Ministry of Environment, Albania

Project Reference No: 5386

ALBANIA: "BUILDING THE RESILIENCE OF KUNE-VAINI LAGOON THROUGH ECOSYSTEM-BASED ADAPTATION (EbA)" (SPECIAL CLIMATE CHANGE FUND)

Up-scaling Ecosystem-Based Adaptation
A Strategic Framework for Albania

Final Report

April 2020

Up-scaling Ecosystem Based Adaptation - A Strategic Framework for Albania

"BUILDING THE RESILIENCE OF KUNE-VAINI LAGOON THROUGH ECOSYSTEM-BASED ADAPTATION (EbA)"
(SPECIAL CLIMATE CHANGE FUND)

Submitted by: Jonathan McCue

Final Report – April 2020

TABLE OF CONTENTS

Acronyms

CBA	Cost-benefit Analysis
CCA	Climate Change Adaptation
DMRD	Drini-Mati River Deltas
EbA	Ecosystem-based Adaptation
EU	European Union
GDP	Gross Domestic Product
GEF	Global Environment Facility
GhG	Greenhouse Gas
GoA	Government of Albania
IEbAE	International Ecosystem-based Adaptation Expert
ICZM	Integrated Coastal Zone Management
ISPA	Institutional Support for Protected Areas in Albania
IWRM	Integrated Water Resources Management
IUCN	International Union for the Conservation of Nature
KVLS	Kune-Vaini Lagoon System
MoE	Ministry of Environment
MoEFWA	Ministry of Environment, Forests and Water Administration
MoUDT	Ministry of Urban Development and Tourism
MoPWT	Ministry of Public Works and Transport
NEA	National Environmental Agency
NGO	Non-Governmental Organisation
NPV	Net Present Value
PV	Present Value
REC	Regional Environmental Centre
UNDP	United Nations Development Programme
UNEP	United Nations Environmental Programme
UNFCCC	United Nations Framework Convention on Climate Change
WB	World Bank

1. INTRODUCTION

1.1. Overview

Ecosystem-based adaptation (EbA) is the use of biodiversity and ecosystem services as part of an overall adaptation strategy to help people adapt to the adverse effects of climate change (CBD 2009). Through the concept of ecosystem services (see Figure 1.1 below), it is largely recognised that ecosystems are important for human well-being. Besides contributing non-material benefits, the economic importance of ecosystems for society is increasingly being documented. The *Economics of Ecosystems and Biodiversity* (TEEB) initiative reveals that (for example) forest conservation can avoid greenhouse gas emissions worth US$ 3.7 trillion, and that coral reef ecosystem services entirely support around 30 million people through the provision of food, income and livelihood (TEEB, 2010).

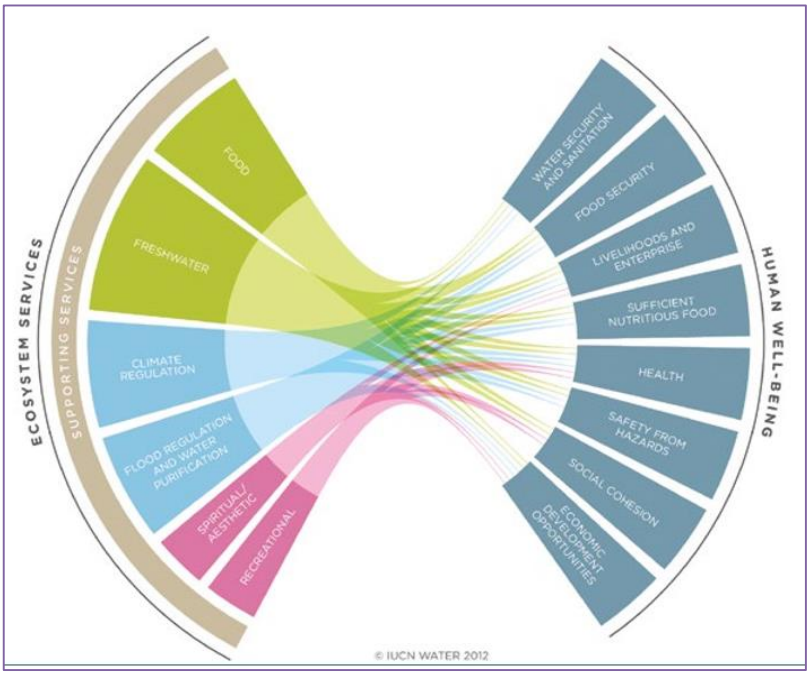


Figure 1.1: ECOSYSTEM SERVICES AND HUMAN WELLBEING [TAKEN FROM MONTY ET AL (2016), IUCN WATER 2012].

To complement EbA, there is a growing recognition of the benefits of Nature-based Solutions (NbS[1]), a term that refers to projects and actions where natural ecosystems and their services are used in a sustainable and effective way in order to help tackle environmental and social challenges. Under the right circumstances, these solutions can provide alternatives that, compared with traditional infrastructure and engineering projects, are both cost-effective and capable of providing multiple benefits, while at the same time delivering conservation objectives. Different NbS interventions, including in protected areas, have long supported social challenges such as food and water security (Boeleeetal.,2017), disaster risk reduction, and mitigation or adaptation to climate change, while improving sustainable livelihoods and protecting ecosystems, food security and biodiversity (Mittermeieretal.,2008;WorldBank,2008;Dudleyetal.,2010).

One example of NbS is the buffering capacity of riparian ecosystems, which act as a time and intensity buffer in the event of floods, but also as a filter for runoff waters. With specific reference to wetlands (and hence of key focus within this Albanian consultancy), according to Constanza et al. (1997), they provide up to 40% of the planet's renewable ecosystem services, despite covering only 1.5% of Earth's surface. They are critical for flood control and drought management (Murti and Buyck, 2014; Renaud et al., 2013). If 80-90% of the wetland area

[1] NbS represents a core sub-set of EbA and as a term is often currently used to complement EbA implementation.

is cleared in a landscape, there is an increase in the risk of flooding and eutrophication (Cedfeldt *et al.*, 2000). Despite this, it is essential to frame NbS within the right conditions; recent developments in ecological science and modelling have just started to provide a better understanding of what a "good operating space"—in other words, one that efficiently delivers these services—looks like for NbS. The recognition that public funds are insufficient has led to an appreciation of the urgent need to explore new funding sources. In particular, the private sector and its financial resources must be involved, and it is necessary to establish a private sector business case for biodiversity and NbS investment. Should investment in watershed protection and green water projects be taken as a valid proxy for investment in natural capital, public funds still represent the lion's share of global investment with nearly 95 percent of spending (out of a global total of $25 billion[2]).

Considering its overarching goal to address global societal challenges, NbS has the potential to substantially contribute to the 2030 Agenda for Sustainable Development's targets and to help achieve the full range of Sustainable Development Goals (SDGs). Specifically, NbS are directly relevant to SDG 2 (food security), 3 (health and well-being), 6 (clean water and sanitation), 11 (sustainable cities and communities), 13 (climate change), 14 (conservation and sustainable use of oceans, seas and marine resources), and 15 (protection, restoration and promotion of sustainable use of terrestrial ecosystems).

Despite the above, a lack of detailed understanding of the opportunities NbS provide and ways to harness their full potential have limited the management of natural areas in the past to traditional conservation methods. While the public sector has traditionally played an important role in financing the nature conservation and ecosystems restoration that underpin NbS, with the current constraints on public expenditures in most major economies it is now widely acknowledged that there is a significant funding gap in delivering such objectives solely by the use of public funds— as evidenced, for instance, by the lack of sufficient European Union (EU) funds to deliver the objectives of the EU's Biodiversity Strategy[3].

In Albania, there currently is a major gap in terms of implementation at scale, and a preference to continue with investing in 'business as usual' solutions with regards towards climate change adaptation (i.e.: to address coastal flood risk). As over 90% disasters in Albania are water-related. Consequently, ecosystems such as wetlands and lagoons deserve much higher attention within climate change and disaster risk reduction (DRR) strategies and investments within the country. It is clear that in order to make any EbA upscaling approach nationally acceptable and financially sustainable, that a series of "guidance advisories" need to be produced to help decision makers to identify preferred interventions for any future project, whether that is a shoreline protection project or a development project within the coastal zone of Albania.

In addition to the above, key government ministries, including the Ministry of Tourism and Environment (MoTE), Ministry of Agriculture and Rural Development (MoARD) and the Ministry of Infrastructure and Energy (MoIE), currently do not have a framework for implementing (upscaling) EbA across the country. Whilst it is acknowledged that the MoTE are able to monitor the implementation of existing policies through the General Directory of Policies and Strategies, stakeholders at a national and local level are unaware of the tasks and integrated set of existing policies that need to be reviewed, conducted and coordinated to achieve the successful upscaling of EbA programmes in Albania.

1.2. Purpose of this Report

The ultimate purpose of this report is to present a strategic framework whereby the current findings of the GEF SCCF *"Building the Resilience of Kune Vaini Lagoon through Ecosystem based Adaptation (EbA)"* project can be upscaled to other regions of Albania experiencing similar issues and from this, to sustain and replicate climate-resilient development across Albania using NbS and/or EbA approaches. This Upscaling Strategy Framework includes an approach and subsequent structure from which MoTE, MoARD and MoIE (with support from others) can follow and populate with latest information that is attained from the projects Mid Term Review (MTR), Annual Reports for 2019 and the Terminal Evaluation reports (pending for mid-2020). A series of recommendations (including guidance tools) are also included to help Albanian decision makers to prepare a sustainable "route-map" for EbA and NbS upscaling in order to help Municipality and National planners to

[2] As reported by "Forest Trends" in 2016.

[3] http://ec.europa.eu/environment/nature/ natura2000/financing/docs/Kettunen_2017_financing_biodiversity.pdf.

determine the appropriateness of specific coastal or lagoon EbA (or NbS) related intervention "approaches" that may be considered[4].

The focus of this Upscaling Strategic Framework and any subsequent EbA/NbS approach is therefore placed on lagoon and coastal ecosystems within the following geographic locations[5] (see Figure 1.2 and discussion in Section 2.3):

a) Kune Vaini Lagoon (upscaling existing approaches);

b) Narta Lagoon (replicating approaches);

c) Karavasta Lagoon (replicating approaches).

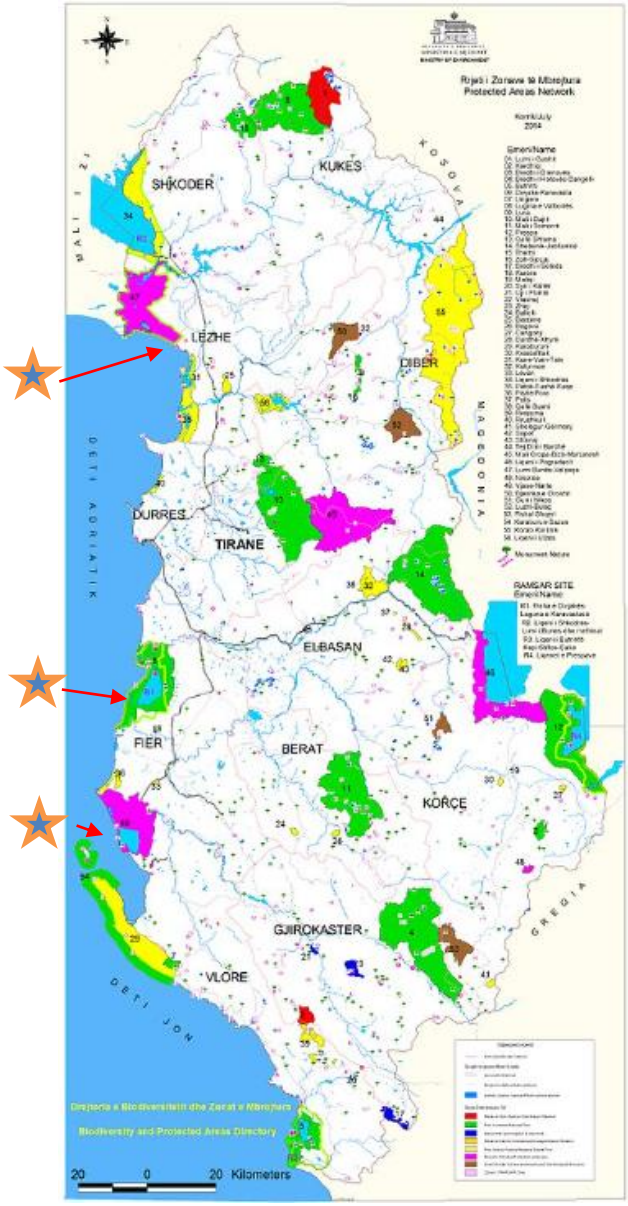


Figure 1.2: Proposed EbA Upscaling Sites (Kune-Vaini, Karavasta and Narta).

