THE INCEPTION REPORT

FOR

The Consultancy to Undertake a Socio-economic Assessment on Climate Change Vulnerability Assessment in Selected Coastal Communities in Tanzania

Submitted to: The United Nations Environment Programme (UNEP) Nairobi Convention, Nairobi, Kenya

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1 Acronyms and Abbreviations

BMUs	Beach Management Units
CCVA	Climate Change Vulnerability Assessments
FGD	Focus Group Discussion
KAP	Knowledge, Attitude and Perception
KIIs	Key Informant Interviews
SMEs	Small and Medium Enterprises
ToR	Terms of Reference
UNEP	United Nations Environment Programme
URT	United Republic of Tanzania
WIO	Western Indian Ocean

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1. INTRODUCTION

This inception report describes the consultant's understanding of the scope of work and provides a detailed study design, work plan and timelines for the deliverables in the recently signed contract between the consultant and United Nations Environment Programme (UNEP) Nairobi Convention in **Undertaking a Socio-economic Assessment on Climate Change Vulnerability Assessment in Selected Coastal Communities in Tanzania**. While this inception report will mirror the Terms of Reference (ToR) in most aspects, it will go much further to provide a more detailed insight into the specific issues to be considered.

1.1 Background and rationale

The livelihoods of Tanzanian coastal communities depend on resources from coastal ecosystems, namely mangroves, coral reefs and seagrass meadows, and other marine resources such as capture fisheries that contributes to the livelihood of artisanal fishers[1]. This human and ecological systems relationship is, however, threatened by climate change. Climate change is known to negatively affect the health of ecosystems and the flow of ecosystem goods and services, which in turn, cause serious impacts on the livelihoods of the coastal communities that depend on them. Some of the remarkable climate change impacts to the coastal communities, *inter alia*, include; reduced fish catches due to changing food chain pattern that affect the distribution of fish stocks, water insecurity due to intrusion of salt water in fresh water wells and reduced crop productivity caused by salinization of farm lands near the sea. Other impacts are loss of houses due to floods, loss of beaches due to sea level rise, loss of life due to strong storms, loss of fishing grounds (seagrass meadows, coral reefs and mangroves) caused by floods and high water temperatures, and failure to predict monsoon winds using traditional knowledge which determine fisheries productivity.

Vulnerability (risk factors) of socioecological systems to climate change is a function of three dimensions: exposure, sensitivity/response and adaptive/coping capacity[2]. Exposure includes the degree and duration of climate change-induced disturbances experienced by the socioecological systems. Sensitivity is the degree to which the socioecological systems are affected by a set of climate change-induced disturbances. Adaptive capacity involves the ability of the system in question to adjust

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[1] Majule, A. E. (2012). Implications of ecological and social characteristics to community livelihoods in the coastal areas of Tanzania. *African Journal of Environmental Science and Technology*, 6(1), 72-79.

[2] Johnson, J. E., Welch, D. J., Maynard, J. A., Bell, J. D., Pecl, G., Robins, J., & Saunders, T. (2016). Assessing and reducing vulnerability to climate change: moving from theory to practical decision-support. *Marine Policy*, 74, 220-229.

to a climate change-induced disturbance and mitigate or overcome the impacts of the climate change that occurred. The vulnerability of communities to climate change and its impact is further reinforced with the degree of dependence on resources from coastal and marine ecosystems and is considered highest among poor communities with few opportunities besides resource extraction[3]. Furthermore, limited knowledge of climate change and its impacts has impaired mitigation and adaptation efforts among coastal communities to increase social capacity and resilience. Given the high dependence of Tanzanian coastal communities to resources from coastal and marine ecosystems, vulnerability assessment, a process of identifying, quantifying, and prioritizing (or ranking) the vulnerabilities in a system, is critically important for informing decision makers on effective management strategies to adapt, resist, recover or minimize the climate change impacts on social and ecological systems. In addition, such kind of assessment will provide information necessary to raise and promote awareness around climate change adaptation through networks, partnerships, knowledge products and knowledge sharing events, and platforms in the country and the Western Indian Ocean (WIO) region at large.

