socio-economic sectors in the Blue Economy	Report is available	Nov. 2023	
	1.1.3 Identify components on which intervention is needed in order to restore and value blue potential	Baseline study about the state of coastal, aquatic and marine ecosystems (considering their state of health) and the ecosystem services generated	Report is available	Nov. 2023	
	1.1.4 Definition of socio-economic (circular economy) and environmental (restoration and enhancement of coastal ecosystems) priorities	Documented prioritisation for both the economy and the environment	Consultation workshop (s) held and national report available	Oct 2023	
1.2 Knowledge about blue potential and challenges	1.2.1 Inventory of socio-economic potential based on current knowledge and identification of constraints for the sustainable exploitation of blue capital	Socio-economic potential of blue resources and traditional and emerging sectors assessed, constraints identified and classified according to their nature (environmental,	A report of economic inventory is available	Feb 2024	Coordination (C): National coordination unit P: Ministries of Economy and Environment

Action	Activity	Outputs	Indicator	Planning	Coordination/Partners
		technological, financial, legal, etc.)			P: Research institutes and regional universities in partnership with international specialised institutions
	1.2.2 Inventory of environmental potential, in particular for the contribution to NDC, and identification of constraints for the inclusion of ecosystem services in NDC and in particular blue carbon	Ecological potential assessed, particularly services relating to climate change mitigation and adaptation, identified constraints (availability of expertise, NDC framework, etc.)	A report of economic inventory is available	Feb 2024	
1.3 Coordination	1.3.1 Inclusive participation (possibility of having a large implementation committee and a small committee to facilitate the holding of meetings)	Blue Economy Implementation Committee including all stakeholders in place	Inventory of all stakeholders and official document presenting the composition of the Implementation Committee	Oct 2023	Coordination (C): National coordination unit P: Stakeholders P: Private Sector P: Research institutes and regional universities (international partnerships to be scheduled) P: SADC Secretariat P: Technical partners for development P: National office of statistics P: Ministry of Environment
	1.3.2 Organisation of dialogue between stakeholders, with SADC and the other countries, and with technical development partners	Effective organisational timetable and methods (between stakeholders and with external partners)	Calendar of meetings and method of operation available in an official document	Feb 2024	
	1.3.3 Development of collective transversal initiatives and actions	Carrying out transversal initiatives and actions in the economic and environmental field	Monitoring reports with performance indicators are available	2023-2031	
	1.3.4 Strengthening of the public-private partnership (PPP)	Effective PPP agreements for the implementation of transversal initiatives and actions	PPP agreements are signed	2023-2025	
	1.3.5 Improvement of expertise and development of Blue Economy tools: Marine spatial planning (MSP); Marine Domain Awareness, Integrated Coastal Zone Management, Added Value creation(AV); and employment	MSP is effective and integrated into the decision-making process Effective satellite accounting (separated from national accounting) for measuring	MSP is implemented Blue Economy satellite accountings involved in national accountings	Feb 2024	

Action	Activity	Outputs	Indicator	Planning	Coordination/Partners
	accounting for Blue Economy and ecosystem services (blue natural capital accounting)	added value Blue Economy-related jobs Specific accounting for measuring blue carbon and other ecosystem services of operational importance under the NDC	Blue accounting implemented		
	1.3.6 Periodic monitoring and evaluation of progress made	Monitoring of progress made in the implementation of Blue Economy. Diagnosis of difficulties and proposals for improving the performance of transversal initiatives and actions	Reports on monitoring and evaluation are available	2023-2032	
1.4 Communication	1.4.1 Awareness to the population and stakeholders about the importance of Blue Economy Awareness actions jointly with those proposed in the context of the circular economy and the enhancement of coastal ecosystems	Population with sufficient knowledge of the Blue Economy to induce more responsible behaviour and citizen actions Economic stakeholders including Blue Economy and putting into practice the philosophy of Blue Economy, in particular for circular economy and environmental enhancement Attracting the young through actions in schools and the use of social networks by young people for young people	Result of an annual survey on the level of knowledge on the Blue Economy (population and children in schools) and on the integration of the principles of Blue Economy in activities and work plans (economic actors)	2023-2025	C: National coordination unit P: Communication society