[4] This process will need to be closely linked to the Albanian planning and EIA processes currently in place.

[5] It is not possible at this juncture to be specific with regard to actual locations within the above lagoon areas.

1.3. Structure of the Report

The report structure is set out as follows:

1. Section 1: Introduction;
2. Section 2: Situational Analysis;
3. Section 3: Approach to Upscale and Replicate EbA in Albania;
4. Section 4: Upscaling Strategic Framework;
5. Section 5: Recommendations
6. Annexes

Karavasta Lagoon (September 2019 – taken by J McCue)

Narta Lagoon (September 2019 – taken by J McCue)

Kune Vaini Lagoon (September 2019 – taken by J McCue)

2. SITUATIONAL ANALYSIS

2.1. Climate Change Overview

Albania as a nation is suffering from the effects of extreme weather events such as flooding, droughts and heat waves. Since 2010, floods have devastated regions and cities such as Shkodër, Tiranë, Vlorë and Fieri, and posed a significant threat to Albania's economy, ecosystems and people's health. Recurring floods have caused USD 218 million of damage between 1997 and 2017 and have directly affected more than 550,000 inhabitants. According to the European Environment Agency (EEA), Albania shows the highest level of drought severity per decade in Europe. The country ranks highest among European countries in terms of exposure and vulnerability to natural hazards and extreme events.

Mainstreaming climate change adaptation into a country's medium-term budget is a multi-dimensional, continuous process that takes time. Recently, Albania successfully took on this challenge. As with any new policy that has relevant impacts in several sectors of the economy at once, as is the case with climate change adaptation, a transitional period is required to understand the complexity of the process and the risks associated with it, as well as to reflect on how to improve the process in future. This understanding is needed before countries embed policies within the national system and hence the country's Medium-Term Budget Process 2018-2020.

Albania's Climate Change Division has previously led a number of short-term initiatives to mainstream climate change adaptation. In cooperation with the budget department of the Ministry of Finance, the Climate Change Division initially addressed the completion of the legal framework, strengthening the institutional structures and raising capacities at the same time as integrating climate adaptation measures into the Medium-Term Budget Process (MTBP) 2018–2020. The government also wanted to ensure new policies were proven and credible, and so initiated a pilot exercise in seven budget programs managed by four line ministries—the Ministries of Agriculture, Interior, Environment and Urban Development.

The preparation of the cross-sectoral strategy for climate change has been completed together with the national adaptation and mitigation plans and the draft law on climate change (currently in the discussion process before government adoption). The obligation of the ministries to identify climate adaptation measures at the program/objective/project/product and activity level became part of the annual guideline for the preparation of MTBP 2018–2020 issued by the Minister of Finance.

Climate adaptation was eventually integrated in Albania at the levels of:

- The policy statement and annual objectives for the Management of Drainage and Irrigation Infrastructure program;
- The annual objective, project, output and activity level for the Water Management program;
- The annual objective for the Agricultural Advisory and Information program;
- The annual objective and at the project level for the Rural Development by Supporting Agriculture, Livestock, Agro-industry and Market program;
- The annual objectives and outputs for Civil Emergencies program;
- The output level of Urban Planning and Housing program;
- The policy statement, objectives and outputs of the Environmental Protection.

Other ministries will be involved in the process once the legal framework is completed and capacities are improved in term of planning and programming.

NB: The purpose of this section is not to present a detailed Situational Analysis of the measured and predicted climate change model forecasts for the country. The reader should target this information from the NAP (2017) and the Third National Communication (TNC).

2.2. National Adaptation Plan

As of 2019, Albania is the only country in the Balkan region to have developed a NAP document (produced in 2017). Albania has continued to advance the NAP process through its involvement in sector-based projects supported by multilateral and bilateral agencies. The NAP and its financing strategy became an integral part of the National Strategy on Climate Change, and related action plans on mitigation and adaptation, which was approved by the government on July 2, 2019. The NAP document will serve as a risk-management plan (which includes identification of priority actions and assessment of adaptation) and as the main reference to the budget and policy officers during the revision of MTBP of the respective sectors.

Albania was the first country to organize a NAP Assembly with the crucial assistance of the NAP Global Network. It was designed to foster local capacities for the NAP process, to ensure that the priority adaptation actions identified during the process will be implemented and to promote the coordination of development assistance at the national level. The partnership between Albania and the NAP Global Network (since 2016) has been successful in pushing the country's adaptation agenda forward. For example, it has helped to mainstream adaptation into midterm budget planning and defined climate-proof indicators for regional infrastructure projects. Another example is the support to Action 12 of the NAP to develop and implement municipal climate change adaptation plans.

Implementing Action 12 is expected to cost USD 50 million, mostly paid for through grants, and thus a strategy to access financing for this implementation is essential. Albania's NAP document recommends seeking commitment and financial support from international institutions, international funds and investments banks as well as from local funders.

Compliance to the NAP process appears to be a very sensible strategy to help upscale EbA (or NbS) related activities in the future. This is addressed in more detail within Section 5.

2.3. Albanian Lagoon Observations

A series of field missions were organized to visit proposed coastal lagoon sites where Upscaling EbA may be considered in the future using donor and government co-funding options. The following summary text presents the recently observed issues with regards EbA implementation (actual or proposed) for three lagoon visited in September 2019 as part of this consultancy exercise[6]. Actions that are deemed relevant to be taken forward for replication and/or upscaling (within the Upscaling Strategic Framework) are presented in Section 4. Annex B outlines the key outcomes of various meetings held during the consultancy (during 2019).

2.3.1. Kune-Vaini (upscaling existing approaches)

2.3.1.1. Existing Situation

The Kune-Vaini lagoon system (KVLS), located within the Drini-Mati River Delta in the Lezha region of Albania, provides a wide range of valuable goods and services to nearby communities. These local communities derive the majority of their incomes from fishing or agriculture and therefore depend on functional, intact ecosystems in the lagoon system for their livelihoods. A rapid increase in population size and widespread poverty in the area have led to an increase in pressure on the lagoon for ecosystem goods and services, and to unplanned alterations in the buffer zone surrounding the lagoon. This is resulting in the over-exploitation of these important natural resources. Unsustainable resource use within the KVLS is also causing the following problems:

- reduced quality and quantity of water in the KVLS affecting lagoon productivity (see Figure 2.1);
- increased coastal flooding; and

[6] A separate Post Training Report (McCue - September 2019) was produced. Only summary details from that report are extracted for use within this Upscaling Strategic Framework. The reader should refer to that report for additional details.

- increased sand dune erosion (see Figure 2.2).

Climate change effects have been felt in the KVLS respectively with reductions in the capacity of this system to provide indispensable ecosystem goods and services to local communities. In fact, climate models have predicted that a reduction in precipitation, which will also lead to an increase of the salinity of the lagoon with detrimental effects on fisheries. In addition, the models predict an accelerating rate of sea level rise (up to 61 cm by the year 2100[7]) resulting in increased erosion and the consequent loss of habitat within KVLS.

Tidal channel closure – Kune Vain (24 Sept 2019)

Figure 2.1

Visits to intervention sites in Lezha were visited on 16 May 2019. This include tidal channel constructions (Figure 2.1), sand dune rehabilitation sites – see Figure 2.2), tree planting interventions (Figure 2.3) to determine whether the interventions undertaken show enough success to warrant further replication.

Figure 2.2: (Left) failing sand dune planting techniques (KVLS) taken from J McCue May 2019).

Challenges were being experienced with regards to tree sapling growth rates (see Figure 2.3).Land used for forest replanting has been exposed to regular flooding which has impacted in the survival rates of many pines species. Whilst the planting techniques used are believed to be sound (in addition to the use of protective fencing), the actual locations agreed upon at the outset of the project do not appear to be appropriate as replanting locations. Pilot tree planting interventions therefore need to ensure they include clear budgets for

[7] NAP (2017) Priority Action No.15.

maintenance. This is because many saplings often die and require constant silviculture techniques to survive. This inevitably increases costs especially during the early phases of planting.

0.4Ha and 0.5Ha re-afforestation plots (Kune Vain) 24 Sept 2019

Figure 2.3: (taken from J McCue May 2019).

Based on field observations and key stakeholder consultation on the KVLS (in Tirane), the following observations of relevance towards potential upscaling have been made:

- Importantly, many stakeholders suggest that the EbA approach demonstrated at Kune Vaini would be relevant for *replication* around other lagoon areas in Albania. However, it was recommended that any potential upscaling in KVLS should focus on Vaini (not Kune location). Early ideas for interventions have been proposed (in addition to Vaini) for the Mati River which is prone to significant flooding (lower lying surrounding area), south east of Obot I Vjeter along the Buna River, an inland area close to Urela (north of Shirq) and also wetland reforestation and restoration sites at Dajc village (2ha of acacia planting).
- The current Albania National Forest Policy (2019-2030) represents a relevant and a potentially important entry point for a sustained EbA upscaling strategy. This could be achieved as the Policy specifically proposes that re-afforestation interventions should take place where suitable and as agreed by beneficial stakeholders. This represents an important policy (recently produced and funded by the Swedish Government for the MoTE) as it is directly linked to a new draft law specifically set for the forestry sector. The purpose of the Policy is designed to strengthen the sector and to contribute to the nation's economy as a tool for rural development and poverty alleviation. This is important for Lezha as deforestation in the area (due to illegal logging practices) continues to contribute towards causing erosion and flooding within the Municipality (away from KVLS).
- Lessons learned need to be embraced with regard to the EbA tidal channel intervention. Tidal channel replication or upscaling, wherever undertaken, needs to ensure that no down-drift impacts on sediment transport occur. The need for improved initial pre-feasibility site planning and subsequent management is clear based on current observations at the site whereby siltation at the mouth of the "tidal cut" constantly requires opening via dredging. Studies including new hydrodynamic modelling are required as a pre-requisite to any actual intervention measure takes place at this (or similar new) sites. Urgent engineering intervention requirements may also be needed to stabilize "walls" at the

mouth of the channel. Tree planting interventions close to the current tidal channel entrance may prove a positive upscaling strategy for this site plus for other lagoon areas where tidal channel openings are being considered. The use of wood (as part of any engineering "wall" intervention) may possibly be a possible solution which aligns better with NbS related principles (see Section 3.2.2). In addition, the maintenance of tidal entrances requires specific machinery to be purchased in the form of a dredger which is located nearby and operated by RAPA staff or trained local staffs from the Lezha Municipality. This is required especially in the summer months to maintain the opening to avoid risk of eutrophication. More information on this site is proposed in Annex D for consideration.

