

Guidelines:

- This Request Submission Form should be completed by the organisation requesting technical assistance from the Climate Technology Centre & Network (CTCN) in collaboration with the National Designated Entity (NDE) of the country in question
- The Form must be signed by the NDE. Please see updated contact list of NDEs here: <http://unfccc.int/ttclear/support/national-designated-entity.html>
- The Form can be submitted as a Word file containing a digital signature or as a signed and scanned PDF file in combination with an un-signed Word file
- For requests submitted by multiple countries, all the NDEs of the respective countries shall sign identical Forms before official submission to the CTCN
- NDEs have the opportunity to submit CTCN requests in collaboration with National Designated Authorities (NDAs) for the Green Climate Fund (GCF) if targeting the GCF Readiness Programme.

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| Requesting country or countries: | Liberia |
| Request title: | The establishment of a full functional <i>Integrated Coastal Zone Management (ICZM)</i> to promote sustainable coastal zone management in order to protect lives, properties and the environment. And to as well adapt / mitigate the existing and other potential climate change risks and vulnerability affecting coastal residents in Liberia. |
| NDE | Mr. Christopher B. Kabah TNA National Coordinator Environmental Protection Agency of Liberia Email: kabahchristopher@gmail.com |
| Request Applicant: | Professor Wilson K. Tarpeh Executive Director / CEO: Environmental Protection Agency of Liberia Email: wtarpeh@epa.gov.lr Mr. Jefferson Nyandibo Multilateral Environmental Agreements Coordinator Email: jnyandibo@epa.gov.lr |

Climate objective:

- ☐ Adaptation to climate change
☐ Mitigation of climate change
☒ Combination of adaptation and mitigation of climate change

Geographical scope:


☐ Community level☐ Sub-national☒ National☐ Multi-country

If the request is at a sub-national or multi-country level, please describe specific geographical areas (provinces, states, countries, regions, etc.).

Problem statement related to climate change:

The coastal zone in Liberia is one of the nation's greatest environmental and economic assets. In Liberia, more than 70% of the population lives within its coastal areas which cover approximately 580km in length, (DAI 2008).

However, the direct impacts of coastal erosion, floods, saline/ seawater intrusion into fresh drinking waters, sea level rise and etc. have become some of the alarming climate change risks currently affecting coastal cities and communities along majority of Liberia's coastline. Currently, lives and properties, including socio-economic activities, coastal habitats and ecosystems along the nation's coastline are faced with the direct threats from coastal erosion, flood and related sea level rise impacts. The impacts of coastal erosion is currently disrupting livelihoods, destroying properties and leaving many residents homeless in coastal communities due to the lack of sustainable approach to mitigate or adapt to the direct threats presented to the communities.

As such, the establishment/ implementation of a full functional integrated coastal zone management (ICZM) which was one of the three prioritized coastal zone's technologies for Liberia's TNA process shall immensely facilitate and promote the reduction of climate change risks and the level of vulnerability to lives, properties and coastal ecosystems sustainably.

The ICZM as a technology is a cross-cutting (adaptation & mitigation), 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. The ICZM regulates and reduces ecosystem degradation; and also conserves and maintains existing ecosystems from potential climate change impacts.

Past and on-going efforts to address the problem:

In an effort to address climate change impacts that are affecting the country's developmental agenda, Liberia has conducted many vulnerability assessments and has identified priority adaptation sectors and activities in its Intended Nationally Determined Contributions (INDC), and National Policy and Response Strategy on Climate change (NPRSCC, 2018). Moreover, The Agenda for Transformation (AfT, 2013), the country's five years national development document recognizes climate change adaptation and mitigation under Pillar V as a cross cutting issue. Climate change impacts assessments have demonstrated that climate change will, and is currently affecting the wellbeing of Liberians and socio-economic aspects of the country (USAID, 2013).

There is environmental degradation with a gradual loss of forest cover and the impact of climate change is already being felt in variability of climatic conditions with uncertain rainfall,

increasing temperatures and sea erosion (noticeably in coastal communities). To address these issues, the government of Liberia has passed several important policies and strategic documents of long-term sustainable development to combat climate changes.