Action	Activity	Outputs	Indicator	Planning	Coordination/Partners
	1.4.2 Dissemination by effective use of different media to publicise achievements in Blue Economy	Population and all stakeholders concerned with the progress made in implementing Blue Economy	Communication tools are available	2023-2032	
	1.4.3 Visibility	Blue Economy achievements widely promoted and disseminated on social networks and media Set of Blue Economy-specific media events affecting a large number of people	Website and electronic media are operational and updated on a regular basis Reports on events are available	2023-2032	
1.5 Resource mobilisation and funding	1.5.1 Clear orientations from the government	Clear indications of the state's commitment, especially in financial topics (including international institutions)	State's positioning document in terms of financial commitment is available	2023-2032	C: National coordination unit in close collaboration with governments (particularly the Ministry of Finance) P: Ministry of Finance and national and international financial operators
	1.5.2 Choice of financial tools	Selection of the best financial tools based on needs, opportunities linked to the national and international context	Confidential strategic document of choice of financial tools for the implementation of Blue Economy	2023-2023	
	1.5.3 Financial implementation	Effective financial organisation for the use and monitoring of Blue Economy funds	Annual activity report of the financial institution in charge of managing Blue Economy funds	2023-2031	

Pillar 2: Reinforcing sectors of the Blue Economy

The objective for the Pillar 2 is to improve the status of current BE sectors and create conditions for the emerging ones

Action	Activity	Outputs	Indicator	Planning	Coordination/Partners
2.1 Develop series of pilot projects to enhance the value of traditional sectors	2.1.1 Identify a set of key interventions that will enhance the development of traditional BE sectors	Key set of interventions clearly identified following stakeholder workshops with each sector	Report on key set of interventions available	June 2024	Coordination (C): National coordination unit Partners (P): All stakeholders
	2.1.2 Set-up concept notes for pilot projects for each of the traditional sectors. Approach of technical and funding cooperation agency for supporting pilot projects.	Concept notes for pilot projects presented to the cooperation agencies	Concept notes and minutes of meetings with cooperation agencies.	June 2024	
	2.1.3 Develop detailed project presentation after securing funding	Detailed presentation of each pilot project done with a feasibility study	Detailed project presentations	Dec. 2024	
	2.1.4 Implementation, monitoring and evaluation	Pilot project implemented	Pilot project reports available	2023-2030	
2.2 Develop series of pilot initiatives to develop emerging sectors	2.2.1 Identify a set of key interventions that will contribute to the development of emerging BE sectors	Key set of interventions clearly identified following stakeholder workshops with each sector	Report on key set of interventions available	Dec 2023	Coordination (C): National coordination unit P: All stakeholders
	2.2.2 Set-up concept notes for pilot initiatives for each of the emerging sectors selected. Approach of technical and funding cooperation agency for supporting pilot projects.	Concept notes for pilot initiatives presented to the cooperation agencies	Concept notes and minutes of meetings with cooperation agencies.	June 2024	
	2.2.3 Develop detailed initiative presentation after securing funding	Detailed presentation of each pilot initiative done	Detailed initiative presentations	Dec. 2024	
	2.2.4 Implementation, monitoring and evaluation	Pilot initiative implemented	Pilot initiative reports available	2022-2025	

Pillar 3: Implementing regional initiatives

The objective for the component 2 is to implement four unifying regional initiatives (coasts and oceans without pollution and plastic, positive carbon balance, ecological health and human well-being, exploration of blue energies).

Initiative	Activity	Outputs	Indicator	Planning	Coordination/Partners
3.1 Coasts and oceans without pollution and plastics	3.1.1 Structuring of the working group, definition of a coordination unit and operating modes (capitalisation with the current SADC initiative and the upcoming ones)	Working group is put in place	Meeting reports are available	December 2023	C: Initiative's regional coordination unit P: Stakeholders, research institutes and universities (international partnerships) P: Business owners (both production and distribution), civil society P: SADC countries and regional political institutions
	3.1.2 Characterisation of the chemical and plastic pollution in the watersheds and in the LMEs of the Benguela Current and the Agulhas Current (hydrocarbons, chemical, plastic, biological) and identification of polluting sources (land and sea) and outfalls (especially ballast water)	Pollution is characterised and sources are identified	Experts reports are available	2025	
	3.1.3 Collective reflection for the formulation of detailed proposals for the reduction of pollution (by applying the principle of the circular economy) and by developing collective action plans	Proposals are made for the countries (recycling, alternatives to plastic, changes in behaviour, etc.) and for the SADC region, the establishment of a political and technical dialogue at a regional scale (especially legal), for the formulation of compensation procedures	National proposals are available, regional political, legal and technical proposals are available for the establishment of a mechanism of compensation for damages suffered by SADC Member States	2024/2025	
	3.1.4 Detailed elaboration of proposals in the form of projects for the states and dialogue at the SADC scale	A series of national projects documents and dialogue document at regional level formulated	Project and dialogue documents are available	2025	