- The MTR also revealed a willingness from the government to take ownership of the projects results and their up-scaling although there is currently no evidence thus far of effective EbA mainstreaming into national policies. In fact, key barriers to the success of any upscaling strategy is inevitably linked to a sustained political will, the need to mainstream EbA and CCA on the agendas of local decision makers and the need to better engage and train decision makers/parliamentarians on the importance of CCA/EbA for the future (see Section 5 – Recommendations).
- Even though additional funding has not been secured for any up-scaling activities, savings from aspects of the GEF SCCF project (linked to certain reforestation activities) could be re-allocated to replicate the more successful EbA reforestation sites within KVLS. As of September 2019, the unspent balance for reforestation budget lines is of USD 226,888[8]. There is a need for improved cross sectoral consultations with several ministries (including relevant ministries such as energy and agriculture), and provide input towards potential relevant funding sources to support any large scale replication/upscaling approach. There also remains a continued need to consider the need to secure local and national government additional funding (see Section 6 and Annex C).
- In order to achieve effective replication or up-scaling of EbA interventions (based on pilot work at Kune Vaini), all projects results, outcomes, lessons learned and experiences achieved to date need to be better shared and communicated within relevant and strategic fora. For instance, the Drini core platform that undertakes consultations on the integrated management of the Drini River watershed is one important outreach portal that is highly relevant[9]. In addition, UNDP (whom started early EbA work in Drini which formed the template for the current GEF SCCF project to build upon) are currently planning for their Exit Strategy for their "Biodiversity Conservation and Marine Protected Area Programme" which may involve aspects of upscaling or replication around the country. A Donor Conference is planned for Feb 2020 whereby all donors shall present their strategies for project interventions. It is hoped that some synergies and collaborative partnership arrangements can be made at that event to help any EbA upscaling strategy that is designed for the GEF SCCF project. The main message here is that it is very important to ensure that any strategies for outreach and visibility are improved (including the role of "visitor centres") as part of future Communications Plans for NAPAs work. This can then be promoted to tour operators to help improve access to visitors and tourists.
- There is a key role to play for the international donor community to further assist the GoA in setting the necessary conditions to comply with the commitments made under several international agreements with regards to climate change (see Sections 4 and 5). Important donors such as GIZ, the European Union, UN Environment or UNDP are, for example, part of the Global Water Partnership Mediterranean (GWP-Med) advocating for Integrated Water Resource Management (IWRM) and Integrated Coastal Zone Management (ICZM). The GWP-Med is also involved in the elaboration of the trans-boundary (Montenegro-Albania) IWRM Plan for the Buna / Bojana Watershed which represents a good opportunity for regional upscaling on EbA issues on across national borders (see "principles" in Section 3.2.2).
- Institutional capacity of GoA officials needs to improve in the future to enable EbA upscaling/replication to be better mainstreamed into policy and decision making. Members of the environment working group under the "Stabilisation and Association Agreement – SAA" between the European Union and Albania should be better engaged in this process. Key members should also be identified and invited to form a Technical Working Group on climate change and EbA. This group

[8] Budget calculations as of September 2019.

[9] Supported by the GEF, the GWP-Med and UNDP, a core platform for the Drini watershed management has been set up. It may be relevant to have the Kune Vaini project represented in this platform to help promote EbA up-scaling.

should be trained on topics such as and how to mainstream climate change adaptation, EbA and Nature based Interventions and conflict resolution and participatory process related training, plus how these newly trained staffs would play a knowledge repository role with regard to the implementation of the Upscaling Strategic Framework (see Section 5).

- In certain instances, there is a need to determine beach carrying capacities at Lezha (Vaini) area. A repair to the main road to the beach is also a key aspect to consider. It is proposed that issues such as beach risks, carrying capacity, zoning needs, furniture and washing facilities and education needs are better considered in future upscaling approaches This could be addressed through the adoption of ISO13009 (Beach Services) which is new and could represent a good framework for future beach management around Albania (starting with Lezha Municipality – see Section 5).

- Any upscaling or replication strategy requires interventions to be proposed that are based on sound science and latest monitoring findings. To this end, there is a need to review new findings from the pending 4th National Communication on Climate Change plus to embrace all current links to existing or new Conventions that Albania are seeking to be signatories to. Upscaling locations could also be linked to helping the delivering/implementing the steps of the EU Floods Directive as the key driver. It would be useful to have a regional hydrological model produced to with ideas for upscaling (or downscaling of findings) to help put forward "end to end" EWS strategies.

2.3.2. Narta Lagoon (replicating approaches)

Based on field observations and key stakeholder consultation in Narta Lagoon, the following comments of relevance towards potential upscaling have been made:

- The location is experiencing drought conditions and precipitation levels are recorded as falling over recent times. During flash flood events, water is pumped from agricultural lands into the lagoon, to reduce lagoon salinity levels however, the frequency of such events is low. Water levels do vary seasonally (high in the winter and low in the summer) due to evaporation and limited inflow of fresh water into the lagoon. This may influence the ultimate performance of any EbA related project.

- Salt production takes place in the lagoon area (through a company called Alba Sal). They manage the extraction of seawater through artificial entrances cut through into the lagoon and then pump salt water to the receiving stations further inland from the lagoon. Alba Sal keep the lagoon entrances open through dredging and deepening of the narrow entrance channel. It is recommended that more detailed discussion is held with Alba Sal to determine intervention approaches adopted and its applicability for replication/upscaling in KVLS and other locations.

- Coastal erosion along the western lagoon shores are experiencing erosion and there are requests for some type of coastal defence to prevent erosion here as well as on the northern side where erosion is being experienced close to the road. The southern side of the lagoon also experiences erosion but these are likely to be initiated by wind induced waves within the lagoon. Poor understanding of lagoon hydrodynamics is a key factor here and as a result, it proves difficult to link directly to climate change. The erosion issue is a problem on the sand dune peninsula of the lagoon where the dunes are less stabilized as a consequence of the erosion of pine trees populating the area thus exacerbating the erosion impact. Therefore stabilization of the dunes appears to be a key issue for consideration as their loss is likely to dilute the visual appeal of the area as a Protected Area, especially for tourism.

- Tidal Channel Entrances – the openings into the lagoon need regular dredging due to littoral drift causing the mouths of the lagoon to close. Entrances need to be regularly dredging to enable salt water to enter the lagoon to assist with hydrodynamic flushing and also for the salt industry to gain easier access to sea water (to be pumped to the receiving ponds). Keeping the lagoon mouths open will also help to maintain the equilibrium of sediment budgets within the lagoon. Erosion and water quality and also impact on fluctuations in biodiversity levels.

- Pollution – Pollution from caustic soda factory (including mercury waste) has been reported in the lagoon. In addition, a leather processing plant is located along the east side of the lagoon. The factory has a septic tank for its chemical waste which have released pollutants into the water table and then into the lagoon in recent times, though this has reduced now and impacts have not been noticed (or

recorded) for a few years. Importantly, salt industries are note believed to be adversely adding to the pollution within the lagoon as they dispose of waste out to sea. Consequently, as long as the entrances to the lagoon are kept open, and tidal exchange continues, then salinity levels are likely to remain in equilibrium and at acceptable levels. No water quality monitoring takes place in the lagoon apart from some institute assessments (possibly NEA).

- Extreme Weather – tornados have damaged the forest areas and the frequency of such freak events appears to be increasing. Freezing conditions have also been experienced. Drought conditions have resulted in fish kill events though this is not an annual phenomena. When temperatures increase, evaporation increases and fish kill events often occur.

- Biodiversity – locals define a "healthy lagoon" as one with high biodiversity benefitting fisherman, local community, fauna and birds and also tourists. It is felt that biodiversity will remain healthy of mans' impacts upon it are managed better. To sustain biodiversity levels, it is seen as being critical to keep water quality and sediments at an appropriate level to sustain life within the lagoon. Lack of phragmites in the lagoon suggests that there is a reduced level of salinity apparent.

- There is a need to bridge gaps between RAPA, NAPA Central and Local Government and the role of local schools to support central government in efforts to clean the lagoon (including the current role of the MoTE and Ministry of Agriculture towards helping with management of the lagoon as well as waste management in the area).

- In relation with Narta lagoon, or the whole Vjosa Delta including Narta lagoon, another important protected area, it would be of high importance and consider the hydroelectric plans in River Vjosa. If the dams will be build up, soon there will be erosion effects along the coast, as we have in Kune-Vaini (Drini delta), in Velipoja (Buna delta), in Rrushkulli (Erzeni delta). There, is very large community that is strongly against the dams in Vjosa for many reasons, scientists and environmentalists, national and international, and also local community (for more information see Schiemer et al., 2018.

Najta Lagoon (25 Sept 2019)

2.3.3. Karavasta Lagoon (replicating approaches)

Based on field observations and key stakeholder consultation in Karavasta Lagoon, the following comments of relevance towards potential upscaling have been made:

- Land surrounding the Karavasta Lagoon was drained and reclaimed for agricultural purposes. The request to leave this land as fallow land for nature was rejected and the drained land was encouraged (by the National and Municipality Government) to be used for agriculture.

- Levels of biodiversity are reducing as a consequence of poor flushing with the open sea and poor human activity practices. Two years ago water quality tests were undertaken and these showed that to the south, high levels of *E.coli* were recorded and which were sourced from urban waste and close to the lagoon. Sewage also derives from farms (through their own leaking sewage tanks). A landfill is also situated close to a river and impacting on the lagoon health. Although in summer months the river

is dry, during the winter, sewage waste comes from the waste tip via the higher river levels resulting in fish-kill observations. This impacts on groundwater conditions for drinking via wells.

- Local fishers use the lagoon though often with no permits or authorisation to do so. Only 10 tonnes of fish are now caught in the lagoon which is 30% less than 5 years ago.
- Poor water circulation with at least 2 artificial entrances partially blocked is a key issue. Also the limits of the lagoon are divided by the two rivers which border the lagoon. A concrete containing structure contains the limits of the river to avoid flooding of adjacent agricultural lands but this has reduced the amount of freshwater coming to the lagoon. JICA have been approached to request financial support to keep channels open. Old river beds and current river supply is adding sediment to the system and blocking the lagoon. Dredger is also requested for the protected area rangers.
- Certain forests in the past have relied on freshwater or brackish water supplies, but now salinity has increased and tree growth is being impacted upon.

Karavasta Lagoon (26 Sept 2019)

2.4. Strategic Observations

The following strategic findings from each of the proposed above EbA lagoon sites are presented. Details outlining the way forward a developed further (within the Upscaling Strategic Framework) within Section 4.

a) Specific NbS interventions that may be proposed in any of the 3 lagoon sites are likely to be highly influenced by pollution or lagoon health related issues. Careful consideration on any EbA or NbS intervention must therefore be given that fully appreciates this observation. This is key as the Kune and Vaini lagoons are accreting with sediment derived from pumping stations as well as the sea. This accretion (and lagoon filling) is affecting in the ecosystem health of the lagoon and as a consequence a series of NbS or EbA interventions need to be planned to address this in the coming years.

b) Tidal exchange related NbS interventions appear to be an important area of work. This directly can support and improve the issue raised above (pollution issues which are often linked to poor water circulation). Specific lessons learned from the KVLS on this matter need to be understood and new intervention approaches adopted (see Annexes D and E).

c) All projects results, outcomes, lessons learned and experiences achieved to date need to be better shared and communicated within relevant and strategic fora in Albania and around the Mediterranean.

d) The current Albania National Forest Policy (2019-2030) represents a relevant and a potentially important entry point for a sustained EbA upscaling strategy. It is deemed important as an entry point as it is linked directly to a new draft law specifically set for the forestry sector which should seek to strengthen the sector thus contributing to the nation's economy as a tool for rural development and poverty alleviation. This is important for Lezha, as deforestation in the area (due to illegal logging practices) continues to contribute towards causing erosion and flooding within the Municipality.

