Terms of Reference for Individual Consultant

Assessment of ecosystem services related to disaster risk reduction in the coastal and marine area of the Savegre Biosphere Reserve

A Tsunami Unit - Man and Biosphere Program Joint Initiative for tsunami and inundation preparedness in coastal Biosphere Reserves

The UNESCO Office in San José (UNESCO SJO) promotes environmental sciences and participatory management as essential elements to understand and respond to global challenges such as disaster risk management, and to support member states in meeting the Sustainable Development Goals of the 2030 Agenda, with the purpose of leaving no one behind.

Background

UNESCO designated sites, such as Biosphere Reserves (BR), are internationally designated territories with explicit objectives related to biodiversity conservation, cultural preservation in harmony with people, where solutions are in place for reconciling nature with its sustainable use. They are learning areas for sustainable development under diverse ecological, social and economic contexts. In 2017, an estimated 94% of Biosphere Reserves worldwide were exposed to natural hazards, with only 8% having performed detailed risk assessments (UNESCO, 2017a; Pavlova, 2019, Pavlova et al., 2019).

The Savegre Biosphere Reserve was established in 2017 and is located in the central-south Pacific coast of Costa Rica, partially covering the counties of Quepos, Pérez Zeledón, Dota and Tarrazú (Herrera & Carazo, 2016). It is the only biosphere reserve in Costa Rica that includes a coastal area, including the Manuel Antonio National Park on of its core areas and one of the most iconic and touristic sites, locally and nationally (UNESCO, 2017b). The Savegre Biosphere Reserve is particularly vulnerable to tsunami, storm surges and stream flooding risk because its exposure and because it attracts thousands of visitors every year. It is home to diverse communities, including vulnerable and at-risk populations living in more remote areas.

Tourism is a primary source of income for Costa Rica and for this region specifically, hence, developing preparedness and response mechanisms for tsunami and other coastal hazards risk in this area is critical to save lives and livelihoods. The need for economic recovery imposed by the Covid-19 pandemic has placed further importance on safeguarding socio-economic opportunities in the Savegre Biosphere Reserve. Moreover, risk of and impacts from coastal hazards are expected to become more severe due to climate change. More than 90% of disasters due to natural hazards are water-climate related (UNESCO, 2021).

This consultancy is framed within the Joint Initiative between the Tsunami Unit (TSU) and the Man and Biosphere Programme (MAB), known as the TSU-MAB Initiative, which benefits from and builds on the complementary expertise and experience of both groups. The Joint Initiative is implemented in partnership with the Sistema Nacional de Monitoreo de Tsunami (SINAMOT) from the Universidad Nacional de Costa Rica (UNA), the Comisión Nacional de Prevención de Riesgos y Atención de Emergencias (CNE) and local non-governmental organization and main advocate of the Savegre Biosphere Reserve, Asociación Amigos de la Naturaleza (ASANA). Similarly, it is jointly developed with
members of the local government and local emergency response committee and community members. These stakeholders are organized in a Guiding Committee (GC), meeting twice a month.

The TSU-MAB Joint Initiative has three overarching objectives, namely (1) to develop and establish measures for tsunami and coastal hazard preparedness in the Savegre Biosphere Reserve in Costa Rica; (2) to provide guidelines, tools and lessons learned to inform the implementation of tsunami and coastal-hazard preparedness in Biosphere Reserves worldwide. Finally, and the objective to be addressed with this consultancy, (3) to strengthen the governance and improve the resilience to coastal hazards on the Savegre Biosphere Reserve. For more information about the initiative, please visit: https://bit.ly/3wrK2m

Scope of the consultancy

In the context of the TSU-MAB Initiative, the scope of this consultancy is to explore ecosystem services in the coastal area of the Savegre BR. The goal is to analyze the types of coastal ecosystems and land cover categories, such as mangrove and riparian forest, to identify and assess the ecosystem services (ES) they provide in relation to disaster risk reduction, specifically addressing tsunami, storm surge, and stream/river flooding from precipitation events (Haines-Young & Potschin, 2018).

Information about ES provided by the coastal and marine areas of the Savegre BR will be useful to increase support for safeguarding the multiple benefits provided by these ecosystems, to inform management decisions, ensure equity in resource use, and enable evaluation of the consequences of management or policy changes on ES provided by coastal ecosystems. Quantifying and mapping these benefits will help the Savegre BR managers and local decision-makers justify the importance of local ecosystems for biodiversity conservation, attract new sources of funding, manage the BR more effectively, and allocate scarce financial or human resources to the communities that are most needed. Moreover, increasing awareness of the benefits provided by these ecosystems can help solicit support for safeguarding them (Neugarten et al., 2018, Secretaría de la Red IberoMaB, 2018).

The involvement of local stakeholders is key to identify the relevant ES to assess at the Savegre BR coastal area, as well as to provide sources of data, information and knowledge that can result in a more robust assessment, support to validate ES assessment results and ensure that assessment results are used for management and decision-making processes. Furthermore, the outcomes of this study will support the development of mechanisms to compensate landowners for implementing management practices and Nature-based Solutions (NbS) supporting disaster risk reduction, or unlock new sources of funding disaster preparedness.

Objectives

General Objective: To strengthen the governance and improve the socio-ecological resilience to coastal hazards on the Savegre Biosphere Reserve.

Specific Objectives:

- Identify key ecosystems and land use types within the coastal area of the Savegre BR, with a specific focus on the relationship between ecosystem services and disaster risk reduction in the Savegre BR.
- Qualify, quantify and locate key ES provided by the Savegre BR in relation to disaster risk reduction to coastal hazards, incorporating different types of knowledge including local knowledge.
- Foster local awareness of the ES provided by the Savegre BR coastal area for local communities and decision makers.
- Make recommendations for nature-based solutions to coastal hazards in the Savegre BR to increase resilience of the ecosystem.