Initiative	Activity	Outputs	Indicator	Planning	Coordination/Partners
	3.1.5 Implementation of projects at national and regional scales and dialogues at the SADC scale	are implemented	Actual projects and political and technical dialogue are implemented	2024/2032	
	3.1.6 Monitoring and evaluation of each project and political dialogue and setting up (as far as possible) a regional observatory to detect pollution from the source	Periodic monitoring of projects and dialogue, and mid-term and final evaluation of projects and political dialogue are implemented	Reports on monitoring and evaluation are available	2024-2032	
3.2 Positive carbon balance	3.2.1 Structuring of the working group, definition of a coordination unit and operating modes around the implementation of the NDC	A Working group is put in place	Meeting minutes are available	2023	C: Initiative's regional coordination unit P: Stakeholders, research institutes and universities (international partnerships) P: Business owners (both production and distribution), civil society P: Technical and financial partners
	3.2.2 Assessment of carbon sequestered (by type of ecosystem considering their state of health) and emitted (using NDC data). Use of the accountings developed for this purpose by the countries and specific MSP tools (surface areas and health status of ecosystems). Assessment of other services of importance to the NDC (coastal protection in particular)	Quantified assessment of the carbon footprint (storage and CO2 emissions) and ecosystem services of importance to NDC is done	Evaluations are available	2024/2032	
	3.2.3 Integration of Blue Carbon and other ecosystem services into NDC	NDC 2025-2030 is taking into account coastal, river and lake ecosystem contribution	NDC documents are available	2024/2030	
	3.2.4 Collective reflection and proposal of practical measures for the reduction of carbon emissions and the increase of sequestration capacity. A round table is organised with technical and financial partners to define the most appropriate funding methods	A limited number of practical measures (in the form of a concept note) are proposed and subject to a funding request	Document about the presentation of the measures is available	December 2023	
	3.2.5 Detailed development of measures in the form of projects for the restoration of damaged	A limited set of regional projects relating to the	Project documents are available	December 2023	

Initiative	Activity	Outputs	Indicator	Planning	Coordination/Partners
	ecosystems, the protection of those at risk and the expansion of coastal ecosystems (by overall increasing the capacity of ecosystems to sequester carbon and provide ecosystem services)	restoration, protection and expansion of coastal ecosystems is subject to validation and funding			
	3.2.6 Implementation of restoration, protection, and expansion projects for coastal ecosystems aimed at a positive carbon balance, and monitoring and evaluation of these projects	Projects are implemented in a concerted manner aiming at a positive carbon footprint and application of the classic rules of monitoring and evaluation is conducted	Projects are achieved and the monitoring is done	2024-2032	
3.3 Ecosystem health and human well-being	3.3.1 Structuring of the working group, definition of a coordination unit and operating modes (two representatives per country with ecological, scientific and medical skills in place during the whole the project in order to ensure the continuity of the programme)	A Working group is put in place with regular meetings (use of video conference to limit travel as much as possible)	Meeting minutes are available	2024-2032	C: Initiative's regional coordination unit P: Stakeholders, including environmental and health authorities P: Civil society P: Hospitals and medical associations P: Research institutes and universities (health, psychology, etc.)
	3.3.2 Assessment of the state of the health of ecosystems in the borders of urban centres after carefully defining a common working method adopted by the Member States and assessment of the importance of blue ecosystems for mental health and well-being of urban populations	Assessment report on the importance of blue ecosystems for the health of urban populations are carried out	Evaluation reports are available	2025/2032	
	3.3.3 Collective reflection and proposals for measures to restore blue peri-urban ecosystems and develop blue-grey cohabitation projects (city)	Project proposals (concept note) are submitted to technical and financial partners	Reports on the presentation of the project are available	2024	
	3.3.4 Detailed development of projects relating to the improvement of the health of blue ecosystems, the urban population / nature relationship and particularly the awakening to coastal nature	Restricted set of projects are developed and validated for funding	Reports on the presentation of the validated projects are available	2024	