3. APPROACH TO UPSCALE AND REPLICATE EBA IN ALBANIA

3.1. Definitions

The concepts of "replication", "upscaling", and "mainstreaming" are being increasingly promoted as important elements of EbA related project by donors, governments, and non-governmental and community organisations. Interpretation of the meaning of these concepts is often blurred often as a result of inconsistent application of their use. Similarly, adequate consideration of what the terms might mean in the context of countries such as Albania is often not given, leading to confusion amongst national beneficiaries of development assistance projects or participants in multi-lateral investments in the natural resources sectors.

Replication and scaling-up are key elements of the logical framework matrix (log-frame) developed for the Project and hence there is a need to mirror the expectations based on the wordings used within the Project Document. This include the following (key words are underlined):

- *Output 1.4. Technical support provided for the development of a strategy to upscale, sustain and replicate climate-resilient development using EbA. This upscaling strategy will need to build on the funding plan developed by the IEE/FE under Output 1.3 of the project. The intention (with support from Albanian experts and translators) is to consult a broad spectrum of relevant national stakeholders to guide the development of the upscaling strategy.*
- *At least 10 government officials at Director level or above endorse the nation-wide EbA upscaling strategy.*

The above references to **replication** extracted from the log-frame (for Output 1.4) indicate that the replication strategy (this report) should involve the use of lessons learned from the demonstration projects and applying them elsewhere. The reference to **upscaling** indicates that results of demonstration projects will be used within the design of any Upscaling Strategy (this report). These are of course simplifications of how these concepts may be interpreted in the context of the project, but neither the log-frame nor the narrative text of the project document provides a clear definition.

Definitions of "*replicate*", and "*upscale*" contained in the Cambridge and Oxford Dictionaries are presented below to develop define what replication and scaling-up should mean in the context of this Project. The results of this are summarized in Table 3.1.

Dictionary Definitions	EbA Interpretation	Example Actions
Replication		
Cambridge Dictionary – Replicate: *"to make or do something again in exactly the same way"* **Oxford Dictionary – Replicate:** *"to copy something exactly"*	The application of a copy of a successful EbA model, approach, strategy, technology, or tool at the same or another location.	Using the approach adopted to plant trees in one part of Kune Vaini (KV) lagoon to another part Using the Technical Working Group structure set up for KV and applying the same model to another lagoon in Albania.
Up-scaling		
Cambridge Dictionary - Scale *"the size or level of something"* **Oxford Dictionary - Scale**	Scaling-up is broader than replication. May involve: Increasing the geographic scale by applying a	Using the pilot tree planting activity in KV and applying it to the Municipality scale

"the size or extent of something, especially when compared with something else"	successful pilot activity to an entire watershed or lagoon/wetland, or Increasing the policy scope of EbA by using a successful approach to influence policy, development, & funds Increasing the institutional scale of EbA by applying activity involving a small subset of community at whole community level.	Applying a payment for ecosystem services scheme from one Municipality (Lezha) to all of the country Using results of the demonstration projects at KV to influence national coordination, policy, and legal frameworks across Albania.

Communicated effectively, success stories achieved to date at KV can quite easily create a demand driven approach whereby Albanian lagoon communities away from Lezha Municipality actively seek opportunities to apply similar proven technologies and management models within their communities. The urgency of many climate change adaptation issues facing Albanian coastal communities, coupled with the limited policy and legal frameworks for successful EbA delivery, creates significant opportunities for successful demonstration activities to be scaled-up into national policy, regulations, and standards.

3.2. A Conceptual Framework for Delivery

3.2.1. Categorizing NbS Approaches

Prior to determining a "process" for upscaling (see Section 4), there is a need to determine how decision makers in Albania can assess and evaluate performance of current EbA interventions within KV Lagoon. To do this, and based on the fact that NbS can be considered an umbrella concept covering a range of ecosystem-based interventions[10], 5 specific "Approaches" that nest under NbS "header" are presented below (see Figure 3.1).

- **Restorative** (Ecological restoration (ER), Forest landscape restoration (FLR), Ecological engineering (EE));
- **Issue-specific** (Ecosystem-based adaptation (EbA); Ecosystem-based mitigation (EbM); Ecosystem-based disaster risk reduction (Eco-DRR); Climate adaptation services (CAS));
- **Infrastructure** (Natural infrastructure (NI); Green infrastructure (GI));
- **Management** (Ecosystem-based Management (EbMgt) which can include Integrated coastal zone management; Integrated water resources management);
- **Protection** (Area-based conservation approaches, including protected area management and other effective area-based conservation measures (AbC)).

These 5 "Approaches" have high relevance towards defining the EbA Upscaling Strategy Framework for Albania as they provide clear headings from which to position the way forward and to direct specific actions for the way forward.

[10] these address specific/multiple societal challenges while also providing human well-being and biodiversity benefits.

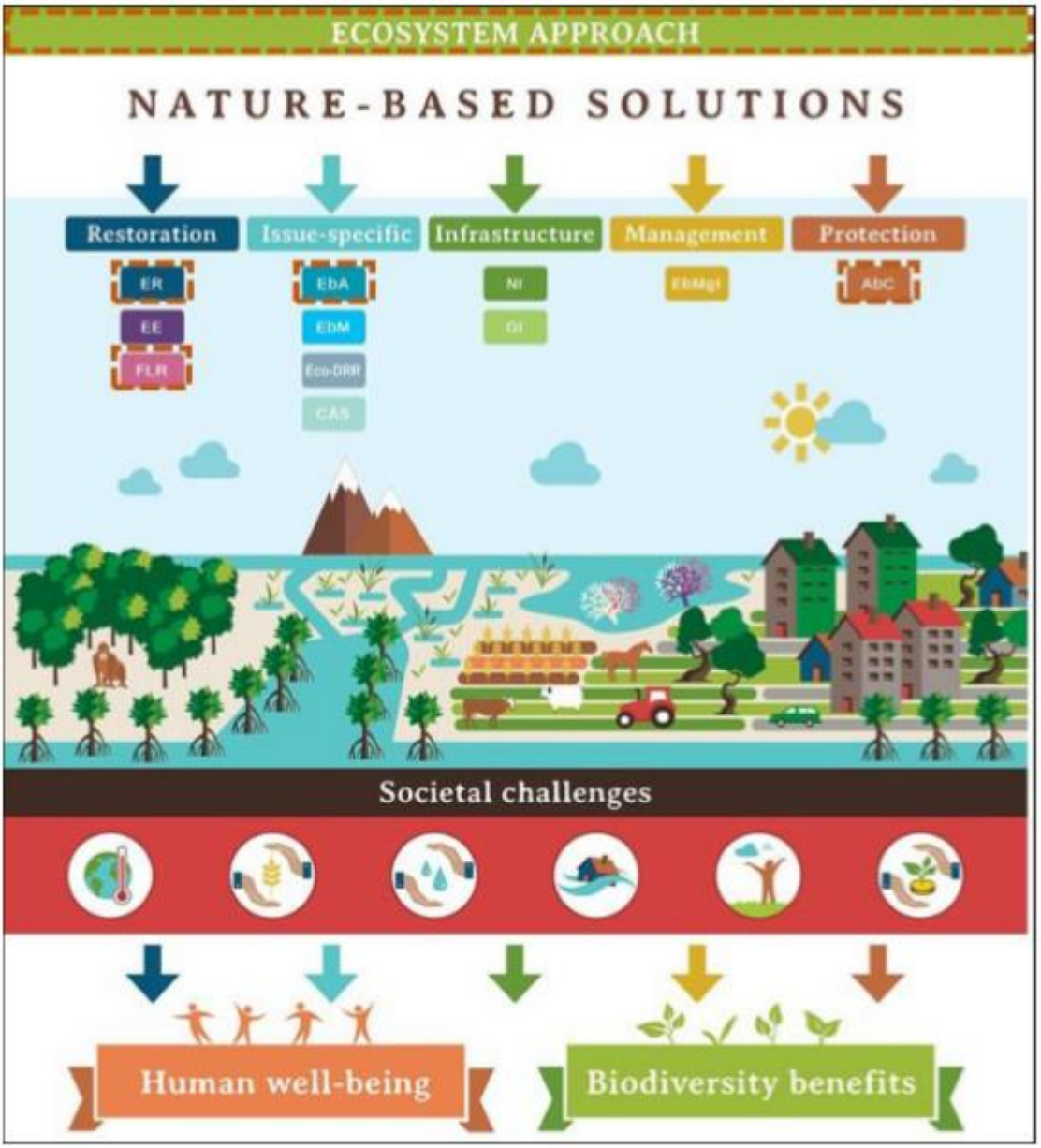


Figure 3.1: NbS "umbrella" for five categories of ecosystem-based approaches (taken from Cohen-Shacham, et al. Environmental Science and Policy (2019).

3.2.2. NbS Principles

In tandem to the presentation of the above 5 "Approaches" (in Section 3.2.1), there is a need to understand the extent to which NbS principles are related to, or differ from, other relevant "Approaches". This is an important part towards refining, improving, and operationalizing the Upscaling Strategic Framework and to ensure delivery of other related management approaches that GoA may have started to embark on.

To maximize the benefits that ecosystem management provides to conservation, it is important to have a strong set of aspirational principles and apply these to standards of practice. A series of 8 separate Principles apply to all 5 approaches identified above (see Table 3.1). They are also relevant (in the Albanian situation) to the wider context of sustainable development within the country.

Table 3.1: Core Principles for NbS delivery and EbA Upscaling in Albania (adapted from Cohen-Shacham et al. Environmental Science and Policy (2019).

Principle Title	Definition
Principle 1: NbS embrace nature conservation norms (and principles)	NbS can be complementary to and benefit from nature conservation efforts across a landscape (e.g., when a protected area was established to conserve a certain species, but later contributes to an NbS intervention nearby.
Principle 2: NbS can be implemented alone or in an integrated manner with other solutions to societal challenges (e.g., technological and engineering solutions)	NbS promotes the provision of a full range of ecosystem services or be complementary to other actions such as a mixture of hard coastal defences (i.e.: seawalls and vegetative planting solutions to protect a coastline from storm surges etc.
Principle 3: NbS are determined by site specific natural and cultural contexts that include traditional, local and scientific knowledge	NbS are evidence based approaches built on a thorough understanding of particular ecosystems. However, evidence can come from various sources, including science, traditional knowledge, or a combination of the two. This principle refers to the need for full participation in developing a NbS.
Principle 4: NbS produce societal benefits in a fair and equitable way in a manner that promotes transparency and broad participation	NbS interventions for food and water security, or disaster risk reduction, frequently provide services for governments and communities distant from the site but can entail loss of opportunities for those living in or near the services' source.
Principle 5: NbS maintain biological and cultural diversity and the ability of ecosystems to evolve over time	NbS need to be developed and implemented in a manner that is consistent with the temporal dynamics and complexity of ecosystems, in order to support biological and cultural diversity, so that the services provided by the ecosystem are sustainable and, as far as possible, resilient to future environmental change.
Principle 6: NbS are applied at a landscape scale[11]	Many NbS are implemented over large spatial scales such as watersheds or large forests which usually combine several ecosystems (agricultural, inland waters, coastal, forest, etc.), and that might in some cases, be transboundary. Even when an NbS is implemented at a specific site level (linked to Principle 3), it is important to consider the wider landscape scale context and consequences, aiming at upscaling where appropriate.
Principle 7: NbS recognize and address the trade-offs between the production of a few immediate economic benefits for development, and future options for the production of the full range of ecosystem services	A thorough understanding of trade-offs between current and future benefits is important when deciding among different NbS activities. Understanding and providing a process for fair and transparent negotiation of trade- offs are essential for ensuring successful NbS.
Principle 8: NbS are an integral part of the overall design of policies, and measures or actions, to address a specific challenge	For NbS interventions to have broad influence, it is important to make sure that they are not only practically undertaken in the field, but are also incorporated in policy and related actions.

