INTEGRATED COASTAL ZONE MANAGEMENT IN LIBERIA

TECHNOLOGY DESCRIPTION

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Integrated Coastal Zone Management (ICZM) is a dynamic, multidisciplinary and iterative process to promote sustainable management of coastal zones. The ICZM seeks, over the long-term, to balance environment, socio-economic, cultural and recreational objectives all within the limits set by natural dynamics. It covers the full cycle of information collection, planning, decision making, management and monitoring of implementation in the coastal zone. Some benefits of ICZM are: ICZM protects lives and properties by reducing climate change induced coastal vulnerabilities and risks through the establishment of communication and coordination strategies; ICZM reduces ecosystem degradation; and also conserves and maintains existing ecosystems from potential climate change impacts through policies, laws and regulations. In so doing, it manages and protects coastal resources in a sustainable way while providing appropriate measure to address short and most importantly long-term challenges in coastal zones. ICZM has been established and currently functioning in many developed countries with numerous success stories. Therefore, ICZM can also be established in Liberia to address the many climate change negative problems affecting the coastal zone as it is one of the nation's vital economic and environmental sectors.

CURRENT TECHNOLOGY READINESS LEVEL OR COMMERCIAL READINESS INDEX

The current Technology Readiness Level (TRL) for the ICZM technology in Liberia can be considered as TRL 7; meaning that TRL 1 to 6 have been met. This TRL status of the ICZM covers the EU-HLG Technological Research (*pillar 1*) and the KET pilot line and demonstration projects (*pillar 2*). Below is the detail of the TRL 7, *Technology Readiness Levels (TRL):*

- TRL 7 – system prototype demonstration in operational environment

CLIMATE RATIONALE OF THE TECHNOLOGY

Environmentally, ICZM promotes sustainable management of the coastal zone. It protects lives and properties by reducing climate change coastal vulnerabilities and risks through the establishment of proper communication, coordination and management strategies. It aims at reducing ecosystem degradation while conserving and maintaining existing coastal environment (ecosystems, habitats, livelihoods) from potential climate change impacts through policies, laws and regulations; and research. In so doing, it manages and protects coastal resources in a sustainable way while providing appropriate measure to address short and long-term challenges in coastal areas.

Therefore, the objective and target for the deployment and diffusion of ICZM in Liberia is to promote sustainable usage, planning and management of coastal resources and ecosystems so as to protect vulnerable lives and properties therein from present and future related climate change impacts.

AMBITION OF THE TECHNOLOGY

SCALE FOR IMPLEMENTATION AND TIME-LINE

The Technology Action Plan for the ICZM is to be implemented for a period of ten years (2021- 2031). After said duration, it is highly recommended to be reviewed and updated as per the current/ prevailing future situation following a needs assessment and gap analysis. The scale of implementation is at the national level across all coastal areas. The activities of the technology will initially give priority to the most vulnerable cities.

AMBITION FOR TECHNOLOGY READINESS LEVEL OR COMMERCIAL READINESS INDEX

The current Technology Readiness Level (TRL) for the ICZM technology in Liberia can be considered as TRL 7 which corresponds to the EU-HLG Technological Research (*pillar 1*). The ambition for the deployment and diffusion of the ICZM in Liberia is to promote sustainable usage, planning and management of coastal resources and ecosystems so as to protect vulnerable lives and properties therein from present and future related climate change impacts. It is expected and recommended that the TRL for the ICZM by the target year of implementation to be at least TRL 6. *TRL 6 = technology demonstrated in relevant environment (industrially relevant environment in the case of key enabling technologies)*.

EXPECTED IMPACTS OF THE TECHNOLOGY

The deployment and diffusion of ICZM is expected to promote sustainable usage, planning and management of coastal resources and ecosystems so as to protect vulnerable lives and properties within Liberia's coastal areas from present and future related climate change impacts. This will include the construction of sustainable coastal defense systems (soft and hard engineering structures) and the development of policies and regulations to sustainably manage the coastal zone. It is expected to increase climate change knowledge and information sharing with respect to climate adaptation and mitigation. The knowledge sharing will cover both theoretical and technical hands-on training programs. ICZM promotes and enables the involvement of local communities or stakeholders' participation in decision making of sustainable environmental management. The regulations developed will help the promotion of new jobs in vulnerable coastal areas; this will also enable the proper management of activities in these vulnerable communities and will subsequently reduce environmental degradation. In so doing, it will promote conservation of some specific important coastal ecosystems and habitats.