The Coastal Add-On project (CAP) is another achievement of Liberia's continuous efforts and commitment to combat climate change impacts for which the government of Liberia obtained funding from the Global Environmental Facility (GEF) through the UNDP to Enhance Resilience of Liberia's Montserrado County Vulnerable Coastal Areas to Climate Change Risks. In 2019, the CAP constructed a 1200 (One Thousand, Two Hundred) linear meters coastal defense "Revetment" in the D-Twe, Kru-Town area to reduce the vulnerability of the community's population and natural coastal environment to climate change risks, and enhance the capacity of the community to recover from coastal erosion impacts.

In the same effort to combat climate change impacts, Liberia is currently participating in the TNA process and has already prioritized three sectors that are under threat by climate change impacts, namely: Coastal zone & Agriculture sectors (Adaptation) and Energy sector (Mitigation). At the end of said Project, the outcomes of the TNA, Barrier Analysis, Technology Needs Assessment for Climate Change Adaptation in Liberia Action Plan and Enabling Frameworks will provide background to accelerate the development and transfer of the priority technologies in the country to address some of the above climate change impacts.

Specific technology¹ barriers:

The Economic and Financial barriers identified for the adoption and diffusion of Integrated Coastal Zone Management in Liberia that hinder national efforts are:

- High capital cost for equipment to facilitate the proper adoption, transfer and diffusion of the ICZM as a technology for sustainable management across all affected and vulnerable coastal cities and communities in Liberia;

- Limited and inadequate access to public funding / support: nationally, there is a limited and inadequate access to public funding or external support for the procurement of coastal zone monitoring equipment to sustainably manage the vulnerable areas.

Most of the government institutions such as marine related protection or conservation, wild life, agriculture, environmental authority, universities, research institutions, etc., involved with different aspects of coastal ecosystem research or management lack adequate funds for coastal ecosystem related management activities.

Some of the Non-financial barriers identified for the implementation, transfer and diffusion of Integrated Coastal Zone Management in Liberia are:

- Lack of commitment by the local coastal communities and some institutions / industries to accept the technology and secure or protect existing sand dunes and other coastal ecosystems and environments; because the human induced destructive coastal activities have been a source of income for them. This problem has been identified as an important barrier arising out of social, cultural, gender and behavioural patterns of the resource users.

- Limited involvement of local community groups, CBOs, youth groups; and also the non-

¹ "any equipment, techniques, practical knowledge and skills needed for reducing greenhouse gas emissions and adapting to climate change" (Special Report on Technology Transfer, IPCC, 2000)

representation of possible social and vulnerable groups and leaders could impede the proper diffusion, functioning and sustainability of ICZM.

- Limited understanding of the fundamental aim and principles of ICZM by many stakeholders and decision makers/ politicians is a major point to be considered because this has led to an inactive technology, and non-achievement of ICZM's objectives in many places;
- Lack of technical expertise in the different sectors or disciplines of the ICZM;
- Limited and inadequate coordination among institutions with the same existing between coastal community leaders (stakeholders) and at individual level. This is a serious challenge to the successful transfer and adoption of a technology;

Sectors:

- | | | | |
|--|--|--|---|
| <input checked="" type="checkbox"/> Coastal zones | <input checked="" type="checkbox"/> Early Warning and Environmental Assessment | <input type="checkbox"/> Human Health | <input checked="" type="checkbox"/> Infrastructure and Urban planning |
| <input checked="" type="checkbox"/> Marine and Fisheries | <input checked="" type="checkbox"/> Water | <input type="checkbox"/> Agriculture | <input type="checkbox"/> Carbon fixation |
| <input type="checkbox"/> Energy Efficiency | <input type="checkbox"/> Forestry | <input checked="" type="checkbox"/> Industry | <input type="checkbox"/> Renewable energy |
| <input checked="" type="checkbox"/> Transport | <input type="checkbox"/> Waste management | | |