3.2.3. Linking Approaches to Principles

Of direct importance to this Upscaling Strategy for Albania relates to how these Principles and Approaches (Table 3.1 and Section 3.2.1) can be effectively applied. Firstly, it is important to note that the NbS principles all have an explicit focus on integration with other types of solutions (see Principle 2).This integration allows for a broader range of social and environmental benefits to be supported and developed through targeted but connected interventions, and can help remove barriers between existing frameworks to better integrate learning from different approaches. This places NbS firmly away from mainstream biodiversity conservation approaches that predominantly focus on species or ecosystem conservation and emphasizes its role as a tool

[11] Principle 6, although "upscaling" is not specifically written, it does capture the "upscaling" concept and aims at developing and applying large-scale solutions to address global societal challenges.

for sustainable development based on healthy ecosystems, rather than being concerned with conservation for its own sake.

Another novel aspect of this Upscaling Strategic Framework relates to the important consideration of the "landscape context" (see Principle 6), which is critical to the success of management interventions for multiple reasons. If site-specific actions are implemented without considering causes of degradation, any short-term benefits of the management activity may be lost if external threats continue to degrade a specific site. Also, planning at the landscape scale allows for consideration of ecological interactions among ecosystems within the wider landscape. Several obstacles to successfully working at this scale are inevitable and this applies to the Albanian situation, including limited available funding, legal and mandate limitations, administrative boundaries, human capacity, technical limitations including data and institutional hierarchies.

A final important aspect in upscaling any intervention for Albania is the need to focus on coordinated efforts (Principle 8), that addresses the complex interactions between ecological, social, legal, institutional and political systems that transcend site-level approaches. This principle is needed to ensure that global societal challenges are addressed at the scale of the problem and promote broader programmatic and policy interventions than piecemeal EbA specific projects.

In summary, the NbS principles presented for Albania should help decision makers to ensure that a series of "integrated" solutions are considered (e.g., use of grey infrastructure, public awareness tools), landscape-scale planning and policy coherence, all are included under one single Upscaling Strategic Framework (see Section 5).

Figure 3.2 outlines a conceptual linkage diagram to demonstrate the extent to which each of the 8 NbS principles are (or could be) associated with the 5 "Approaches" presented in Section 3.2.1.

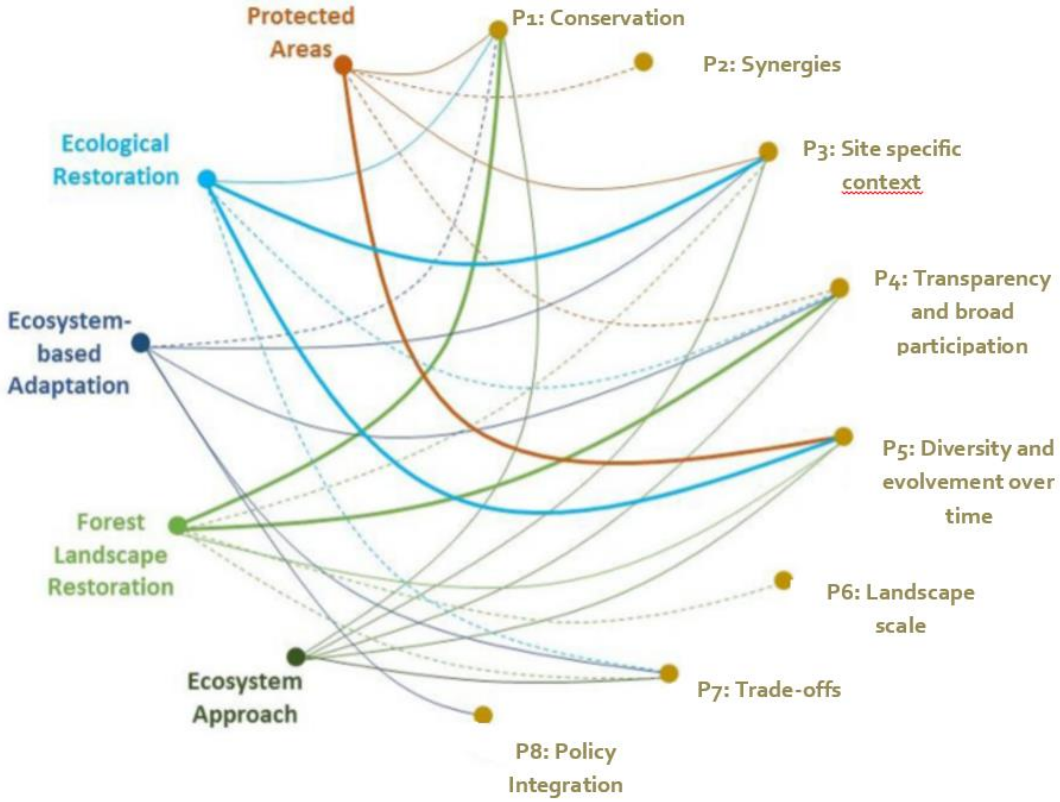


Figure 3.2: Extent to which each of the eight NbS Principles is included within the five "Approaches" (adapted from Cohen-Shacham (2019).

4. Replication and Upscaling Strategic Framework

4.1. Overview

This Upscaling Strategic Framework is designed to include a combination of demand and supply driven processes that are applicable to the Albanian situation. *Demand driven processes* are those where an EbA project (or donor funded programme) addresses key needs identified by local, national and regional stakeholders. *Supply driven processes* are those where good lessons are identified, and stakeholders are identified that may benefit from these lessons (i.e.: outcomes form the GEF SCCF project and as described and observed in Section 2.4 above).

This project has already identified Municipal and national stakeholder demands and needs as clearly stated within National Diagnostic Reports, the MTR Analyses, and Project Document. In most cases, meeting these demands requires the development of EbA specific technical solutions to identified problems, and the need for engagement and attitude changing strategies applicable from community to national government levels. Application of this approach needs to be enhanced within the Upscaling Strategic Framework as a successful approach to this will:

- build awareness, support and involvement, and skills and capacity across sectors and between levels of government, including traditional governance structures;
- justify bids for funding and increased budgetary support for EbA; and
- better inform national reforms of development planning and government service delivery in the EbA and climate adaptation related sectors aimed at ensuring compliance to the NAP for Albania.

The above points are critical towards implementing a successful Upscaling Strategic Framework. This is because climate change is a complex multi-sectoral problem where the impacts are not always certain but the consequences are almost certainly expected to further exacerbate development challenges. Developing any Upscaling Strategy to address climate risk, therefore, requires a strategic effort: The collection and sharing of climate data, creating a common understanding of climate risk and potential action, devising a strategy and long-term mandate to guide the process, bringing diverse stakeholders onto the same platform, examining implementation strategies, finding ways to mainstream climate adaptation in development planning, and finally monitoring and evaluating the process are all crucial to the plan. Underpinning all these factors is the need for a clear understanding of a country's current and future capacity to undertake each of the required adaptation actions.

To further operationalize the Upscaling Strategic Framework it will be important to assess how the NbS principles (as set out in Section 3) are implemented in diverse case-studies around Albania and from this, assess more in detail the relevance of NbS in both national and global policy (e.g., SDGs, CBD Aichi Targets). Most importantly, Albania will need to demonstrate the value of operationalizing specifically principles 2, 6 and 8, which will enable Albania to address societal challenges at the scale needed. This will necessitate a high degree of coordination amongst stakeholders, including the public and private sectors.

4.2. Process to Support Upscaling and Replication

The process to support the implementation of Upscaling Strategic Framework must address the following series of components:

1. Lessons Learned: findings to date must provide guidance for the process of identifying lessons learned so that implementation outcomes can be maximised;

2. Significance: this should include discussion regarding the significance of the lessons learned; and from this, providing procedural guidance on how to vet the significance of any lessons learned;

3. Upscaling Strategy: details here discuss the who, what, when, where, why and how of the strategy);

4. Target Audience: details here include discussion of the target audience and how widely the EbA "Approach" applies.

5. Tools: details here identify all tools that will (or could) be used during the implementation of this Upscaling Strategic Framework. This must include the provision of specific examples of what tools might be useful.

The following process diagram (Figure 4.1) is hereby designed to support GoA (MoTE in particular) to help make decisions on how specific future EbA initiatives (already underway or about to be considered under the current GEF (SCCF) Project) could be upscaled or replicated. Specific recommendations for this procedural approach is presented in Section 5[12].

[12] "Acknowledging lessons learned" means being able to communicate and understand good and bad practices on EbA.