Given the importance of vulnerability assessment thereof and urgency, the UNEP Nairobi Convention has commissioned a consultant to undertake a socio-economic assessment on climate change vulnerability assessment in selected coastal Communities in Tanzania. The consultant is also set to work closely with local partners from the project's sites, which is Pemba Island in Zanzibar and Mkinga district in the Tanga region of mainland part of the United Republic of Tanzania (URT), for a successful Climate Change Vulnerability Assessment (CCVA). Importantly, the consultant shall complete a comprehensive, rigorous and precise vulnerability assessment for the proposed study sites following the CCVA toolkit developed by UNEP Nairobi Convention.

1.2 Objectives

The overall objective of this assignment is to pilot test CCVA toolkit which will help to deliver the results needed to support decisions on adaptation strategies to the climate change impacts on social and ecological systems. This will be achieved through the following specific objectives:

a) To describe the intensity of threats, responses/sensitivity and identify/map potential impacts of climate change, relative to the capacity of the interacting human and ecological systems to cope with such threats.

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[3] Silas, M. O., Mgeleka, S. S., Polte, P., Sköld, M., Lindborg, R., de la Torre-Castro, M., & Gullström, M. (2020). Adaptive capacity and coping strategies of small-scale coastal fisheries to declining fish catches: Insights from Tanzanian communities. *Environmental Science & Policy*, *108*, 67-76.

62   b) To identify the communities that are most vulnerable to climate change and its impacts.
63   c) To identify specific adaptation technology needs, and national plans with a focus on the needs
64   of coastal communities to help lift those communities that are most vulnerable to climate
65   change and its impacts.
66   d) To identify potential networks for the sharing of information on successful adaptation to
67   climate change and its impacts.

68 **2. METHODOLOGY**

69 This section describes the study sites, study design and approaches that will be employed by the
70 consultant to address the main objective of the assignment that is to pilot test CCVA toolkit which will
71 help to deliver the results needed to support decisions on adaptation strategies to the climate change
72 impacts on social and ecological systems. The ToR has provided a description of roles/activities to be
73 undertaken by the consultant, which, for the purpose of smooth implementation of the assignment, has
74 been divided into three work streams (**see section 3**). The consultant has also proposed some important
75 activities that were overlooked in the ToR and needs to be considered. The study sites, study design
76 and methods and approaches to be adopted by a consultant to achieve the objective of this assignment
77 are described here under;

78   **2.1 Study sites**

79 This three-month assignment will be conducted in Mkinga district of Tanga region[4] of mainland
80 Tanzania and Pemba Island in Zanzibar. Tanga region has an estimated population of 2.2 million
81 inhabitants, of which 118, 065 are from Mkinga District. The districts is sub-divided into 21 wards,
82 with populations of between 2,500 and 11,000 inhabitants each. The coastal rural inhabitants of
83 Mkinga district heavily rely on small scale fishing and subsistence farming of crops and livestock
84 rearing. On the other hand, Zanzibar is an autonomous part of the URT consisting of two major islands,
85 Unguja and Pemba with estimated population of 1.5 million inhabitants[5], of which 350, 000 are from
86 Pemba Island. Zanzibar is subdivided into five administrative regions and eleven districts, of which
87 seven are in Unguja and four in Pemba. Each of the districts is sub-divided into several shehias which
88 are the smallest administrative areas, with populations of 2,000 - 5,000 individuals each. Similar to

> **Commented [SD1]:** How many communities in each district/region?

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[4] Region is a large administrative unit in Tanzania made up of several districts. The region is headed by a Regional commissioner. Below the regions, there are districts which are also subdivided into wards which are further subdivided into villages/streets make up the smallest administrative units.
[5] National Bureau of Statistics, Dar es Salaam; Office of Chief Government Statistician, Zanzibar. The 2012 Population and Housing Census: basic demographic and socio-economic profile: Tanga and Pemba

89   Mkinga District, the coastal rural inhabitants of Pemba Island r derive their livelihoods from fishing
90   and subsistence farming of crops.

91

92   The consultant recognizes that the selection of the study villages/shehiahs to be visited will be decided
93   together with the project team leader during a virtual inception meeting soon after submission of this
94   inception report.