Initiative	Activity	Outputs	Indicator	Planning	Coordination/Partners
	3.3.5 Implementation of successful proposals and periodic monitoring and evaluation of progress	Set of projects are carried out and monitoring and evaluation is carried out according to international standards	Monitoring reports are available	2024-2032	
3.4 ?????	3.4.1 Standardised instruments and tools developed to facilitate disaster risk reduction and risk governance in blue economy sectors	Standardised instruments and tools for disaster risks reduction developed	Number of instruments and tools to facilitate disaster risk reduction and risks governance available	2026	C: Initiative's regional coordination unit P: BE sector ministries, BE sector representatives, private sectors, NGOs, academia
	3.4.2 Detailed development of mechanisms for identification, assessment, and monitoring of disaster risks, including data and information management.	Mechanisms for identification, assessment and monitoring of disaster risks developed and implemented	Number of mechanisms for assessment and monitoring and risks developed	2026/2032	
	3.4.3 Investments in climate and disaster risk readiness capacities in early warning mechanisms, planning and management.	Capacities for disaster risk readiness and early warning developed	Investment in capacities for disaster risk readiness and early warming taken place and reports available	2032	
	3.4.4 Development of policy frameworks for the resettlement of persons displaced by natural disasters.	Policy framework for resettlement of displaced people developed and implemented	Number of frameworks for resettlement of displaced persons available	2032	
3.5 Blue energy exploration	3.5.1 Structuring of a blue energy steering committee (ensuring coordination and relying on technical advice from an enlarged working group) and definition of operating methods.	Steering committee and expanded working group are operational	Meeting minutes are available	2024	C: Initiative's regional coordination unit P: Representatives of the competent ministries who designate their team; local authorities (in charge of
	3.5.2 Identification potential of types of blue energy and the places of installation for infrastructure at sea and on land; measurement of impacts and conflicts	Identification of blue energies and potential impacts is conducted	Reports are available	2025	

Initiative	Activity	Outputs	Indicator	Planning	Coordination/Partners
	3.5.3 Definition of needs / indicators / objectives to be achieved according to the national and regional policies of the countries (quantity produced, storage, network coverage, energy autonomy to be achieved, cost price, etc.)	Member States' energy forecast and conditions for meeting future demand are conducted	Reports are available	2024-2032	economic development / energy); scientists; qualified technicians; representatives of the economic world (companies, donors, etc.)
	3.5.4 Collective reflection for the selection of the fields of blue energy to explore and development of pilot projects based on the sharing of information and technologies / expertise in order to ensure the use of the correct technology according to the local conditions. Development of international partnerships specific to each area.	Restricted selection of pilot projects in terms of exploring the real potential of blue energy is carried out, discussion / submission to technical and financial partners and setting up of international partnerships	Reports on selection and partnerships agreements are available	2026	
	3.5.5 Implementation of the exploratory phase with public awareness (communication, education, training); monitoring and evaluation.	Number of sites where the potential of the Blue Economy has been explored	Monitoring reports are available	2024-2032	C: Initiative's regional coordination unit P: BE line Ministries, National Coordinating Unit, civil society

Pillar 4: Strengthening regional coordination and integration

The objective for component 3 is to strengthen coordination and regional integration by implementing three key actions: the joint organisation of research and training, the development of intra-regional trade by sea, and the design of a regional blue tourism charter.

Action	Activity	Outputs	Indicator	Planning	Coordination/Partners
3.1 Joint research, training and innovation	3.1.1 Structuring of the working group (designation of countries representatives), definition of a restricted coordination unit, definition of operational method	Operational working group and functional coordination unit	Meeting minutes are available	2023	C: Regional coordination unit P: Research institutes and universities in the region, and partnerships with international institutions
	3.1.2 Inventory of existing research and identification of research needs (inventories of expertise, institutions, existing courses, exchanges that are being made, current and future projects, existing partnerships, etc.)	Complete and detailed inventory	Reports are available	2023	
	3.1.3 Identification of training needs, review of existing courses (training of researchers, technicians, education experts to support communities, young people and civil society, etc.), and understanding of the educational needs linked to the future professions (biotechnology, blue ecotourism, etc.)	Needs clearly identified by training and education sectors and categories	A presentation report on educational needs is available	2023	
	3.1.4 Definition of possibilities for collaboration in research and development of centres of excellence (plastic pollution, zoning and cartography, ocean acidification, depredations, CO2 sequestration and nature-based solutions, contamination, land-based pollution, etc.)	Proposal for regional scientific collaboration	The proposal Report is available	2023-2024	
	3.1.5 Definition of possibilities for unifying teaching programs and developing joint programs specific	Areas of educational collaboration clearly	Report is available	2023	