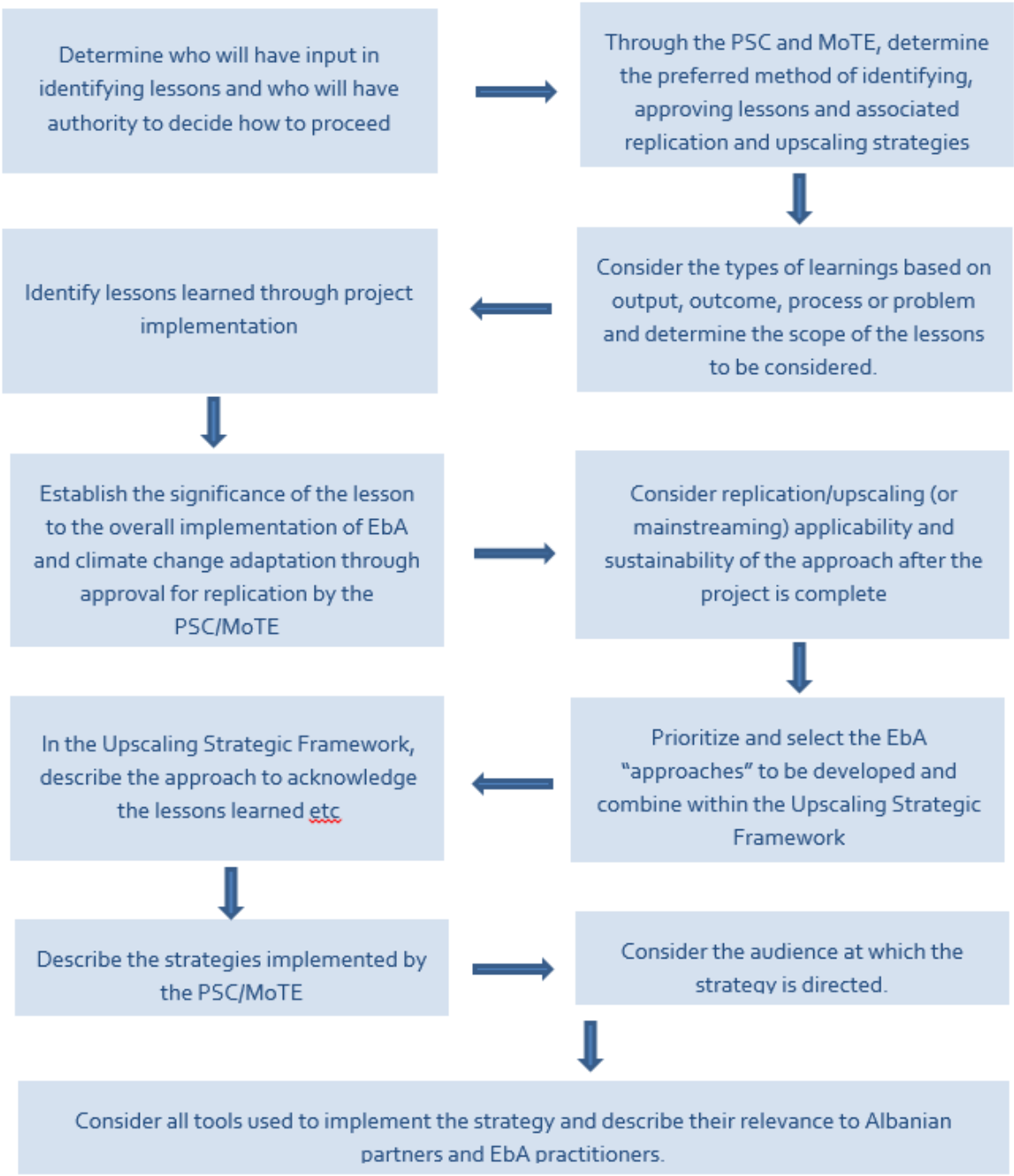


Figure 4.1: Flow Diagram to support PSC Decision Making for EbA Upscaling

4.3. Action Plan: EbA Replication and Upscaling

This Section (Action Plan) identifies the key activities for EbA/NbS replication and upscaling that is aimed at building and refining EbA at both national and Municipality levels. The activities presented will provide the mechanisms for replicating positive outcomes, learning from project successes and challenges experiences, plus how to mainstream lessons into the future. To this end, the approach towards preparing this Upscaling Strategy Framework has endeavored to synthesise the relevant findings of the GEF SCCF project to date, and from this to propose key activities that require attention.

The following Action Plan tables[13] are produced for consideration by the Project Steering Committee. There are designed to be dynamic action plans, embracing lessons learned from the GEF SCCF project which shall be refined through several iterations as lessons for replication become apparent during the final stages of the project in 2020 (leading to the Terminal Evaluation report in June 2020).

Three separate tables are produced to address the following 3 coastal lagoons as addressed in Section 2:

- Kune Vaini (upscaling existing approaches);
- Narta Lagoon (replicating approaches);
- Karavasta Lagoon (replicating approaches).

The tables include summary information on the following:

a) An indication of the relevant "Approach" that coincides with the action being considered (i.e.: Restorative, Issue-specific, Infrastructure, Management, Protection focused).

b) The scale of the action (i.e. whether it is a national or Municipality focused action);

c) The applicability of the action (building on lessons learned and observations identified in Section 2);

d) The tables produced identify a list of possible guides and toolkits that exist and that may be of value towards supporting a strategic move towards implementing EbA in Albania. Annex A presents more detail on available EbA guides and toolkits that may be of value.

e) Timeframe relates to the urgency of the action (0-2 years; 2-5 years;5-10 years);

f) Costs are generic and are grouped as low cost (<US$1k; mid cost (US$1k to US$10k) and high cost (>US$10k);

[13] Details shall be updated following the PSC meeting which is proposed during the second week of January 2020.

Kune Vaini Lagoon (upscaling existing approaches)						
Action	**Relevant "Approach"**	**Scale**	**Applicability of Action *(addressing lessons learned)***	**Replication Tool(s) (see Annex A)**	**Timeframes**	**Costs**
Stakeholder Engagement						
Initiate local engagement events to discuss possible EbA interventions for the Mati River; south east of Obot I Vjeter along the Buna River, an inland area close to Urela (north of Shirq) and also wetland reforestation and restoration sites at Dajc village (2ha of acacia planting).	Restorative Infrastructure Management Protection	Municipal	Many stakeholders suggest that the EbA approach demonstrated at Kune Vaini would be relevant for replication around other lagoon areas in Albania.	Demonstration sites Presentations at national, regional and international fora. Media (i.e. Communication Strategies) Publications/Reports (i.e. Technical Reports, Newspaper Articles, Brochures, Journal Articles) Videos and or Roadshows Community Workshops (i.e. Community Engagement Plans, Stakeholder Engagement Analyses/Plans, Workshop Materials)	0-2 years;	mid cost (US$1k to US$10k)
Project Management						
Savings from aspects of the GEF SCCF project (linked to certain reforestation activities) should be re-allocated to replicate the more successful EbA reforestation sites within KVLS.	Restorative Management	Municipal/ National	There is a need for improved cross sectoral consultations with several ministries (including relevant ministries such as energy and agriculture), and provide input towards potential relevant funding sources to support any large scale replication/upscaling approach. There also remains a continued need to consider the need to secure local and national government additional funding.	Best practice manuals Demonstration sites Twinning arrangements (i.e. demonstration sites to new sites nationally or regionally) Presentations at national, regional and international fora. Media (i.e. Communication Strategies) Publications/Reports (i.e. Technical Reports, Newspaper Articles, Brochures, Journal Articles) Videos and or Roadshows	0-2 years; 2-5 years;5-10 years	(<US$1k; mid cost (US$1k to US$10k) and high cost (>US$10k

				Community Workshops (i.e. Community Engagement Plans, Stakeholder Engagement Analyses/Plans, Workshop Materials) Policies/Legislation/Regulations		
Capacity/Performance						
Institutional capacity of GoA officials needs to improve in the future to enable EbA upscaling/replication to be better mainstreamed into policy and decision making.	Restorative Issue-specific Infrastructure Management Protection	Municipal/ National	Members of the environment working group under the "Stabilisation and Association Agreement – SAA" between the European Union and Albania should be better engaged in this process. Key members should also be identified and invited to form a Technical Working Group on climate change and EbA. This group should be trained on topics such as how to mainstream climate change adaptation, EbA and Nature based Interventions and conflict resolution and participatory process related training, and trainees would be able to play a knowledge repository role which would be particularly relevant regarding as part of the Upscaling Strategic Framework.	Presentations at national, regional and international fora. Media (i.e. Communication Strategies) Publications/Reports (i.e. Technical Reports, Newspaper Articles, Brochures, Journal Articles) Videos and or Roadshows Community Workshops (i.e. Community Engagement Plans, Stakeholder Engagement Analyses/Plans, Workshop Materials) Policies/Legislation/Regulations	0-2 years; 2	high cost (>US$10k
Coordination/Integration						
Promote the current Albania National Forest Policy (2019-2030) as a relevant and a potentially important entry point for a sustained EbA upscaling strategy.	Issue-specific Management	National/ local	The purpose of the Policy is designed to strengthen the sector and to contribute to the nation's economy as a tool for rural development and poverty alleviation. This is important for Lezha as deforestation in the area (due to illegal logging practices) continues to contribute towards causing erosion and flooding within the Municipality (away from KVLS). The current policy (recently produced) was funded by the Swedish Government for the MoTE and is directly linked to a new draft law specifically set for the forestry sector.	Presentations at national, regional and international fora. Policies/Legislation/Regulations	0-2 years;	mid cost (US$1k to US$10k)
All projects results, outcomes, lessons learned and experiences achieved to date need to be better shared and	Issue-specific	National/ local	It is hoped that some synergies and collaborative partnership arrangements can be made at that event to help any EbA upscaling strategy that is designed for the GEF SCCF project. The main message here is that it is very important to	Publications/Reports (i.e. Technical Reports, Newspaper Articles, Brochures, Journal Articles)	2-5 years	high cost (>US$10k

communicated within relevant and strategic fora.			ensure that any strategies for outreach and visibility are improved (including the role of "visitor centres") as part of future Communications Plans for NAPAs work. This can then be promoted to tour operators to help improve access to visitors and tourists.	Videos and or Roadshows Community Workshops (i.e. Community Engagement Plans, Stakeholder Engagement Analyses/Plans, Workshop Materials)		
Technical						
Lessons learned need to be embraced with regard to the EbA tidal channel intervention. Tidal channel replication or upscaling, wherever undertaken, needs to ensure that no down-drift impacts on sediment transport occur. It is recommended to consider the possibility of the partial (controlled) return of the waters from Drini to Shkodra to the former bed of the Drini in Lezha; the revitalization of Drini of Lezha if possible would be under focus to a sustained EbA upscaling strategy in Kune-Vaini complex system.	Restorative Infrastructure Management	Municipal/ National/ local	The need for improved initial pre-feasibility site planning and subsequent management is clear based on current observations at the site whereby siltation at the mouth of the "tidal cut" constantly requires opening via dredging. Studies including new hydrodynamic modelling are required as a pre-requisite to any actual intervention measure takes place at this (or similar new) sites. Urgent engineering intervention requirements may also be needed to stabilize "walls" at the mouth of the channel. Tree planting interventions close to the current tidal channel entrance may prove a positive upscaling strategy for this site plus for other lagoon areas where tidal channel openings are being considered	Best practice manuals Demonstration sites Twinning arrangements (i.e. demonstration sites to new sites nationally or regionally) Presentations at national, regional and international fora. Media (i.e. Communication Strategies) Publications/Reports (i.e. Technical Reports, Newspaper Articles, Brochures, Journal Articles) Videos and or Roadshows Community Workshops (i.e. Community Engagement Plans, Stakeholder Engagement Analyses/Plans, Workshop Materials) Policies/Legislation/Regulations	0-2 years; 2-5 years;5-10 years	(<US$1k; mid cost (US$1k to US$10k) and high cost (>US$10k
For Ceka it is advised to reopen the channels that connect with the lagoon of Zaje for better water exchange between Ceka with Zaje lagoons, and with Drini River. It would probably help more to prevent the poor conditions in Ceka, especially during the summer months. Reopening the Kulari Channel in Merxhani, the tide water exchange of the lagoon would be enhanced. Kulari Channel would	Issue-specific Infrastructure Management	Municipal	Any new machinery (dredger) needs to be located nearby and operated by RAPA staff or trained local staffs from the Lezha Municipality. This is required especially in the summer months to maintain the opening to avoid risk of eutrophication.	Maintenance manuals Demonstration sites	0-2 years;	high cost (>US$10k)

probably help to prevent the dystrophic conditions observed in Merxhani, especially during the summer. Kulari channel was closed soon after years 1990s due to tourist infrastructures in Kune area. The maintenance of tidal entrances may require plant to be purchased in the form of a dredger.						
Political						
Need to mainstream EbA and CCA on the agendas of local decision makers and the need to better engage and train decision makers/parliamentarians on the importance of CCA/EbA for the future	Management	National	The MTR revealed a willingness from the government to take ownership of the projects results and their up-scaling although there is currently no evidence thus far of effective EbA mainstreaming into national policies. In fact, key barriers to the success of any upscaling strategy is inevitably linked to a sustained political will	Presentations at national, regional and international fora. Media (i.e. Communication Strategies) Publications/Reports (i.e. Technical Reports, Newspaper Articles, Brochures, Journal Articles) Videos and or Roadshows	0-2 years;	mid cost (US$1k to US$10k)
Socio-cultural						
Any upscaling or replication strategy requires interventions to be proposed that are based on sound social and cultural awareness as well as sound science and latest monitoring findings.	Issue-specific Management Protection	Municipal/ National	There is a need to review new findings from the pending 4th National Communication on Climate Change plus to embrace all current links to existing or new Conventions that Albania are seeking to be signatories to. Upscaling locations could also be linked to helping the delivering/implementing the steps of the EU Floods Directive as the key driver.	Presentations at national, regional and international fora. Media (i.e. Communication Strategies) Publications/Reports (i.e. Technical Reports, Newspaper Articles, Brochures, Journal Articles) Videos and or Roadshows	0-2 years;	mid cost (US$1k to US$10k) and high

The international donor community need to further assist the GoA in setting the necessary conditions to comply with the commitments made under several international agreements with regards to climate change.	Management	National	Important donors such as GIZ, the European Union, UN Environment or UNDP are, for example, part of the Global Water Partnership Mediterranean (GWP-Med) advocating for Integrated Water Resource Management (IWRM) and Integrated Coastal Zone Management (ICZM). The GWP-Med is also involved in the elaboration of the trans-boundary (Montenegro-Albania) IWRM Plan for the Buna / Bojana Watershed which represents a good opportunity for regional upscaling on EbA issues on across national borders.	Twinning arrangements (i.e. demonstration sites to new sites nationally or regionally) Presentations at national, regional and international fora. Media (i.e. Communication Strategies) Publications/Reports (i.e. Technical Reports, Newspaper Articles, Brochures, Journal Articles) Videos and or Roadshows Policies/Legislation/Regulations	5-10 years	mid cost (US$1k to US$10k)

5. RECOMMENDATIONS

In no particular order of importance, the following recommendations need to be considered in order to support delivery of the Upscaling Strategy Framework.

