

## Terms of Reference for a Contractor

### To prepare an assessment of environmental and socio-economic impacts of the climatic variability and change in two selected vulnerable sites and evaluation of response options

#### Scope & Duration

Scope: this ToR refers to the tasks related to the assessment of environmental and socio-economic impacts of climatic variability and change in two selected vulnerable sites and evaluation of response options, being the activity 2.1.2. of the GEF project "Integration of climatic variability and change into national strategies to implement the ICZM Protocol in the Mediterranean"(the **Climate Variability Project**).

Duration: January 2013 – July 2014

#### Background

1. The general background and information concerning the GEF project "Integration of climatic variability and change into national strategies to implement the ICZM Protocol in the Mediterranean" are provided in the Project Document. The structure of the project is presented in Annex I.
2. The Climate Variability Project – complementary to the overall GEF/UNEP/World Bank Strategic Partnership for the Mediterranean Sea Large Marine Ecosystem (the MedPartnership) initiative - has been designed to support the implementation of the ICZM Protocol in the Mediterranean. The objective of the project is to create an enabling environment for the integration of climatic variability and change (CV&C) coping strategies into ICZM policies, plans and programs of Mediterranean countries by (i) strengthening the understanding of the impacts of CV&C on the coastal zones of the Mediterranean region and (ii) establishing the needed information exchange mechanisms, capacity and regional pilot experiences.
3. This ToRs falls under Component 2 "Strengthening the knowledge base on regional climate variability and change", activity 2.1.2. "Assessment of environmental and socio-economic impacts and evaluation of response options in two critically vulnerable sites". This activity is one of the central activities of this project. The complexity of CV&C has resulted in an absence of a common methodology for estimating their economic and environmental repercussions. The aim of this PAP/RAC activity is to use the most promising methodology for estimating economic costs of CV&C and to apply it in two critical areas in the eligible countries. The selected methodology is based on the DIVA (Dynamic Integrated Vulnerability Assessment) model, which is to be upgraded for the climate variability, taking into account the latest works on the adaptation deficit and downscaling. It is expected that the upgrading of this methodology will contribute to a more precise analysis of the adaptation deficit in the coastal zones. It is expected that the results of the assessment will provide key information for the preparation of the coastal zone management plans and national ICZM strategies.

4. Preparatory works on the implementation of the activity 2.1.2 consisted in identification of the methodologies to be used for the purpose of the project and in defining the needed two-fold approach: a top-down DIVA approach and a bottom-up local level assessment consistent with the DIVA approach. In addition, the needed data for the implementation of the activity were defined, as well as the criteria to be met for its successful application.
5. In this project, DIVA is also to be combined with the participatory method Climagine – to be developed by the Blue Plan. DIVA will be applied at the national level, but a separate group will focus on the lower level in a consistent manner. The combination of the two approaches, DIVA and Climagine, will enable to compare their respective outcomes, advantages and limits. The results of the both methodologies will be used by the ICZM Plan. The application of all three activities will run in parallel, in a way to be able to use outputs of the different stages by all activities.
6. Prior and during the MedPartnership Steering Committee Meeting in Istanbul, in May 2012, PAP/RAC has invited beneficiary countries to propose sites where the assessment of environmental and socio-economic impacts of CV&C could be prepared. Four countries, out of eight participating in the Climate Variability Project, responded to the call. The criteria for the selection of the sites were the following: vulnerability hot-spot, data available; good working relationships/local partners; existing or planned development to be impacted; river present and existing policy processes to connect to. Two countries were shortlisted as they have met most of the requirements in the call (Croatia and Tunisia).
7. The top-down methodology is to build upon an integrated, global research model for assessing the biophysical and socio-economic consequences of sea-level rise and associated extreme water levels under different physical and socio-economic scenarios as well as by considering various adaptation strategies. Physical, ecological and socio-economic characteristics of the coast should be taken into account in an integrated manner, while the data and methods for studying coastal processes should be applied from a range of different disciplines.
8. These applications should assist in identifying hotspots of coastal vulnerability. The results should be applicable at scales required by the ICZM. To this end, coastal data need to be represented in more detail and considering the specific geographical and socio-economic context.
9. In this project, the DIVA methodology is to be upgraded in 2 ways: downscaling and climate variability capturing. In this project, a methodology for downscaling the DIVA data model will be developed and applied on two pilot assessments. The impacts of gradual climate change in terms of sea-level rise, as well as for coastal flooding and the impacts of the current and future climate variability in terms of extreme water events will be assessed. For coastal flooding, the current adaptation deficit will be estimated.
10. Downscaling of DIVA will be performed in two steps: 1<sup>st</sup> step - downscaling to the national level – which is the subject of this contract; and the 2<sup>nd</sup> step - downscaling to the local level – to serve the purpose of the ICZM Plan. Two groups will be contracted for two tasks, but the groups will closely collaborate in a manner to ensure consistency of the methodology. The group working on the national level will attend the key meetings for the local level group, together with the Climagine representatives and the national team preparing the local ICZM Plan and will take into account the information obtained from this activity.
11. A methodological upgrade will be presented in a form of Guidelines for the of the environmental and socio-economic impacts of the CV&C and evaluation of response options (in further text: the Guidelines). This document will be prepared by both teams – one working on the pure DIVA approach and the other local level bottom up approach that is adapting the assessment to the level needed to be used by the ICZM Plan.