Activities

The consultancy includes the following activities:

- Define the extent of the study area, which includes the totality of the Savegre BR coastal area and flood plains.
- To propose an ecosystem services assessment tool, based on purpose of the assessment, required outputs (qualitative and quantitative, spatial distribution), and practical considerations such as time, budget and data availability (See Neugarten et al., 2018 for a review and comparison of common tools).
- To work closely with local stakeholders and experts to define a scope for assessment of ecosystem services related to disaster risk reduction and associated management strategies for the Savegre BR, such as but no limited to: erosion control, coastal protection, flood regulation, regulation of water flows, storing excess water during heavy rainfall, tourism and recreation, education and research.
- To conduct and systematize a literature review on relevant studies on the different types of ecosystem services and its effectiveness for disaster risk reduction and its cost benefit.
- Deliver maps of ecosystem and land covers types from the BR coastal area and their associated ecosystem services.
- Quantitative analysis of ecosystem services related to disaster risk reduction of coastal hazards.
- To prepare a roadmap for the BR Management Plan to address, prepare and reduce disaster risk from coastal hazards in prioritized areas, including potential nature-based solutions.
- To participate in regular meetings as required.
- To deliver two provisional and a final report containing the following:
  o Literature review on ecosystem services that support disaster risk reduction.
  o Brief introduction to the Savegre BR biophysical characteristics, ecosystem types and land cover categories for the selected area (Herrera & Carazo, 2016).
  o Assessment of ecosystem services in the selected study area, both qualitative and quantitative (biophysical units).
  o Maps of ecosystem services provided in the selected study area.
  o Assessment of relationship between ecosystem services and coastal hazards, including vulnerabilities of ecosystem services to hazards as well as potential of ecosystem services as nature-based solutions to coastal hazards.
  o Recommendations to address, prepare and reduce disaster risk from coastal hazards in prioritized areas, with particular importance to potential nature-based solutions approaches.
Products and Payments

A consultancy contract will be established between UNESCO SJO and the consultant with a duration of up to 3 months, for a total amount of USD $9,000. The products of this consultancy must be presented on the indicated date in order to be reviewed and approved by UNESCO SJO for the corresponding payment:

A. First deliverable. Workplan: 2 weeks following contract signature.
   Payment: USD $1,000
   1. A detailed proposal including a workplan, methodological instruments and timetable.
   2. Define limits of the study area that includes the complete coastal and marine areas of the Savegre BR.
   3. Logistical details for proposed field visits to the study area and participatory work with stakeholders.

B. Second deliverable. First provisional report: 6 weeks following contract signature.
   Payment: USD $3,000
   1. Preliminary maps of the location of coastal and marine ecosystems and other land cover types.
   2. List of stakeholders involved during the process of scope assessment.
   3. Preliminary maps of the ecosystem services provided in the study area, including but not limited to ES related to disaster risk reduction.
   4. Preliminary analysis of relationship between ES and disaster risk reduction to coastal hazards in the Savegre BR
   5. Report containing: cover (with UNESCO logo), introduction, methods, preliminary results, maps, data analysis and preliminary conclusions.

C. Third deliverable. Second provisional report: 9 weeks following contract signature.
   Payment: USD $2,000
   1. Maps of the location of coastal and marine ecosystems and other land cover types.
   2. List of stakeholders involved during the process of scope assessment.
   3. Maps of the ecosystem services provided in the study area, including but not limited to ES related to disaster risk reduction.
   4. Report containing: cover (with UNESCO logo), introduction, methods, preliminary results, maps, data analysis and preliminary conclusions.

D. Fourth deliverable. Final report: 12 weeks following contract signature.
   Payment: USD $3,000
   1. Final maps and assessment of ecosystem services.
   2. Quantification of key ecosystem services related to disaster risk reduction.
   3. Roadmap for the BR to address, prepare and reduce disaster risk from coastal hazards in prioritized areas.
   4. Report containing: cover (with UNESCO logo), introduction with literature review, methods, results and maps, data analysis and discussion with main conclusions.
Requirements:

- Academic degree on geography, biology, natural resources management or related field.
- Deep knowledge of GIS software.
- Proven experience in the use of ecosystem services assessment tools (InVEST, ARIES, PA-BAT, TESSA, etc).
- Analytical skills, experience in data processing and in preparation and presentation of reports.
- Experience in participatory management of natural resources and community outreach.
- Availability to execute the consultancy on a full-time basis.
- Send a 4-page CV to ja.rodriguez-zumbado@unesco.org and j.criado@unesco.org

Closing date: May 25th, 2022

Contract conditions

- An individual consultant contract will be established with the selected candidate with a duration of 3 months.
- The agreed amounts and payments include any expenses for travel, logistics, food, accommodation, airfare, bank charges, transfers, etc. incurred during hiring.
- Payments will be made after review and approval of the products delivered in accordance with what is requested in this contractual agreement.
- The contracted person must complete and send to the UNESCO San José Office, prior to starting the contract, the certificate of completion of the following mandatory training courses:
  - BSAFE Course, can be accessed at the following link: https://training.dss.un.org/course/detail/19948
  - Course on Prevention of Sexual Exploitation and abuse (PSEA), can be found in the following link: https://agora.unicef.org/
- The payment currency will be in Costa Rican Colones.
- It will be the responsibility of the person hired to ensure the payment of social, medical and pension insurance, the work team and submit evidence of affiliation, if applicable.
- The contracting party will not recognize additional charges for social charges, insurance, pension, tax rates and other charges.
- The hiring will be formalized by means of a contract established by UNESCO in its contractual framework.
- Products must respond to UNESCO’s Human Rights-based approach and gender approach.

References


