



## CLIMAGINE Workshop II Report

Boka Kotorska Bay Coastal Management Plan - GEF MedProgramme, Child Project 2.1.

*Hotel Cattaro, Kotor, Montenegro - 4th June 2022*



Mediterranean  
Action Plan  
Barcelona  
Convention



Montenegro  
Ministry of Ecology,  
Spatial Planning and Urbanism



Global Water  
Partnership  
Mediterranean



2.1

Mediterranean  
Coastal Zones Climate  
Resilience Water Security  
and Habitat Protection"

**DIRECTOR OF PUBLICATION**

Mr. Robin Degron

**AUTHOR**

Dr. Srna Sudar, Plan Bleu/RAC Consultant Report Coordinators

**REVIEWER**

Mr. Michaël Karner, Ms. Eloïse Leguérinel and Ms. Insa Behrens (Plan Bleu/RAC)

**DISCLAIMER**

The views expressed in this publication do not necessarily reflect the views of GEF, UNEP/MAP, Plan Bleu or contributing organizations.

**LEGAL NOTICE**

The terms used and the documents presented in this publication in no way represent either Plan Bleu's or UNEP/MAP's opinions regarding the legal situation of any country, territory, city or region whatsoever, nor on their authorities, or their borders delimitation. The analyses and conclusions expressed in this publication are those of the authors and do not necessarily reflect the views of Plan Bleu and/or UNEP/MAP.

**COPYRIGHT**

This publication may be reproduced in whole or in part and in any form for educational or non-profit purposes without special permission from the copyright holder, provided acknowledgement of the source is made. Plan Bleu would appreciate receiving a copy of any publication that uses his publication as a source. Plan Bleu's written agreement is mandatory for any use of this publication for resale or any other commercial purpose. © 2025 Plan Bleu

# Table of contents

---

Director of publication .....	2
Author .....	2
Reviewer .....	2
Disclaimer .....	2
Legal notice .....	2
Copyright .....	2
Table of contents .....	3
<b>1</b> Introduction .....	<b>4</b>
<b>2</b> Workshop summary .....	<b>5</b>
2.1 Part 1: Coastal Management Plan – thematic overview and challenges identified .....	5
2.2 Part 2: Climagine 2 Workshop .....	5
<b>3</b> Conclusion and next steps .....	<b>10</b>
<b>4</b> Annexes .....	<b>11</b>
4.1 Event agenda .....	11
4.2 List of Participants .....	12

# 1 Introduction

Coastal planning in Boka Kotorska Bay, Montenegro is currently being reinforced through the Global Environmental Facility (GEF) [MedProgramme](#): Enhancing Environmental Security (2020-2024), implemented by the UNEP Mediterranean Action Plan (UNEP/MAP). One of the main goals of the MedProgramme's Child Project 2.1 is to sustain the implementation of the Protocol on Integrated Coastal Zone Management (ICZM Protocol) among Mediterranean countries, notably to address the impacts of climate change and economic activities on coastal hotspots while seeking to enhance sustainable living conditions for the coastal populations concerned.

The Boka Kotorska Bay Coastal Management Plan's (CMP) development is led by PAP/RAC, in parallel with a similar effort in the Tanger-Tetouan-Al Hoceima Region of Morocco. In both cases, their elaboration is supported by the Climagine method. This inclusive and participatory approach applies the bottom-up principle of stakeholder involvement, while simultaneously enhancing the Plan's elaboration with data, information and regional lessons on ICZM and coastal climate change adaptation.

The second CMP workshop was held on June 4th, 2022 in Kotor. It welcomed 43 participants and was organized by PAP/RAC and Plan Bleu/RAC and co-hosted by the Ministry of Ecology, Spatial Planning and Urbanism of Montenegro. Held in Montenegrin, it further built on the outcomes of the first workshop, held on 3rd December, 2021 in Tivat, Montenegro (cf. Plan Bleu's Climagine [workshop report](#) and PAP/RAC [Scoping Report](#)).

The second Climagine workshop engaged relevant national and local stakeholders to identify priority sectors and dimensions that are crucial to the future sustainable development of Boka Kotorska. Identified during the first workshop, these sectors form the skeleton of the CMP. To further our understanding of the latter, participants collectively defined Sustainability Indicators (SIs) that seek to adequately represent progress towards sustainability of these sectors and of Boka Kotorska Bay as a whole. This workshop thereby laid the framework for further expert work to design targeted measures for the CMP, aiming to contribute to greater environmental and biodiversity protection, more sustainable economic activities and a better and more resilient quality of life for local communities.