12. The ICZM Plan, which will be developed in parallel in one of the two locations, equally as a potential national ICZM Strategy that is to be prepared, both are designed in a way to satisfy the requirements of the ICZM Protocol for the Mediterranean, of the Water Framework Directive, and, in its marine part, as much as possible the requirements of the Marine Strategy Framework Directive. Both countries selected for the application ratified also the UNFCCC Convention and therefore are due to respect its provisions including the preparation of the national reports. Within this initiative all above mentioned legal documents are to be taken into consideration and one of the key objectives of the project is the integration and the synergy within all the actions, outputs and outcomes.
13. Within this project, the Contractor is expected to collaborate with the following teams and experts:
- Local assessment team,
  - Climagine experts,
  - ICZM Plan team leader and the team,
  - Blue Plan,
  - GWP, and
  - PAP/RAC.
14. The operational co-ordination and harmonization will be secured through the following:
- 1<sup>st</sup> COUNTRY - Croatia:**
- First Climagine workshop (tentatively March 2013)
  - The First Harmonisation meeting jointly with Climagine 2 workshop to adopt the preliminary results of the DIVA Assessment and of the Local Assessment (September 2013)
  - The Second Harmonisation Meeting to discuss the Draft ICZM Plan with the final results of the DIVA Assessment and of the Local Assessment (November 2013)
- 2<sup>nd</sup> COUNTRY - Tunisia:**
- First Climagine workshop (tentatively October 2013)
  - Climagine 2 workshop to adopt the preliminary results of the DIVA Assessment and of the Local Assessment (March 2014)
  - The Meeting to present the final results of the DIVA Assessment and of the Local Assessment (May 2014)
- CAPACITY BUILDING AND DISSEMINATION:**
- Regional Workshop for assessment of environmental and socio-economic impacts of CV&C and evaluation of response options (June 2014)
  - Final ICZM Workshop (September 2014)

## Process

15. The following steps are to be completed in the pilot sites:

### METHODOLOGICAL UPGRADE

- i. Although the activity will start with the methodological upgrade, it is expected that this work will run in parallel with the application in the country. Therefore, the draft methodology document is to be elaborated alongside the application of the methodology in the first country, and finalised upon the closure of the both applications.
- ii. Draft Guidelines are to be presented at the Regional Workshop for the assessment of environmental and socio-economic impacts of CV&C and evaluation of response options.
- iii. Experience of this project is to be presented at the Final ICZM Workshop.

#### APPLICATION IN THE FIRST COUNTRY

- iv. Data collection on a variety of natural and social system parameters such as elevation, land-use, coastal geomorphology, typology, coastal wetlands, rivers, coastal population, uplift/subsidence, coastal defences and assets.
- v. In parallel with data collection the first Climagine workshop is to be organised. At this workshop, stakeholders will identify issues and indicators. This information will be taken into account for further development of DIVA & Local Assessment.
- vi. Re-segmentation of the coastline and attribution of more detailed data to the new coastline segments. The segmentation of the coastline is based on a number of criteria such as geomorphological characteristics, coastal population density and administrative boundaries. The aim of the segmentation is to define autonomous units that will respond in a uniform way to rises in sea levels. These units are of variable length and constitute the basis of the data system that the model employs for spatially representing coastal information.
- vii. Development of sea-level rise and socio-economic scenarios. The sea-level rise scenarios will include recent estimates of a possible large contribution of the melting of the ice sheets of Greenland and Antarctica to global mean sea-level rise.
- viii. Adjustment of DIVA model and data. This step will take into account the limitations in data availability.
- ix. Assessment of the current adaptation deficit for coastal flooding.
- x. Simulation of future impacts for several sea-level rise and socio-economic scenarios.
- xi. Preliminary results.
  - These results are to be integrated into the Diagnostic Analysis and presented at the 1<sup>st</sup> Harmonization Meeting. Integration is to be facilitated from all involved; teams and experts. Therefore, clear requests and precise proposals are to be developed at the early stages from all teams and experts in order to secure the highest value of the results to be obtained. These results will be an input for the 2<sup>nd</sup> Climagine Workshop at which the scenarios for the area are to be developed.
- xii. Final results with an analysis of results. The outputs of the simulations will be analysed in the context of data and model limitations and with respect to the specific characteristics of the study area.
  - These results are to be integrated into the Draft ICZM Plan and presented at the 2<sup>nd</sup> Harmonisation Meeting.