Action	Activity	Outputs	Indicator	Planning	Coordination/Partners
	to new technologies (for example: renewable energies, waste recovery technology, etc.)	identified			
	3.1.6 Establishment of joint research activities at the regional scale with conferences, publications, etc., and monitoring and evaluation	A joint program carried out	Program results and monitoring and evaluation reports are available	2023-2024	
	3.1.7 Implementation of a limited number of joint training / education programmes in the fields of Blue Economy (secondary school diplomas, academics, maritime school, short courses, etc.), and monitoring and evaluation	Training provided in previously defined areas	Number of people trained, monitoring and evaluation reports are available	2023-2031	
3.2 Development of intra-regional trade by sea and rivers	3.2.1 Adoption of a regional framework for the competitiveness of maritime transport based on the implementation of a certain number of activities: - Study on the actual situation and future development of regional trade including the region of Central, Southern and Eastern Africa. - Analysis and monitoring of the logistics performance index - Proposal for a regional maritime transport framework - Establishment of a regional system for monitoring the competitiveness of maritime and river transport	Regional framework for the competitiveness of maritime and river transport in place	Documents and studies relating to the competitiveness framework are available	2023-2029	C: Regional coordination unit P: maritime and river basin transport stakeholders
	3.2.2 Improvement of the governance of maritime and river transport at the national level: - Revision / formulation of the national framework for maritime and river transport and investment according to the previously stated objectives and within AfCFTA framework - Design of an integrated strategy for the supply chain and the connectivity	Improvement of national governance of maritime and river transport	Activities and Monitoring-evaluation reports are available	2023-2030	

Action	Activity	Outputs	Indicator	Planning	Coordination/Partners
	- Development and implementation of plans to improve national competitiveness. - Development and implementation of the strategy for the promotion of investment - Development of public-private partnership for capacity development and for the improvement of maritime infrastructure, infrastructure for monitoring and management, etc.				
	3.2.3 Strengthening Member States' institutional capacity to improve maritime connectivity and the efficiency of ports. Human resource capacity development throughout the maritime transport supply chain. Research and Development (R&D) and innovation, particularly in terms of reducing the energy, environmental footprint, etc.	Strengthened institutional and human capacities	Activities, and monitoring and evaluation reports are available	2023-2029	
3.3 Design of a regional blue tourism charter	3.3.1 Structuring of the working group, of the coordination unit and definition of the operating methods by association of all the actors of tourism and the local communities (association of hoteliers, association of air carriers, tourist offices, local authorities, etc.)	Working group and functional coordination unit	Meeting minutes are available	Aug 2023	C: Regional coordination unit P: Tourism sector and tour operators, aeroplane companies, and all the actors that are active in the operationalisation of the tourism sector in the region
	- Census of existing charters and good practices in tourism (green, ecotourism, nature tourism, etc.) and identification of the difficulties for their implementation in terms of: - Communication and marketing - Collaboration with the touristic association - Obtaining visas	Survey of charters and good practices	Report on the inventory of charters and good practices available	2023	
	3.3.2 Analysis of tourist flows between the countries and analysis of the positioning of tourism in the countries with regard to the SDGs and the principles of Blue Economy (circular economy, social equity, etc.), considering in particular:	Analysis of inter-country tourist flows and positioning of tourism in the Member States finalised	Document relating to tourist flows and the positioning of tourism is available	2024	

Action	Activity	Outputs	Indicator	Planning	Coordination/Partners
	- direct involvement of tourism stakeholders in the conservation / preservation of ecosystems - perception of populations and tourism stakeholders - absorption capacity of tourists according to the carrying capacity of the environment and the capacity of social acceptance				
	- Collective reflection and identification of the areas of intervention for the charter, with particular attention to: - Current good practices linked to touristic activities (conservation tourism, ecotourism, awareness-raising activities for the protection of natural environments, etc) - The opportunities offered by the development of African tourism, tourism of the millennial generation, sensitive to environmental aspects - Ownership of the charter by operators (bottom-up approach) and approval by decision-makers - Communication and visibility	Precise intervention of Pillar identified	Document relating to the presentation of Pillar is available	2023	
	3.3.3 Redaction and signing of the SADC Blue Tourism Charter	The regional charter for blue tourism is signed	The signed document is available	2024	
	3.3.4 Consultation with technical and financial partners to fund the implementation of the charter (for example: INTERREG and FED financing). Implementation of the charter and monitoring and evaluation	Financing agreements are obtained and the regional blue tourism charter is implemented	Charter is implemented, activities and monitoring and evaluation reports are available	2023-2030	