## 2 Workshop summary

---

The workshop was opened by high-level representatives of the Ministry of Ecology, Spatial Planning and Urbanism: Tamara Brajović, (Director General of the Directorate of Nature Protection) and Ivana Stojanović (Head of Division for the Integrated Management of Marine and Terrestrial Ecosystems, Directorate of Nature Protection). Bojana Petković from the Municipality of Kotor welcomed the participants and emphasized several topics and issues that should be taken into account while developing the SIs for Boka Kotorska: the risk of flooding and the existing torrential water way/flood network, the existence of current development plans that include plans for further construction in the Bay, as well as the necessity to preserve public green areas and to expand communal infrastructure. Olfat Hamdan, MedProgramme Coordinator at the UNEP/MAP Coordination Unit in Athens and Ivan Sekovski, Programme Manager at PAP/RAC, then provided a brief introduction and welcome on behalf of the MedProgramme and PAP/RAC respectively.

### 2.1 PART 1: COASTAL MANAGEMENT PLAN – THEMATIC OVERVIEW AND CHALLENGES IDENTIFIED

The morning sessions of the workshop provided the participants with an overview of the main expert findings concerning the priority sectors identified for the CMP.

### 2.2 PART 2: CLIMAGINE 2 WORKSHOP

The overall objective of the workshop was to develop Sustainability Indicators capable of adequately representing the current and future state of the CMP'S key priority sectors, taking into account the Governance and Gender themes as cross cutting dimensions:

- Sustainable Tourism and Agriculture
- Coastal Infrastructure and Transportation
- Water Supply and Wastewater
- Waste Management
- Environment and the Marine Environment



Michael Karner Plan Bleu/RAC, provided a brief overview of the Climagine process and its state of advancement in Boka Kotorska. Plan Bleu's national consultant and Climagine facilitator, Dr. Srna Sudar, then provided insights into the development of SMART indicators (Specific, Measurable, Achievable, Relevant and Time-bound) to guide participants into the group activities.

Participants were divided into 5 groups to discuss the sectors mentioned above with a general focus on Integrated Coastal Zone Management, coastal development and adaptation as well as natural resource management. During the group activities, Dr. Sudar closely followed, guided where needed and fostered discussion on practical and achievable indicators setting at the scale of Boka Kotorska Bay. The main outcomes of the discussions are detailed below.

## GROUP 1

### Sustainability Dimensions: SUSTAINABLE TOURISM AND AGRICULTURE

#### Challenges/Indicators

- **Responsible planning in terms of developing the touristic offer**
  - Suppression of poaching and illegal fishing
  - Linking the touristic offer with agricultural production (establishing cooperation agreements)
  - Greater representation of domestic products in the offer of hotels, restaurants, and retail chains and encouraging invisible exports
  - Developing and promoting products with added value (e.g., through protected name and origin certifications)
- **Strengthening cooperation between all touristic structures (horizontal-vertical connections)**
  - Local tourism organizations (LTOs)
  - National tourism organization (NTOs)
  - Specialized agencies (special tourist offers)
- **Supporting the diversification of agriculture with emphasis on strengthening human capacities**
  - Involving women (aim for 50% of formal workforce) and youth in the sector
  - Education (doorstep marketing)

#### 3 Key indicators

- **Use of local agricultural products in the tourism sector** (as % of total uptake)
- **Number of clusters in the agricultural/tourism sectors** (at least 10)
- **Number of women in the tourism/entrepreneurship sectors** (at least 50% of woman)

**Linked Sustainability Dimensions:** governance, education, sustainable tourism, agriculture, gender

## GROUP 2

### Sustainability Dimensions: COASTAL INFRASTRUCTURE and TRANSPORTATION

#### Challenges/Indicators

- **Implementation of the new Law on Spatial Planning and Building Construction**
  - Experts/professional opinions to be included
  - Ensure a transparent and participatory process involving local communities
  - Enhanced public fines policy
- **Increasing subsidies for rural areas**
- **Adoption of Local Risk Plans**
  - Disaster Risk Reduction strategy with Action Plan
- **Increasing the use of public transport**
  - Supporting electric public transport
  - Establishing public/private maritime transportation system (taxi boats)
- **Reconstruction and renovation of the existing water supply network (water loss reduction)**
- **Restoration of existing springs**
- **Improvement of the sewage system with an indicator - the number of connected households**