Please add other relevant sectors:

Cross-sectoral enablers and approaches:

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|---|---|---|---|
| <input checked="" type="checkbox"/> Communication and awareness | <input checked="" type="checkbox"/> Economics and financial decision-making | <input checked="" type="checkbox"/> Governance and planning | <input checked="" type="checkbox"/> Community based |
| <input checked="" type="checkbox"/> Disaster risk reduction | <input checked="" type="checkbox"/> Ecosystems and biodiversity | <input checked="" type="checkbox"/> Gender | |

Technical assistance requested :

The intent for the technical assistance is to establish an integrated coastal zone management in Liberia to:

- Develop and implement coastal zone policy, strategy and management plan;



- Identify green / soft engineering measures or construct hard engineering structures such as sea walls, revetments or groynes;
- Manage and conserve coastal mangrove ecosystem;
- Facilitate technology transfer and training of institutional and local experts and vulnerable communities in coastal zone management and monitoring.

The above will regulate and as well facilitate the reduction of climate change risks and vulnerability to lives, properties and the environment in coastal communities sustainably.

At this point, there is no defined coastal regulatory policy, legal framework and or an authority from the "ICZM" prospective to sustainably manage the coastal zone in Liberia. In this light, the ICZM will seek over the long-term to balance the environment, socio-economic, cultural and recreational objectives all within the limits set by natural dynamics. The ICZM will cover the full cycle of information collection, planning, decision making, management and monitoring of implementation in the coastal zone. It will also reduce coastal ecosystem degradation; and as well regulate, conserve and maintain existing ecosystems / coastal environments from potential climate change impacts and other destructive human activities within the coastal zone. In so doing, the successful adoption, transfer and diffusion of the ICZM in Liberia will establish comprehensive policies and some approach that would regulate the existing problem and as such, will also create and provide an enabling environment to mitigate and adapt to the ongoing climate change impacts.

It is expected that a full functional ICZM will provide public awareness and information dissemination about the ICZM sustainable management regulations and as well as capacity building. The ICZM will involve the participation of local community leaders and concerned stakeholders as well, including vulnerable groups that are directly affected by the impacts of coastal erosion and other climate change impacts in planning and decision making. Community based Action Groups will be created and supported to implement and uphold the established sustainable coastal regulations of the technology at local levels. This project will also regulate and evaluate, and if necessary monitor and provide technical designs of coastal protections to avoid adverse impacts to nearby environments.

With these expected outputs, the ICZM will sustainably regulate and facilitate the reduction of climate change risks and vulnerability such as coastal erosion, flood, seawater intrusion into fresh drinking waters and other related sea level rise impacts to lives and properties in coastal communities. Develop and implement coastal zone policy, strategy and management plan. Implement technology transfer and training of institutional and local experts and vulnerable communities in coastal zone management and monitoring.

In so doing, the project will reduce the vulnerability of the community's population and natural coastal environment to climate change risks, and enhance the capacity of the community to recover from coastal erosion and other climate change impacts.

Expected timeframe:



The Integrated Coastal Zone Management (ICZM) will be established, Implemented, transferred and defused within the vulnerable and affected coastal cities in Liberia within a one (1) year period.

Anticipated gender and other co-benefits from the technical assistance:

The establishment and implementation of an Integrated Coastal Zone Management to mitigate or adapt to coastal erosion, flood and other sea-level rise impacts within the coastal zone will significantly protect the lives of some important vulnerable groups such as women and children, the disable, fishmongers and that of those who depend on beach ecotourism as a source of income and livelihood.

The implementation of this project with proper management of the coastal zone and implementation of some coastal defense systems to reduce the impacts of coastal erosion and flood, degradation of coastal ecosystems, disruption of livelihood and other socio-economic activities will enhance the capacity of local communities to recover from climate change impacts and prevent the destruction of homes and other properties, roads and businesses in coastal areas. As such, there will be a limited displacement of women and children and other vulnerable groups due to the expected limited destruction of their homes and businesses by coastal erosion, flood and related sea-level rise impacts in regards to a successful implementation of the technology.