95   **2. 2 Study design**

96   The CCVA toolkit will guide the development of primary data collection tools. This study will employ
97   mixed-methods (that is, desktop review study, survey questionnaire, Focus Group Discussions
98   (FGDs), Key Informant Interviews (KIIs), field surveys (on ecological systems) and validation
99   meetings) and will essentially be a participatory and stakeholders (decision makers, managers,
100   resource users, opinion leaders, scientists, and holders of traditional knowledge) – driven approach
101   which places much emphasis on the engagement of local coastal communities for a successful CCVA.
102   The study results will be communicated back to the communities through validation meetings. This
103   imply that stakeholders consultations will carried out through the study because the local coastal
104   communities are the primary rely on and are major beneficiaries of the marine and coastal resources
105   as such, any decisions on mitigation and adaptation to the climate change will have an impact on their
106   livelihoods.

107

108   Both qualitative and quantitative data will be collected so as to adequately address the objectives of
109   this assignment. In gathering qualitative and quantitative data, this study will utilize primary data
110   collection tools namely survey questionnaire, Focus Group Discussions (FGDs), and Key Informant
111   Interviews (KIIs). Data generated through these methods will complement the information gathered
112   during desk review, field surveys on ecological systems and a validation workshop. Primary data will
113   mostly be collected from the selected local coastal communities and district officials, including
114   resource users (artisanal fishers, small fish processors, and fish traders), planners, Small and Medium
115   Enterprises (SMEs) owners, Beach Management Units (BMUs) leaders, Village leaders and
116   government natural resources management officers namely Fisheries Officers, Natural Resources
117   Officers, and Community Development Officers from each selected study sites.

118   The consultant is aware that a reliable sample size for survey interviews (questionnaires) especially
119   for communities in rural settings proposed should be around 10% of the total population. Therefore,
120   given that most villages in the URT have between 200 and 300 households, thus a sample size of about

121 30 at each village is representative enough of the each selected village. For the FGD, a total of 12
122 participants will be recruited for each group discussion while for KIIs representative number of
123 informants will be interviewed. The number of study participants for each interview type is shown in
124 **Table 1.**

125 **Table 1:** Summary of Interviews per coastal community/fishing village

SN	Interview group	Type of interview	Number of interviews Mkinga	Pemba
1	Artisanal Fishers (Captains, Master fishermen, vessel owners, crew members/workers)	Survey Interviews	30	30
2	Small Processors	FGD	12	12
3	Fish traders	FGD	12	12
4	SMEs operators (restaurants owners/food vendors)	FGD	12	12
5	Fisheries Officials	KIIs	3	3
6	BMUs leaders	KIIs	4	4
7	Village leaders	KIIs	4	4
8	Community Development Officials	KIIs	1	1
9	Natural Resources/Environmental officials.	KIIs	1	1
10	District representatives	KIIs	1	1
11	Planners	KIIs	1	1
12	Information	KIIs	2	2
	Total interviewees		**83**	**83**

126
127 Considering that collection and/or analysis of primary data requires a greater investment of time and
128 resources, the consultant understands that implementation of this proposed study design will be
129 subject to the budget allocated for the assignment and therefore, will conduct a virtual inception
130 meeting with the project team leader prior to the commencement of the assignment. The purpose of
131 the inception meeting will be to ensure common understanding of the assignment, levelling of
132 expectations and discussions between the project team leader and the consultant on unclear issues
133 presented in the methodology, together with agreement on the outputs, working arrangements, overall
134 work plan and communication protocol. It will also provide an opportunity for the UNEP Nairobi
135 Convention to provide further guidance and feedback on their expectations - to be captured during
136 implementation of the assignment by the consultant immediately after the inception meeting.