#### 3 Key indicators

- **Adoption of Local Risk Plans with Action Plan and revitalization of existing springs**
- **Reduction of losses in the water supply network** (at least 20%)
- **Use of public transportation** (increase in the number of electric vehicles and establishment of maritime local transport)

**Linked Sustainability Dimensions:** sustainable tourism, sustainable construction, water quality, marine environment quality, wellbeing

**GROUP 3**  
**Sustainability Dimensions: WATER SUPPLY and WASTE WATER**

**Challenges/Indicators**

- Quality of drinking water
- Groundwater quality (Number of wells and amount of collected rainwater; % change in storage of rainwater (for reuse)
- Fomenting innovations
- Water supply network extension and increase of capacity (% of regional water supply coverage and the amount of flow capacity, % change in water loss (e.g., due to leakage in the water distribution system aim for a decrease of 15-20% total losses)
- Water governance and maintenance of the water import from Dubrovnik/PLAT (the amount of imported water compared to the overall water needs)
- Technical or clean sewage for drainage (the number of hydrants, the amount of technical water used for economic activities such as irrigation, etc.)
- Reconstruction of communal water infrastructure (/% of pipes replaces– activities stated in the State Plan for Waste Water Management 2018-2022)
- The capacity and quality of discharged waste water (the number of wastewater treatment plants- WWTPs, the amount of treated water, the number of connections to WWTP, the quality of coastal and beachfront seawater)

**3 Key indicators**

- **Number of pumping stations and number of connections**
- **Wastewater quality at the point of discharge**
- **% utilization of the capacity of existing springs**

**Linked Sustainability Dimensions:** sustainable tourism, health, agriculture, marine environment, environment, communal infrastructure, governance

**GROUP 4**  
**Sustainability Dimension: WASTE MANAGEMENT**

**Challenges/Indicators**

- **Reduction of amount of municipal waste produced per capita (30% target)**
- **Reduction of the amount of deposited waste by 30%**
- **Expanded capacity of transshipment stations in Kotor and Herceg Novi, which will increase the allocation of recyclable raw materials by 40%**
- **Expanded composting capacity**
  - Improvement of the technical infrastructure
  - Increased production and marketing of products (100 €/ton of compost)
- Recycling of bulky and construction waste - necessary infrastructure has been established at the Ledenica landfill for the collection and preparation of bulky and construction waste.
- **Raising awareness on the topic**

**3 Key indicators**

- **Number of recycling yards in 3 municipalities** (target 1 per 5000 inhabitants)
- **Number of illegal landfills** (engage in remediation and reduction of illegal landfills by 70%)
- **Reduction of the amount of deposited waste by 30%**

**Linked Sustainability Dimensions:** developing communal waste management infrastructure, environmental monitoring, data harmonization and integration, citizen environmental education and awareness raising (governance)

**GROUP 5****Sustainability Dimensions: ENVIRONMENT and the MARINE ENVIRONMENT****Challenges**

- **Reducing pollution of the marine environment**
  - Increasing the number of connections to the sewage network and to the future extended system for purifying atmospheric water
  - Introduction of stormwater treatment
  - Reduction of solid waste in the sea and on shore
  - Ballast water discharge control
  - Lack of awareness and knowledge on the topic and the impact on woman and youth
  - Lack of erosion control
  - Reforestation of the coast
  - Regulating beach nourishment
  - Prohibition of concreting beaches
- **Reduction of underwater noise**
  - Control of the entry of cruise ships into the Bay
  - Stricter control of vessel speed in the Bay
- **Establishment of new sanitary zones for fresh water sources in the coastal area**
  - Protecting the entire basin of Boka Kotorska + municipalities that are not in the basin: Cetinje and Nikšić
- **Protection of biodiversity**
  - Reducing the impact on benthic habitats through the prohibition of anchoring and placing eco-buoys
  - Suppression of poaching and illegal fishing
  - Limiting the number of locations for mariculture and considering establishing location in the open sea