POLICY ACTIONS FOR TECHNOLOGY IMPLEMENTATION

EXISTING POLICIES IN RELATION TO THE TECHNOLOGY

Nationally Determined Contribution of Liberia (NDC), 2021: Liberia's revised NDC is the nation's 5 years commitment submitted to the UNFCCC. The NDC indicates Liberia's commitment to climate change adaptation targets for eight sectors: Agriculture, Forests, Coastal zones, Fisheries, Health, Transport, Energy and Waste; as well as cross-cutting targets for urban green corridors. The coastal sector's adaptation targets include the construction or implementation of coastal protection systems such as hard engineering methods and also green/ gray environmentally sustainable measures. "***NDC (2021),*** *Nationally Determined Contribution of Liberia; submitted to the UNFCCC on August 4, 2021".*

National Policy and Response Strategy on Climate Change (NPRSCC) of 2018: The climate change policy and strategy document is prepared in order to ensure that climate change adaptation and mitigation issues are mainstreamed at policy level and in key sectorial and cross-sectorial development efforts. The NPRSCC includes concrete policy and

measures in specific areas on climate change adaption and mitigation, action and resource mobilization plans and monitoring and evaluation framework. "***NPRSCC (2018),*** *National Policy and Response strategy on Climate change Liberia, NUDRR Prevention Web, viewed 8 October 2021".*

National Disaster Management Policy of Liberia (NDMP), 2012: The NDMP provides an overall framework for disaster management in Liberia. It particularly aims at integrating risk reduction as appropriate into development policies and planning at all levels of government; including the environment, land, agriculture & forestry sectors, coastal areas and etc.

PROPOSED POLICIES TO ENHANCE TECHNOLOGY IMPLEMENTATION

The Technology Needs Assessment TAP report recommends the *development of a legal framework, act or policy plan for the establishment, functioning and operations of ICZM in Liberia.*

The report recommends the following activities for the achievement of the above policy related action:

- MME & EPA to conduct workshop/training of ICZM functions/ role and principles to the list of identified responsible actors, institutions that are directly or indirectly involved with the management of coastal areas;
- EPA to prepare a list of the most important laws (framework, policies…) affecting the management of coastal resources;
- EPA & MME to conduct gap analysis and needs assessment of the laws and framework, policies etc. and establish ICZM steering committee;
- EPA to create/implement/enforce laws, policies, strategies, framework if needed. This should involve stakeholder's participation from institutional to local community based group level.

COSTS RELATED TO THE IMPLEMENTATION OF POLICIES

The estimated cost for the implementation of the above mentioned policy and its related activities for the ICZM is about USD $3,250,000.00 (Three Million two hundred and fifty thousand). The detailed costs for this policy action and that of each related activity are available in the TNA TAP's report at https://tech-action.unepdtu.org/country/liberia/

USEFUL INFORMATION

CONTACT DETAILS

1. Name: Mr. Christopher B. Kabah
   Position: National Coordinator; Technology Needs Assessment (TNA) – Liberia;
   National Designated Entities (NDE) at Environmental Protection Agency (EPA) of Liberia
   E-mail: kabahchristopher@gmail.com
   Phone: 00231777308694 / 00231880337474

Below are contact details of the "Champion" (from Ministry/Government, from the expert group, private sectors and etc.)

1. Name: Johnson S. Willabo Jr.
   Position: Asst. Minister: Ministry of Mines & Energy (MME), Liberia;
   Focal point of coastal zone
   E-mail: Johnson.willabo@yahoo.com
   Phone: 00231775191393

2. Name: Prof. Wilson K. Tarpeh
   Position: Executive Director, Environmental Protection Agency (EPA), Liberia
   E-mail: wtarpeh@epa.gov.lr

LINKS TO TNA REPORTS

Liberia's sub-page on the TNA website *https://tech-action.unepdtu.org/country/liberia/*

Environmental Protection Agency of Liberia's website https://www.epa.gov.lr/

Liberia's Environmental Knowledge Management System website https://ekmsliberia.info/

Diversified information for the country https://www.emansion.gov.lr/