Key stakeholders:

Please list the stakeholders who will be involved in the implementation of the requested CTCN technical assistance and describe their role during the implementation (for example, government agencies and ministries, academic institutions and universities, private sector, community organizations, civil society, etc.).

| Stakeholders | Role to support the implementation of the technical assistance |
|---|---|
| National Designated Entity | Mr. Christopher B. Kabah National Designated Entity (NDE) / TNA National Coordinator Environmental Protection Agency of Liberia |
| Request Applicants | Professor Wilson K. Tarpeh Executive Director / CEO: Environmental Protection Agency of Liberia/National Designated Authority (NDA) Mr. Jefferson Nyandibo Multilateral Environmental Agreements Coordinator Email: jnyandibo@epa.gov.lr |
| Local coastal community leaders and vulnerable groups | Involvement in the planning and decision making of actions that will be applied to their communities, and to as well uphold the regulations for the sustainable coastal zone management. |



Alignment with national priorities:

Please describe how the technical assistance is consistent with national climate priorities such as: Nationally Determined Contribution, national development plans, poverty reduction plans, technology needs assessments, Low Emission Development Strategies, Nationally Appropriate Mitigation Actions, Technology Action Plans, National Adaptation Plans, sectorial strategies and plans, etc.

| Reference document | Extract |
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| National Environmental Policy of Liberia, 2003 | <p>This assistance request is consistent with the overall goal of the Liberian National Environmental Policy (Page: 8), and that of the indicated “<i>environmental issues</i>”, chapter 1.4 (Page: 5).</p> <p>Specifically, chapter 5.8 (Page: 28) of the National Environmental Policy of Liberia calls for “<i>Marine and Coastal Management</i>”.</p> <p>The document recommends the following:</p> <p>Promote conservation and proper management of the marine environment against the adverse effects of human and animal activities to promote sustainable use of marine ecosystem and safe guard human health for social-economic development of marine resources. Therefore, the following strategic policy measures are recommended:</p> <ol style="list-style-type: none"> 1. Legislate for the total protection of territorial waters; 2. Institute regulations for sustainable use of and the protection, control and development of coastal areas, mangrove swamps and river banks; 3. Institute and ensure integrated institutional and technical coastal management; 4. Ensure measures for monitoring and response to rising sea level and marine and coastal environmental problems; 5. Ensure ratification and signing of all environmental treaties, conventions and protocols including those for marine and coastal areas; 6. Conduct feasibility studies and re-assess coastal areas; 7. Build wave breakers along all major coastal areas; and 8. Ensure massive public awareness about marine and coastal management. <p><i>NEP (2003), National Environmental Policy, EPA Republic of Liberia, viewed 26 November 2020.</i></p> |

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| <p>Intended Nationally Determined Contribution (INDC) 2015, Liberia</p> | <p>Page 13 -14 of Liberia's INDC (2015) clearly indicates that the country plans to implement short, medium and long terms adaptation actions to climate change under different sectors for which the coastal Zone is listed 4th on the list for the following adaptation actions:</p> <ul style="list-style-type: none"> ○ Develop and implement coastal zone policy, strategy and management plan. ○ Construct hard structures such as sea walls or revetment. ○ Manage and conserve coastal mangrove ecosystem. ○ Facilitate technology transfer and training of institutional and local experts in coastal zone management and monitoring. <p>The INDC (2015) shows that Liberia recognizes the current and future threats of climate change. The document provides some efforts and initiatives that have been undertaking by Liberia towards addressing climate change threats. The INDC includes one component on mitigation and one on adaptation.</p> <p>INDC EPA Liberia (2015). Intended Nationally Determined Contributions of Liberia, UNFCCC INDC, viewed 2 8 November 2020.</p> |
| <p>Technology Needs Assessment (TNA), Liberia</p> | <p>Three sectors under adaptation and mitigation were prioritized / selected for the TNA project in Liberia due to the level of vulnerability and climate change impacts affecting the said sectors. The three selected sectors are Energy sector for mitigation and the Coastal Zone and Agriculture sectors for adaptation.</p> <p>The TNA process focuses on the identification and prioritization of adaptation technologies for the coastal zone to reduce climate change risks, impacts and the level of vulnerability to lives, properties and the environment.</p> <p>The technology prioritization process was carried out using the TNA's "Multi Criteria Analysis (MCA)" for which three (3) technologies were prioritized/ selected to be used for the TNA project in the coastal zone of Liberia to adapt and or mitigate the above mentioned climate change impacts. The three technologies to be used are:</p> <ol style="list-style-type: none"> 1. Integrated Coastal Zone Management (ICZM); 2. Flood early Warning System (FWS), and 3. Armour or Rocks Revetment. <p>https://tech-action.unepdtu.org/country/liberia/</p> |
| <p>National Adaptation Programme of Action (NAPA) 2008 - Liberia.</p> | <p>The Liberia's National Adaptation Program of Actions (NAPA) provides measures to cope with the urgent and immediate needs associated with the increasing climatic volatility and future climate</p> |