**3 Key indicators**

- Erosion control, water retention and biodiversity:
  - **% of forested/reforested area**
- Biodiversity protection indicators:
  - **Status of marine biodiversity**
  - **Status of coastal biodiversity**
  - **Data on cruise and vessels entry/speed in Boka Kotorska**
- Environmental monitoring indicators:
  - **status of sea water quality**
  - % of illegal fishing compared to previous year

**Linked Sustainability Dimensions:** biodiversity protection, efficient management of urbanization, maritime transport infrastructure, waste management, increased readiness for extreme weather events, education

During the group activities, governance and gender issues were examined and taken into account as cross-cutting dimensions. At this stage, the main expert and stakeholder findings indicate that sex-disaggregated data/gender related data within any sector are lacking, and consequently there is a low level of awareness and knowledge on the gender-related impacts of economic development, environmental protection and climate change. The existing gaps in data collection as well as the acquisition of sexdisaggregated data challenge the possibility of including gender related indicators in the assessment. In general, governance issues are related to the need of an inter-municipal co-management system, decreasing the need and burden of extensive infrastructure and human resources in the small area, as well as more efficient coastal spatial and transportation planning.



- Governance: **inter-municipal and cross-sectorial cooperation needed** in overcoming local governments inefficiency of action and reaction to natural and climate change hazards. Local governments in Boka Kotorska may sign the Memorandum of Understanding which among other defines:
  - Joint actions and responsibility of activities that results in the benefits of the environment and people in all 3 municipalities, e.g. cleaning of springs and wells which borders and flows belongs to more than one municipality ;
  - Establishing regional wild fire/natural hazards action center for Boka Kotorska;
  - Regional communal infrastructure water supply and sewer system co-management and replenishment of the old and non-efficient water supply and sewer system (losses up to 40%);
  - Greater support to female entrepreneurship in Boka Kotorska region (e.g. regional municipal fund for female entrepreneurship/startups) ;
  - Regional approach on ban of the use of single plastic in tourism sector (banning single use plastics from restaurants, cafe bars, hotels, etc.) ;
  - Regional strict inspection and monitoring of the spatial planning (upon adoption of the new state Law on Spatial Planning and Construction of Objects).
- **Education and awareness raising in several topics**
  - Intensification of activities that shall lead to behavioral change of Boka Kotorska inhabitants toward recycling;
  - Education on the need of integration of gender issues in strategic development of municipalities in Boka Kotorska (e.g. increase the capacities and knowledge of women for establishing and running businesses);
  - Rising awareness on the need of waste reduction at the source (nonuse of single use plastic, beach waste, etc.).
- **Digitalization of data collection** for planning and defining clear and adequate indicators to establish and/or extend national, regional and local data generation systems on:
  - Connection to water supply and communal infrastructure
  - Tourism flow (national/international tourist)
  - Waste collected and waste recycled amounts
  - Sex-aggregation data
  - Property related data (residential flats and beds, condos, restaurant seats capacity, etc.)
  - Number of boats/vessels entered Boka Kotorska Bay
  - Tourism caring capacity of Boka Kotorska
  - Daily monitoring of sea water quality

## 3 Conclusion and next steps

---

The Climagine process will now “hand over” these stakeholder- defined and -identified indicators for further and deeper experts review in order to assess their feasibility. This exercise will form of the next Climagine workshop, which will present the expert review’s conclusions and then mobilise local knowledge and experience in defining a “safe operating space” for these sectoral Sustainability Indicators, by establishing a Band of Equilibrium comprising minimum and maximum threshold values for each one. The Concluding Remarks were given by Ivana Stojanović, Michael Karner (Plan Bleu) and Ivan Sekovski. Group discussions steered the exchange of new information on the existing or lacking data, and challenges that all of Boka Kotorska municipalities are facing.