5.1. Design a Strategic Monitoring and Research Programme

Monitoring and evaluation of EbA interventions are critical to support adaptive management. An adaptive approach to management requires critical reflection on the effectiveness of different management approaches adopted at any one location towards achieving the intended outcomes. Evaluation of adaptation facilitates:

- A long-term learning process;
- Management of activities in the context of uncertainty;
- Accountability and the wise use of funds.

Continuous monitoring of the whole lagoon complex with regard to phytoplankton, especially toxic species, would prevent the harmful effects in the biota (fish, molluscs and waterbirds), but also in humans by the consumption of the products harvested from the lagoon.

Importantly, monitoring needs to be designed to better understand the impacts of the relatively high nutrient load (nitrogen and phosphorus) being observed in lagoon habitats (especially Ceka and Merxhan) (Kola, 2019; Rama, 2019). It is important that all lagoon areas are protected from urban, agricultural, nutrient and other contaminant sources. In Kune-Vaini complex, it can be achieved through their regular treatment from Water Treatment Plant in Shengjini, and the strict control of the wastewater discharge into the related pumping stations or Drini.

It is strongly recommended that research programmes are designed to help support reforestation activities, not only in the coastal zone but along the whole coastal area. This will help to prevent erosion, flooding and improve the life in general and so as a result, an upscaling activity that is designed to support forest nurseries in the country (including one specific plant nursery in Lezha) is required as part of a national policy to set up nurseries that can grow Albanian tree and shrub species, and to reforest with imported seedlings, and in some cases even with exotic plants (Mullaj et al., 2017).

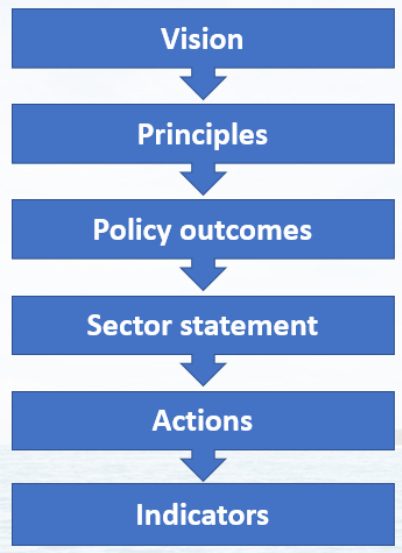
A Research focused Management Plan is needed for the entire Kune-Vain Protected Area, which should address its major concerns, urbanization and tourism, pollution, eutrophication and harmful algae, lagoon tides, erosion and related hydro-technic works, Drini revitalization, reforestation and plant nurseries, fishing, aquaculture and hunting, etc. This should be designed to influence future plans for urbanization and tourism, especially in some coastal areas of the Adriatic, i.e. Kune-Vaini Velipoja (Buna delta), Patoku-Fushe Kuqe (Ishmi and Mati deltas), Divjaka-Karavasta (Shkumbini delta), Darezeza, Soda-Narta-Zverneci (Vjosa delta).

There are many different frameworks that the EbA Upscaling Strategy may need to propose regarding monitoring and evaluation needs. A result based monitoring mechanism shall be drafted within the Upscaling Strategy that highlights the success of any EbA intervention plus, when a problem or failure is identified, how to solve or rectify such problems.

Specific monitoring recommendations to date (produced by Professor Bego) are presented in Annex E.

5.2. Linking to the NAP

NAP processes are the "backbone" for implementing the adaptation component of a country's NDC. There is a need for the PSC to determine the most likely "entry points" to upscale and mainstream EbA at a national level. The following approach is recommended as a structure for consideration which closely complies to the NAP process.



- A statement setting out where Albania's EbA will be in 2035?
- Set of overarching principles to guide how the vision is achieved
- Set of outcomes to enable Albania to assess how vision is achieved
- Statements from key sectors to assist them to achieve the EbA vision
- Actions to set Albania on their journey to meet the vision, outcomes
- Indicators that allow Albania know when they are making progress.

It is recommended that a sensible strategy is not to review individual sites for EbA interventions, but instead to align any intervention to ongoing "Strategies" to secure climate related funds. This links squarely with the need to align any upscaling strategy to the NAP process which, when launched in 2015, identified 15 priority actions. The 12th action, an "*Initiative for Municipal Climate Change Adaptation Plans,*" focuses on adaptation in some of the largest and most vulnerable cities in Albania, including Tirane, Elbasan, Durrës, Shkodra, Vlore and Fieri.

It is apparent that the GoA's efforts to mainstream climate change adaptation needs to be better communicated to stakeholders in other sectors. Limited awareness for climate change at the level of policy making and public recognition hamper a strong NAP process.

5.3. Linking to Existing Strategies and Plans

An important recommendation is to look at natural capital enhancement through the lens of the "product development cycle." Researchers have developed various assessment tools, which are often based on calls for tender and grants, sometimes running in parallel. A key consideration shall be placed on the recommendations and actions set out within the Lezha Sustainable Development Strategic Plan. Should an upscaling approach be proposed for the City of Lezha, then more detailed consideration shall be made on the policies and actions identified within the Sustainable Development Strategic Plan for Lezha Community (2013 to 2030 – see Figure 5.1).

It is therefore recommended that upscaling strategy would be more valuable to demonstrate the Municipality of Lezha is a key focused EbA success story area. Government currently have programmes (water irrigation channel interventions) in place for the area and trying to introduce EbA techniques (NBSs) to support these programmes could prove very valuable to then convey and promote in other regions in the future.

Figure 5.1: Front cover of the Lezha Strategic Plan

One key activity to be completed (to help identify priority needs) shall be a review and update of the current NAPA Protected Areas Management Plan (see Meeting note with NAPA in Annex B). This Plan can be found at http://www.akzm.gov.al/us/information/pa-and-strategy-development/item/125-strategjia-e-zhvillimit-e-zm. This will help to determine critical areas for EbA intervention and management under the umbrella of protected areas management.

It is therefore recommended that the current NAPA Protected Areas Management Plan is updated, especially the Action Plan which is currently outdated. This would be the best entry point for EbA upscaling around Albania and should be translated into English for review. This can embrace efforts to update a specific Monitoring Plan for protected area management. Here is also a need to review and update the Monitoring Strategy (produced by Professor Bego – see Annex E) and from this to set out a long term strategy which is currently being produced by the University of Tirane (Faculty of Science). An implementable monitoring strategy using students and academics is then possible to embrace the activities presented within the Action Plans presented in Section 4.

Finally, a section should also be considered on providing best advice to investors benefit in terms of "toolboxes for tendering". Part of this toolbox may include advice on the role of community-led or consumer pushed projects (for design and implementation and for corporate social responsibility, respectively) which may better deliver a holistic view and a compelling business case simultaneously.

5.4. Creating an Inventory of EbA experts, practices and networks

5.4.1. Overview

A fairly robust preliminary scoping of needs/barriers analysis needs to be undertaken. One aspect shall be to assess the levels of expertise in the country (expert criteria, relevant experts, communities of practice and networks) that are needed for the future. Creating a list of prospective Albanian experts and agencies may prove of value for a future, potentially taking the form of an Albanian EbA Expert Registry. The outcome of this

shall help to identify the capacity needs within the country to help deliver upscaling strategy. There is a need to extend this (if possibleo to be a list of relevant EbA experts in the Mediterranean region along with any existing EbA networks that may prove of value. For example, there is already in existence the South-South network for EbA ("The Eco-System Based Adaptation Through South-South Cooperation") which seeks to "*enhance capacity, knowledge, and technology support to build climate resilience of vulnerable developing countries*", and specifically to build a solid evidence base for ecosystem-based adaptation across different regions and ecosystems worldwide.

5.4.2. Identification of individuals/organizations

A preliminary thematic list of the types of core professionals and organizations to be contacted for the Expert Registry shall be formulated, along with a series of sub-classifications to help broaden the levels of expertise across the proposed expert database. Early thoughts of the structure of this is set out in Table 5.1;

Table 5.1: Expert Registry Criteria & Classification

PROFESSIONAL DISCIPLINE	PROFESSIONAL/THEMATIC EXPERTISE	SUB-CLASSIFICATIONS
For EbA	1. Climate Change Adaptation Experts 2. Biodiversity Specialists 3. Agricultural Engineers 4. Environmental Policy-Makers 5. Environmental Economists 6. Environmental Engineers 7. IWRM Expert 8. ICZM Experts 9. Flood Management Specialists 10. Marine Biology Specialist 11. Fisheries Experts 12. Forestry Experts 13. Community-Based River & Coastal Defence Groups 14. Hydrologists 15. Ocean Economy Experts	1. the agency's, network's or professional's project/professional profile 2. a Sector-Based Categorization of their Project Portfolio 3. professional certifications 4. relevant tools, publications, and platforms, segregated by EbA &/or Gender Equality/social 5. status (public/private/NGO) type of actions (policy support, action/research, project design & implementation) 6. funding resource outputs (tools, applied research, publications, online platforms) 7. expert/agency GPS geographical location 8. social media contact coordinates

5.4.3. Registry database to support Upscaling

A strategy must be put forward to help Albania (Ministry of Tourism and Environment) to take early steps towards the creation of an EbA expert database. This will (eventually) consist in defining and validating its design, layout (filtering, profile structure, mapping) and functionality issues (e.g. digital inter-phasing, GPS locator). Ideas for a registry platform shall be put forward to enable experts to self-register themselves (Albanian and international) onto a platform to provide local support as required. The following register functionalities are foreseen at this stage:

- On-line registration for new members & updating professional profiles (including academics/students);
- Direct interphase with experts through email, phone, and social media;
- Real-time chat-line using a specific plug-in;
- Non-mediated Forum for users;
- FAQ section ;
- Inter-phased with professional networks (e.g. LinkedIn) through Professional Group;
- Possibly (feasibility to be checked): integration of participation in pilot projects through a summary information and localization.

Any future Registry could be hosted on the MoTE server. The value for EbA upscaling is that such a registry can be designed to be used for future projects (across all donors operating in Albania) and investment programmes related to EbA mainstreaming, and strategic planning for climate risk management.

5.5. Harmonize EbA and Gender

Given the capacity constraints that Albania already faces, identification and mapping of EbA and Gender Equality expertise must go well beyond the country to include world-wide expertise in the Mediterranean and include eco-system oriented and gender-based climate risk management.