137 **2.3 Participants Sampling/Selection**

138 Standard sample sizes will be established by both random and purposive sampling techniques based
139 on the district and village [community level] profiles and registers (number of artisanal fishers,

Commented [SD2]: I am adding here the sampling design in D'Agata&al2020 where we wampled at least 50hh per villages for the representativity – but depends on budget of course:
"As part of a long-term monitoring program (Gurney et al., 2019), we conducted semi-structured household and key-informant surveys fol- lowing a random sampling protocol in each community. For household surveys, in villages of 50 households or more, we systematically sur- veyed households using a sampling fraction of every household (e.g. 2nd, 3rd, 4th, etc.) that was determined by dividing the total village population by the sample size. This ensured that surveys were random while geographically representative. For communities of less than 50 households, all households were interviewed when the household head was present. Information about the number of households were sourced from government offices and was based on the recent National Census at the geographical level of the location. The number of surveys per community ranged from 16 to 70 households depending on the popu- lation of the village and available time at each community. «

Commented [SD3]: There are more KI surveyed than fishers community. I wonder if we can balance the figures tyo have more representativity of hh?

140 processors, traders, no. of registered/licensed fishing vessels, SMEs owners/operators), as well as
141 descriptions of various marine and coastal activities, resources use and history.

142

143 Village register books containing the lists of registered and/or licensed fishers, fishing vessels,
144 processors and fish traders, will be used to select respondents for CCVA interviews. This will be done
145 in consultation with the village leaders, BMUs leaders and fisheries officers. To ensure a true
146 representation of the study communities, participants with mixed age and gender (youth, women and
147 elderly) will be randomly selected. For the FGD and KIIs purposive sampling will be used to ensure
148 that particular knowledgeable people who can provide detailed information on the subject under
149 investigation are selected. For example, KIIs with representatives from local government authorities
150 and district fisheries will comprise of 4 BMU leaders and 4 Village leaders, and 2 officers from each
151 selected district.

152 **2.4 Data processing and analysis**

153 Quantitative data from the survey questionnaires will be analyzed using spreadsheets and a statistical
154 software package of Social Package for Social Science (SPSS version 21). Before analysis of data on
155 perceptions, Cronbach's alpha will be used to estimate the consistency of the scales generated from
156 Likert scales. In addition, the quantitative data will be analyzed through descriptive statistics and
157 results presented in tabular and graphic formats. All analyses will be conducted in SPSS. Information
158 from key informants, field observation and validation meeting will summarized and carefully
159 interpreted.

160 **3. WORK STREAMS AND IMPLEMENTATION PLAN**

161 After a careful consideration of the ToR, the consultant will undertake the specific activities/roles in
162 three work streams to realize the deliverables expected from the assignment. It has also to be noted
163 that some activities have been proposed (are herein italised) by the consultant in addition to those in
164 the TOR. The description of activities for each work stream is provided here under;

165 **3. 1 Work stream one: Socioeconomic Survey Preparation**

166 This work-stream will involve mainly preparation of socioeconomic survey as highlighted below:
167

168 *Activity 1.1: The consultant familiarizes with the socioeconomic surveys of the CCVA toolkit*

169 The consultant will spend few days to familiarize with the socioeconomic surveys of CCVA toolkit to
170 be tested in the selected representative field areas.

171

Activity 1.2: Review of social aspects of the CCVA toolkit, particularly in terms of sensitivity and adaptive capacity dimensions of vulnerability

The consultant will review the CCVA toolkit, particularly in terms of sensitivity and adaptive capacity dimensions of vulnerability

Activity 1.3: The development of socioeconomic survey template

The consultant will develop a checklist for socioeconomic survey to ensure it captures all relevant information for the assignment.

Activity 1.4: Revisions of the CCVA toolkit to ensure that the tool captures different social and economic contexts of Tanzanian coastal communities

The consultant will review the CCVA toolkit to ensure that the tool captures different social and economic contexts of Tanzanian coastal communities.

Activity 1.5: The development of the sampling design and a generic survey template

The consultant will develop a sampling design that with a view of human centered approach and a generic survey template.

Activity 1.6: Prepare a data template (i.e. in a spreadsheet or any other accessible format)

The consultant will prepare a data template to be used during data collection.

Activity 1.7: Identification of local partners in Mkinga and Pemba and preparation of materials required for the socioeconomic survey.

The consultant will identify local partners and start some formal communication.

Activity 1.8: Training of local partners on the use of the socioeconomic surveys of the CCVA toolkit

The consultant will train the selected local partners on the correct use of the socioeconomic surveys of the CCVA toolkit.