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| | <p>change.</p> <p>NAPA prioritizes three sectors for adaptation:</p> <p>Agriculture- Enhancing resilience to increasing rainfall variability through the diversification of crop cultivation and small ruminants rearing;</p> <p>-Building of a national hydro-meteorological monitoring system and improved networking for the measurement of climatic parameters; and</p> <p>-Building of coastal defence systems to reduce the vulnerability of urban coastal areas.</p> <p>NAPA. (2008). National Adaptation Program of Action- Republic of Liberia, UNDP Liberia</p> |
| National Policy and Response Strategy on Climate Change (NPRSCC), 2018 | <p>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 adaptation and mitigation actions and resource mobilization plans and monitoring and evaluation framework.</p> <p>NPRSCC (2018), National Policy and Response strategy on Climate change Liberia, NUDRR Prevention Web, viewed 28 November 2020.</p> |
| The Agenda for Transformation (AfT), 2013 | <p>The Agenda for Transformation (AfT) is the Government of Liberia's five-year (2012-2017) development framework. The Agenda for Transformation (AfT) recognizes climate change adaptation and mitigation under Pillar V as across cutting issue.</p> <p><i>AfT (2013), Agenda for Transformation, Republic of Liberia, The Governance Commission of the Republic of Liberia, viewed 27 Nov. 2020.</i></p> |
| Liberia Climate Change Assessment. USAID (2013). | <p>In Liberia, a climate change assessment (USAID, 2013); and vulnerability and adaptation assessments (INDC, 2015) conducted, revealed that Liberia is faced with climate change and variability leading to extreme events which have negative impact on agriculture, forestry, health, energy, coastal zone and other sectors. Climate change impacts are marked by irregular patterns of rainfall, flooding, high temperature, and coastal erosion.</p> <p>Liberia has an about 580-km long coastline. An estimated 95 km² of land along the coast of Liberia would be inundated if sea level rises 1 m (DAI, 2008). Under a scenario of a 1-m rise in sea level, about 50% (48 km²) of the total land loss due to inundation will be the sheltered coast. For example, parts of the capital city of Monrovia, West Point, New Kru-Town, River Cess, Buchanan, Greenville, and Robert Sport will be lost because much of those areas are <1 m above mean sea level (USAID, 2013 ; DAI, 2008). Likewise</p> |



seaward portions of the remaining mangrove wetlands will be lost. About \$250 million worth of land and infrastructure will also be lost. Others using various global climate models project a sea-level rise in Liberia of 0.13-0.56m by the 2090s relative to the sea level from 1980-1999 (McSweeney et al. 2010). The evidence of climate change is visible in Liberia, affecting both the environment and the socio-economic structures of the ordinary people.