## 4 Annexes

### 4.1 EVENT AGENDA

Time (CEST)	Session
09:30-10:00	<b>Welcome and Participant Registration</b>
10:00-10:15	<b>Opening Remarks</b> <ul style="list-style-type: none"> <li>Tamara Brajović, Director General of Directorate for Nature Protection/Ivana Stojanovic, Head of Division for Integrated Management of Marine and Terrestrial Ecosystems, Directorate for Nature Protection, Ministry of Ecology, Spatial Planning and Urbanism, Montenegro</li> <li>Bojana Petković, Kotor Municipality representative</li> <li>Olfat Hamdan, MedProgramme Coordinator, UNEP/MAP Coordination Unit</li> <li>Ivan Sekovski, Programme Manager, PAP/RAC (UNEP/MAP)</li> </ul>
10:15-10:30	<b>The Boka Kotorska Bay Coastal Management Plan - Step 2: Diagnostic</b> Ivan Sekovski, Program Officer, PAP/RAC <ul style="list-style-type: none"> <li>Why a Coastal Plan?</li> <li>Climate Change Impacts in Coastal Zones - a Brief Introduction</li> </ul>
10:30-10:45	<b>Questions and Answers</b>
10:45-11:00	<i>Coffee Break</i>
11:00-13:00	<b>Sectoral Diagnostics - PAP/RAC</b> <ul style="list-style-type: none"> <li>Brief presentations by the PAP/RAC sectoral experts on the state, pressures and threats in Boka Kotorska Bay regarding: Spatial development and transportation; Integrated water resource management; Solid waste management; and the Marine environment.</li> <li>Way forward for the Sectoral Diagnostic - a discussion</li> </ul>
13:00-14:00	<i>Lunch</i>
14:00-17:00 <i>Coffee Break</i> 15:00-15:15	<b>Climagine 2 Workshop: Representing Future Scenarios and Sustainability Pathways in Boka Kotorska Bay</b> <ul style="list-style-type: none"> <li>Climagine Facilitator: Srna Sudar, Head of Project Office at Univerzitet Crne Gore</li> <li>Michael Karner, Project Officer, Plan Bleu/RAC (UNEP/MAP)</li> </ul> <ol style="list-style-type: none"> <li>Overview of the Sustainability Dimensions identified during Climagine 1 (15 minutes)</li> <li>Establishing Sustainability Indicators (SI) and sectoral sustainability ranges for each Sustainability Dimension for Key Sectors of the CMP (2 hours)</li> </ol>
17:00-17:15	<b>Concluding Remarks and Next Steps</b> <ul style="list-style-type: none"> <li>Michael Karner, Plan Bleu/RAC</li> <li>Ivan Sekovski, PAP/RAC</li> <li>Ivana Stojanovic, MESPU</li> </ul>

## 4.2 LIST OF PARTICIPANTS

Surname	First Name	Institution
Brajovic	Tamara	Director General of Directorate for Nature Protection
Dević	Neda	JU Zavod za geološka istraživanja Crne Gore
Đukić	Vesna	NVO Maslinarsko društvo Boka - Boka Kotorska
Đurović	Gordana	PLAN M doo Podgorica
Gligoric	Biljana	Expeditio
Hamdan	Olfat	UNEP/MAP PCU
Hećo	Alijana	NTO CG
Kalezić	Đorđe	MonteCEP, Kotor
Karajović	Saša	MonteCEP, Kotor
Karner	Michael	Plan Bleu/RAC
Katnić	Milica	FTH Kotor
Kljajic	Bajo	CEZAM Productions
Krivokapić	Marina	Sekretarijat za zaštitu prirodne i kulturne baštine, Opština Kotor
Malovrazić	Nemanja	Public Enterprise for Coastal Zone Management of Montenegro
Markovic	Sanja	Privredna komora Crne Gore
Matan	Matea	NTO CG
Moric	Ilija	Fakultet za turizam i hotelijerstvo, Kotor
Novaković	Darko	Nezavistni konsultant
Petović	Slavica	Institute of Marine Biology
Petrone Kolar	Lidija	MUP CG, Direktorat za zaštitu i spašavanje, Područna jedinica Herceg Novi
Pobrić	Patricija	Opština Tivat
Perisić	Danica	Urbanizam Opstina Tivat
Radojević	Dragan	JU Zavod za geološka istraživanja Crne Gore
Radojević	Bojan	CEZAM Productions
Radunović	Ljilja	Eko Centar DELFIN
Radunović	Jelena	DOO Komunalno Kotor
Raicevic	Petar	PlanM
Rudić	Milica	Ministarstvo ekologije, prostornog planiranja i urbanizma
Sekovski	Ivan	PAP/RAC
Stevovic	Vladan	Opština Budva
Stojanovic	Ivana	Ministry of Ecology, Spatial Planning and Urbanism
Sudar	Srna	Plan Bleu Consultant
Tomić	Nevenka	Zavod za hirologiju i seizmologiju Podgorica
U.	Sania	Tivat DOO Komunalno
Vulikić	Borko	UNDP