Activity 1.9: Send out introduction letters to local authorities in the study sites for smooth implementation of the assignment

10

204 The consultant will send out introduction letters to local authorities in the study sites for smooth
205 implementation of the assignment.

206
207 **Activity 1.10: Review of the CCVA tool kit for the target communities**
208 The consultant in consultation with the project team leader will identify target communities and review
209 of the CCVA for the target communities.

210
211 *1.11 Development of primary data collection tools*
212 The consultant in consultation with the project team leader will develop primary data collection tools.
213 These incudes:

214   i)   Survey questionnaire
215   ii) Focus Group Discussions (FGDs)
216   iii) Key Informant Interviews (KIIs)
217   iv) Field-based check list for Direct Field Observations assessment/Ecological surveys

218 Implementation of this work stream will take **4 weeks**. The consultant will also set up a monitoring
219 and evaluation system to help track the implementation and deliverables.

220 **3.2 Work-stream Two: Socioeconomic surveys**

221 This work stream will involve individual face-to-face interviews of the study tools developed. The
222 socioeconomic surveys will be done through:

223   i)   Survey questionnaire
224   ii) Focus Group Discussions (FGDs)
225   iii) Key Informant Interviews (KIIs)
226   iv) Direct Field Observations

227

228 Information from FGD and KIIs will be collected and stored using audio recorders, when necessary.
229 This work stream will have the following activities;

230 *Activity 2:1 Travel to visit the field sites*
231 The consultant and local partners will travel to the field site, where they will pay a courtesy visit to
232 local authorities.

233

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234 **Activity 2.2: Field testing of the CCVA Toolkit, before revision and application to the target**
235 **communities.**
236 The consultant will conduct a field testing of the CCVA toolkit, before revision and application to the
237 target group. The consultant will discuss with the project team leader during the virtual inception
238 meeting on the details of this activity.
239
240 *Activity 2.3: Direct field observation*
241 The consultant understands the importance of field observation in this assignment and therefore, a
242 field-based checklist will be used to collect information on current environmental problems and
243 climatic scenarios with their associated impacts both economically and socially. In conjunction with
244 this field-based checklist, quality photos and video clips will be taken by a qualified and professional
245 photographer who will be part of the team during interviews. Pictures and videos clips taken will be
246 used for documentary production of key information awareness products which in part will be used
247 for project visibility.
248
249 Implementation of this work stream will take **3 weeks**.
250 **3.3 Work-stream three: Data analysis, interpretation, and reporting**
251 **Activity 3.1: Analyse of the collected qualitative and quantitative data during socioeconomic**
252 **survey**
253 The consultant in consultation with the project team leader will analyse the collected qualitative and
254 quantitative data during socioeconomic survey.
255
256 **Activity 3.2: Prepare and submit a report on the pilot test, including the relative social adaptive**
257 **capacity and sensitivity scores among communities and detailed recommendations for**
258 **managers/policy makers for adaptation options and/or mitigation.**
259 The consultant will prepare and submit the report on the pilot test.
260
261 **Activity 3.3: Generate and produce key information awareness products**
262 The consultant with consultation the project team leader with generate and produce key information
263 awareness products such as documentary, newsletter/inforgraphs/fact sheets
264
265 *Activity 3.4: Conduct a validation workshop*

The consultant will conduct a validation workshop to validate the results from sythesised desktop study and field data analysis.

Activity 3.5: Produce a manuscript targeting peer reviewed journal

Following completion of data analysis, the consultant will prepare a manuscript targeting peer reviewed journal

Activity 3.6: Provide for assessments of risks and vulnerabilities (natural and human) and drivers affecting coastal fishery communities using the CCVA toolkit.

Following completion of data analysis, the consultant will provide for assessments of risks and vulnerabilities (natural and human) and drivers affecting coastal fishery communities using the CCVA toolkit. Vulnerability scores will be given by respondents against the vulnerability factors and/or threats. This will be after mapping the threats using a standardized checklist tested and/or administered during the inception workshop with a view to identify the potential threats [risks]. Using a Knowledge, Attitude and Perception (KAP) ranking scale, participants will be asked to rank the exposure to vulnerabilities and how they translate into risks from 1-5 in terms of their level of severity [1. None 2. Mild 3. Moderate 4. Severe; and 5. Very Severe].