USAID. (2013). Liberia Climate change assessment. Prepared by USDA Forest Service Office of International Programs. Liberia.
<https://www.researchgate.net/publication/237102310>

Development of the request (up to 2000 characters including spaces):

The EPA of Liberia, through the NDE involved the below listed stakeholders during the development of this TA. The first draft was produced by the EPA and circulated for comments. Rounds of recommendations were considered from all involved stakeholders before the final submission for the NDE's signature:

- Environmental Protection Agency
- Monrovia City Corporation
- Paynesville City Corporation
- Ministry Gender and Social Protection
- Liberia Institute of Statistics and Geo-Information Service
- Federation of Liberian Youth
- National Fisheries and Aquaculture Authority
- Liberia National Water, Sanitation and Hygiene
- Liberia Maritime Authority
- Ministry of Mines and Energy
- Liberia Petroleum Refining Company
- Ministry of Transport
- Ministry of Internal Affairs
- Ministry of Justice
- Ministry of Finance
- University of Liberia
- National Disaster Management Agency of Liberia

Background documents and other information relevant for the request:

- National Environmental Policy of Liberia, *NEP (2003)*.
https://postconflict.unep.ch/liberia/index_4b.php?m=4&sm=4b
- Intended Nationally Determined Contribution, **(INDC) 2015**, Liberia
<https://www4.unfccc.int/sites/submissions/indc/Submission%20Pages/submissions.aspx>
- Technology Needs Assessment (TNA), Liberia (On going)



<https://tech-action.unepdtu.org/country/liberia/>

- National Policy and Response Strategy on Climate Change (NPRSCC), 2018, Liberia

<https://www.preventionweb.net/english/professional/policies/v.php?id=60131>

- Liberia Climate Change assessment. **USAID (2013).**

<https://www.researchgate.net/publication/237102310>

- No. The CTCN Incubator wasn't involved in the development of this TA.

OPTIONAL: Linkages to Green Climate Fund Readiness and Preparatory Support

The CTCN is collaborating with the GCF in order to facilitate access to environmentally sound technologies that address climate change and its effects, including through the provision of readiness and preparatory support delivered directly to countries through their GCF NDA. These actions are in line with the guidance of the GCF Board (Decision B.14/02) and the UNFCCC, particularly paragraphs 4 and 7 of 14/CP.22 that addresses Linkages between the Technology and the Financial Mechanisms².

The CTCN is therefore implementing some of its technical assistance using GCF readiness funds accessed via the country's NDA. Any application for GCF support, including the amount of support provided, is subject to the terms and conditions of the GCF and should be developed in conjunction with the NDA.

Please indicate whether this request has been identified as preliminarily eligible by the NDA to be considered for readiness support from the GCF.

☒ **Initial engagement:** The GCF NDA of the requesting country has been engaged in the design of this request and the NDA will be involved in the further process leading to an official agreement for accessing GCF readiness support.

☒ **Advanced engagement (preferred):** The GCF NDA of the requesting country has been directly involved in the design of this request and is a co-signer of this request, the signature indicating provisional agreement to use readiness national funds to support the implementation of the technical assistance.

NDA name: **Professor Wilson K. Tarpeh**

Date: December 4 2020

Signature:

 4 Dec. 2020

Monitoring and impact of the assistance:

² Please see:

https://unfccc.int/files/meetings/mafrakech_nov_2016/application/pdf/auv_cop22_18b_tm_fm.pdf



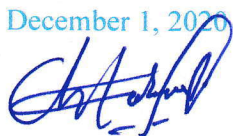
By signing this request, I affirm that processes are in place in the country to monitor and evaluate the technical assistance provided by the CTCN. I understand that these processes will be explicitly identified in the CTCN Response Plan and that they will be used in the country to monitor the implementation of the technical assistance following standard CTCN procedures. I understand that, after the completion of the requested assistance, I shall support CTCN efforts to measure the success and effects of the support provided, including its short, medium and long-term impacts in the country.

Signature:

NDE name: **Mr. Christopher B. Kabah**

Date: **December 1, 2020**

Signature:



THE COMPLETED FORM SHALL BE SENT TO THE CTCN@UNEP.ORG

The CTCN is available to answer all questions and provide guidance on the application process.