#### APPLICATION IN THE SECOND COUNTRY

- xiii. Application in the second country will be linked to the preparation of the Integrated Management Plan, if possible. If not, it will be a self-standing project, applied in parallel with Climagine.

#### Key Tasks of the Contractor

16. To prepare all outputs listed under 22.
17. To present all above outputs at the meetings/workshops listed under 23.
18. To provide for the integration of all results all along the process of the outputs preparation.
19. Secure the operational co-ordination, harmonization and consistency of the approach with the Local Assessment Team.
20. Secure the operational co-ordination and harmonization with partners (PAP/RAC, Blue Plan, the GWP Med and Climagine teams).
21. Provide assistance to PAP/RAC, national and county authorities and national consultants as appropriate.

## Deliverables

22. The Contractor will deliver the following:

- Preliminary results – Croatia
- Final results – Croatia
- Cartographic presentation of the results– Croatia
- Preliminary results – Tunisia
- Final results – Tunisia
- Cartographic presentation of the results– Tunisia
- Guidelines for assessment of environmental and socio-economic impacts of the CV&C and evaluation of response options

## Meetings

23. The Contractor will attend the following meetings:

- 2 Climagine workshops in Croatia (March and September 2013)
- 2 x Harmonisation workshop in Croatia (September 2013 and November 2013); 2<sup>nd</sup> Climagine and 1<sup>st</sup> Harmonisation workshop to be organised jointly or back to back
- 1 x Final Plan Conference (to be decided)
- 2 Climagine workshops in Tunisia
- Regional Workshop on assessment of environmental and socio-economic impacts of the CV&C and evaluation of response options
- Additional meetings as required and agreed with PAP/RAC

## Responsibility and Communication

24. The Contractor will be:

- responsible to PAP/RAC Director or her nominee

## Qualifications

25. The Contractor should have the following educational and professional qualifications:

- Senior professional level with a minimum of ten years of experience in assessment of environmental and socio-economic costs of climate variability and change and in ICZM;
- Advanced degree in any of project relevant technical, social or environmental sciences;
- Ability to use the DIVA in its latest state-of-art and to secure its upgrade;
- Ability to analyse issues and information and prepare briefs and summaries on key ideas and issues;
- Strong research skills, combined with superior communication and interpersonal skills;
- Fluency in both spoken and written English. Knowledge of French will be an advantage.

## Outputs and Deadlines

26. The following outputs will be delivered by the Contractor:

Outputs	Deadline
a. Preliminary results – Croatia	1 August 2013
b. Final results – Croatia	1 October 2013
c. Cartographic presentation of the results– Croatia	1 October 2013
d. Preliminary results – Tunisia	31 October 2013
e. Final results – Tunisia	15 February 2014
f. Cartographic presentation of the results– Tunisia	15 February 2014
g. Draft Guidelines	30 June 2013
f. Final Guidelines	1 November 2013

## Annex I

### “Integration of climatic variability and change into national strategies to implement the ICZM Protocol in the Mediterranean”

#### The Climate Variability Project - Structure

##### **Component 1: Establishment of a CV&C information sharing platform**

- 1.1.1. Assessment of regional and national programs for monitoring and tracking CV&C and its impacts, including capacity assessments
- 1.1.2. Regional consensus and validation of synthesis report and agreement on ToRs of MedICIP (Mediterranean Integrated Climate Information platform)
- 1.1.3. Development of the Online Multi country Information Sharing Platform on CV&C monitoring data in coastal areas

##### **Component 2: Strengthening the knowledge base on regional climate variability and change**

- 2.1.1. Regional analyses of sea-level rise and storm surges, of changes in water characteristics and marine acidification, and with special focus on river deltas and on the identification of vulnerable areas/hotspots.
- 2.1.2. Assessment of environmental and socio-economic impacts in two critically vulnerable sites and evaluation of response options.
- 2.1.3. Regional assessment of socioeconomic impacts of CV&C and adaptation options in coastal zones for various scenarios.
- 2.1.4. Synthesis of regional scientific information and regional trends on climate variability and change and ICZM.

##### **Component 3: Support to ICZM Protocol implementation and capacity building**

- 3.1.1. Methodology and tools for mainstreaming climate variability considerations into national ICZM planning and practices developed considering synergy with other related national plans (IWRM, NSSD, CCA, etc)
- 3.1.2. Integrated management plan developed in one of the locations 2.1.2.
- 3.2.1. Existing inter-ministerial coordination mechanisms capacitated to mainstream climate variability and change issues into ICZM planning processes.
- 3.2.2. Awareness raising, policy dialogue and capacity building processes on implications of climate variability on ICZM protocol and other related national policies for policy makers and stakeholders supported.
- 3.2.3. Mediterranean Clearing House Mechanism established to disseminate knowledge on most efficient tools to address CV&C impacts in coastal areas across the region
- 3.3.1. Project web site

##### **Component 4: Project Management**