Activity 3.6: Review country specific adaptation technology needs, based on existing science and national fisheries sector development strategic plans with a focus on the needs of youth, women, and men within artisanal fishing communities

The consultant in collaboration with the focal point of the environment and relevant agencies will review country specific adaptation technology needs, based on existing science and national plans and with a focus on the needs of youth, women, and men within artisanal fishing communities

Activity 3.7: Provide for the definition and inclusion of coastal and marine adaptation options in climate change policies at national level

The consultant in collaboration with the focal point of the environment (from the Prime Minister Office) will develop a road map for inclusion of coastal and marine adaptation options in climate change policies at national level

13

298 **Activity 3.8: Development of a database of existing experts on climate change technology,**
299 **adaptation, and mitigation at national level**
300 The consultant with the assistance from PMO will develop a database of existing experts on climate
301 change technology, adaptation, and mitigation at national level.
302
303 Monitoring and evaluation that started in the first phase will continue and finalized at the end of the
304 one year through the project.
305
306 Implementation of this work stream will take **5 weeks**.

307 **4. WORK STREAMS, ACTIVITIES AND DELIVERABLES**

308 The work streams, deliverables and activities are based on the consultancy objectives and are
309 highlighted in **Table 2**.
310
311 **Table 2**: The implementation of activities and associated deliverables for the assignment.

Work streams	Activities	Outputs	Expected due Date
1. Socioeconomic Survey Preparation	*1.1 Consultant familiarization on the socioeconomic surveys of the CCVA toolkit* **1.2** Review of social aspects of the, particularly in terms of sensitivity and adaptive capacity dimensions of vulnerability **1.3** Development of socioeconomic survey template **1.4** Revisions of the CCVA toolkit to ensure that the tool captures different social and economic contexts of Tanzanian coastal communities.	**1.** A report on the proposed revisions to the social aspects of the CCVA toolkit, including a generic survey template, to ensure that the CCVA tool captures different social and economic contexts in the country	12th October

	1.5 Development of the sampling design and a generic survey template **1.6** Prepare a data template (i.e. in a spreadsheet or any other accessible format) **1.7** Identification of local partners in Mkinga and Pemba and preparation of materials required for the socioeconomic survey **1.8** Training of local partners on the use of the socioeconomic surveys of the CCVA toolkit *1.9 Request for research permission to local authorities* **1.10** Review of the CCVA for the target communities **1.11** *Development of primary data collection tools (Survey questionnaire, FGD guide, KIIs guide and Field based checklist)*		
2. Socioeconomic surveys	*2.1 Travel to the field sites* **2.2** Field testing of the CCVA Toolkit, before revision and application to the target communities. *2.3 Direct field observation*	**2.1** Report on the pilot test of the CCVA toolkit with detailed methodology for managers/policy makers. **2.2** A database of existing experts on climate change technology,	2nd November 2021

		adaptation, and mitigation at national level to accessible to public and private stakeholders.	
3. Data analysis, interpretation, and reporting	**3.1** Analyse of the collected qualitative and quantitative data during socioeconomic survey. **3.2** Prepare and submit a report on the pilot test, including the relative social adaptive capacity and sensitivity scores among communities and detailed recommendations for managers/policy makers for adaptation options and/or mitigation. **3.3** Generate and produce key information awareness products ***Activity 3.4: Conduct a validation workshop*** **3.5** Produce a manuscript targeting peer reviewed journal. **3.6** Provide for assessments of risks and vulnerabilities (natural and human) and drivers affecting coastal fishery communities using the CCVA toolkit. **3.7** Review country specific adaptation technology needs, based on existing science and national plans and with a focus on the needs	**3.1** Information awareness products (e.g., graphics, brochures, video) on adaptation, mitigation, and technological options available for the target communities, **3.2** A report on management and policy options available for technological, adaptation, and mitigation options, **3.3** Relevant manuscript targeting peer reviewed journals.	4th December 2021

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	of youth, women, and men within artisanal fishing communities **3.8** Provide for the definition and inclusion of coastal and marine adaptation options in climate change policies at national level.		

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