Where possible, consideration shall be given towards including examples where important gender aspects can be included into the upscaling design for the possible up-scaled sites will consider, inter alia, whether the future intervention site:

- Addresses climate change as a threat multiplier for inequalities.
- Fosters: (i) convergence, (ii) coherence, (iii) neither or (iv) partial efforts with other policies (gender, equality, environment, DRR).
- Addresses gender in the context of: (i) women in development (ii) gender and development or (iii) both.
- Reflects that climate change could (or is changing) gender roles and decision-making.

One important aspect of most successful EbA projects, and something that all donors are keen to ensure is better integrated into upscaling strategies, relates to the importance of gender issues. Although guidelines for mainstreaming gender and social considerations have existed for some time, there has been limited useful guidance or "*how-to's"* in support of sustained action, and often attention to gender and social issues have been trumped by fiduciary concerns.[14] This has changed in recent years with both the Global Environment Facility (GEF) and the Green Climate Fund (GCF), as lead global investment frameworks for climate change, taking on robust gender policies and mainstreaming guidance. A draft *Gender Equality and Social Inclusion Policy*[15] has yet to be approved, although an updated *Gender Policy and Action Plan* is in force for 2018-2020.[16]

A new GEF *Gender Policy*[17] has been applicable since mid-2018. Even so, a review of GEF funding projects, even a limited one, highlights tangible variability in how gender equality or gender integration is addressed and the robustness of gender action plans. In the context of the GCF, both its Social and Environmental Safeguards (built around those of the IFC) - its insistence that all accredited bodies have a Gender Policy and Manual - leads to more consistent gender-inclusive approaches and policies. This has been complemented by specific training provided by UN Women and the long-standing work of the International Conservation Union for Nature (IUCN) on its *Gendered Climate Change and Action Plan* and the activism at the UNFCCC, which has resulted in a two-year programme on gender and climate change known as the *Lima Work-Programme*.

Some of the most robust guidelines for mainstreaming gender in CCA, and gender and EbA in CCA have emerged from the NGO sector, particularly IUCN and CARE International. CARE, for example, launched in 2014 a *Toolkit for Gender-sensitive Climate Vulnerability and Capacity Assessment* (GCVCA). CARE, UN Women and others have also been at the forefront on formulating guidelines to mainstream gender in humanitarian contexts. One of the main weaknesses of practice to-date is the focus on practical needs rather than strategic needs. Conceptually, many experts and agencies struggle to make the link between gender equality and climate change.

To this end, consideration needs to be made on this issue within any future EbA upscaling strategy for Albania. The upscaling strategy is recommended to include (in the future) a focus on the intersections of these 2 thematic areas rather than treat them as separate and individual areas. This will bring a level of value-added support to ongoing work by various actors on EbA and gender equality in Albania that is often still quite siloed and hampered by the lack of integrated conceptual and analytical frameworks. This harmonized approach will include a focus on access to productive Ecosystems as an identified gender need, as control over resources (including ecosystem resources and services) is a core gender requirement that generates economic, social and

[14] https://www.ipc-undp.org/pub/IPCWorkingPaper79.pdf

[15] *https://www.greenclimate.fund/.../GCF...GCF_Gender_Equality...Policy.../dc9ac06d-2..*

[16] https://www.greenclimate.fund/.../GCF...Gender_Policy.../9bd48527-6e35-a72a-2f52-...

[17] https://www.thegef.org/blog/gef's-new-policy-gender-equality-win-people-and-planet.

environmental benefits toward greater climate resilience. Moreover, taking this harmonized approach is in keeping with the Inter-Governmental Panel on Climate Change (IPCC) and other international assessments on the state of the environment. This also reflects the SDG approach in which economic, social and environmental considerations are inter-dependent, intersecting and mutually reinforcing.

5.6. Coordination with MEAs

Strong coordination between focal points for multilateral environmental agreements (MEAs) such as the Paris Agreement, Ramsar Convention, United Nations Convention to Combat Desertification (UNCCD), UNFCCC, ACP-EU Cotonou Agreement and Convention on Biological Diversity (CBD) is needed. In addition, National, Regional and Global (ACP-EU Cotonou Agreement context) Adaptation Plans and NBSAPs can also be effective instruments for mainstreaming Eco-DRR/CCA into development processes and plans and into sectoral policies and could mutually reinforce each level. The SFDRR (Sendai Framework for DRR), Haichi targets, SDGs indicators can also help monitoring and evaluation of Eco-DRR/CCA.

5.7. Financing the Strategy

5.7.1. Overview

As noted in Section 1.2, this Strategy does not include a Funding Plan for implementation as this is being developed concurrently to this Upscaling Strategic Framework. Annex C is prepared to identify potential sources of finance for EbA (e.g. government budget, climate funds, PES-like mechanisms) which will inform the funding plan.

For several reasons, this Strategic Framework cannot accurately estimate the cost of protecting the coastal zone of Albania. As previous sections have already discussed, there are many possible NbS/EbA technologies that could be used, all with widely varying costs. This Strategy does not determine which approach is most suitable for each wetland/lagoon in Albania as that is for the existing Albanian planning and EIA process to determine. Consequently, this Strategy is unable (at this time), to determine which interventions will be appropriate, nor do we know the time frame for addressing the problems in different parts of the Albanian coast, so it is not possible to estimate how much the Govt of Albania (GoA) may need to spend each year. In addition, without detailed site-specific analysis, it is not possible to actually estimate the cost of a given intervention. As the GoA begins to set priorities for where to begin work, and to evaluate the options for each lagoon site, it will be able to estimate the actual costs of each option and compare that with the benefits it should achieve. Consequently, this Strategic Framework cannot estimate how much money the GoA needs to raise in order to address the climate change challenges that are facing the Albanian coast.

Despite this, there is a general sense of what the money will have to cover. Major capital investments will be required to construct structures that can protect specific stretches of coast. Somewhat lower investments will be required for "soft" coastal protection, such as tree planting, tidal lagoon exchange or interventions that can help buffer storm impacts while providing rich habitat for terrestrial or marine wildlife. All of these investments will require ongoing maintenance to keep them operational, both as storms and sea level rise affect them and as human activities may cause further degradation. In addition, funds will be needed to educate local coastal communities about how to protect their resources and how to adapt to avoid the harm that will unavoidably be caused by increasingly severe storms.

5.7.2. The Way Forward for Albania

During the next three years, the Ministry of Finance will upgrade the existing government financial system in a new Financial Management Information System (AFMIS), integrating medium-term planning and monitoring as well as the project-management process. This will likely be accompanied by the improvement of budget classification and/or multi-dimensional public chart of accounts to ensure tracking and reporting public expenditures by activity and output levels as well.

It is also important that reporting on actual data related to EbA or climate adaptation expenditures relies on the existing budget framework and national reporting systems in Albania. Creating a parallel framework for any new cross-sector government policy is undesirable, as it could cause discrepancies, since the annual budget reporting obligation prevails over other reporting obligations. By reporting on climate costs through the medium-term budget, the GoA can demonstrate its commitment to climate action and show that there is a business case for climate adaptation.

In the long run, if independent assessments by international institutions show that the Albanian government's climate adaptation and mitigation mainstreaming process is successful, and if Albanian institutions successfully attract international funding for projects with direct climate adaptation and mitigation impacts, then the government may consider creating a new multi-sectoral government program on climate change that is accessible by all implementing government institutions.

Whichever route is adopted, maintaining and restoring ecosystems, like wetlands or lagoons, should be considered a major opportunity for investment of climate finance in Albania which should include the role of the private sector, which could have a great impact setting examples of and upscaling nature based solutions. Increasing risk-informed investments in the public and private sector to build climate and disaster resilience: as stated in the Sendai framework, public and private investment in disaster risk prevention and reduction through

structural and non-structural measures are essential to enhance the economic, social, health and cultural resilience of persons, communities, countries and their assets, as well as the environment. They can drive innovation, economic growth and job creation. Such measures are cost effective and instrumental to save lives, prevent and reduce losses, reduce risk of displacement and ensure rapid recovery and rehabilitation.

Partly as a result of the challenges in developing bankable natural capital projects under the current economic system, there is a lack of experience and track record of conservation actions in the form of financial investments. Realizing this gap, the Upscaling Strategy presents (Annex C) a range of possible financing instruments (public, private and regional facilities etc) to help with its future financial sustainability. Options such as Natural Capital Financing Facilities (NCFF), which focuses on NBS, including green infrastructure, payments for ecosystem services, offsetting, pro-biodiversity businesses, and ecosystem-based approaches to climate change adaptation are considered. The NCFF blends EIB funding with EU grants, with the aim of reducing the risks to private actors of investing in nature via direct lending or intermediated investments. In total, for the first three years of the NCFF's pilot phase, €125 million was made available together with €10 million for technical assistance[18].

While none of the options considered in Annex C are perfect for Albania, it is clear that some of them do offer some potential. Before recommending specific measures, it is useful to consider the basis on which to evaluate them. The discussions above have identified several new mechanisms to raise funds for EbA Upscaling that warrant further investigation as follows:

5.7.2.1. Earmarking revenue for EbA

It is likely that most businesses and citizens alone would be willing to pay an "ecosystem" related tax as long as they are sure that their money goes to the purpose for which it is nominally being collected. As long as the money is routed through the Consolidated Fund and its use can be tracked in the same system as other government funds, there is not any categorical prohibition on earmarking money, so this is the route that could be followed. This calls for creating a trust of some sort, managed by the Ministry of Environment that will receive the funds, allocate them as appropriate, track both revenues and expenditures, and make the tracking data readily available to the public in a timely fashion.

Data on environment-related expenditures are identified more clearly than revenues in the government budget. They include direct expenditures for trash and wastewater management, pollution abatement, and biodiversity and landscape protection, plus the budget of the Ministry of Environment. Current expenditure on coastal zone management is about MUR 100 million per year according to the Ministry of Environment; it is not clear whether this comes out of the Ministry budget or falls within the protection of biodiversity and landscape.

5.7.2.2. Voluntary contributions

Voluntary contributions to support EbA in Albania is an interesting idea, but should not be part of the government's strategy for raising funds. Rather, the government should encourage an NGO to work with the (for example) tourism stakeholders (hoteliers/attraction organizers etc) to set up such a system nationwide, and to manage the allocation of the proceeds to support targeted EbA investments. This seems a more appropriate approach to voluntary donations than running it through government, because the establishment of a government-run voluntary contribution system would create an undesirable mixing of mandatory and voluntary funding systems. Moreover, because voluntary contributions have been initiated by the private sector, other companies may be more willing to participate if the scheme remains in their hands.

[18] "Natural Capital Financing Facility," European Investment Bank, http://www.eib.europa.eu/products/blending/ncff/index.htm.

6. REFERENCES

6.1. Key Documents Consulted

- Kune Vaini Project, PIR 31 octobre 2017
- Kune Vaini Project, PIR 31 octobre 2018
- Kune Vaini Project, Half Yearly Project Report, 2015
- Kune Vaini Project, Half Yearly Project Report, 2016
- Kune Vaini Project, Half Yearly Project Report, 2017
- 1st PSC, Sept 2016
- 2 PSC, Dec. 2017
- 3rd PSC, June 2018
- PCA amendment, 2018
- Republic of Albania, ministry of tourism and environment, UN Environment, Final report, Baseline Survey, Kune Vaini Resilience Project, Nov. 2017
- EIA Report Assessment of environmental impacts of the SCCF project's interventions "Building the resilience of Kune -Vaini Lagoon (KVL) through ecosystem-based adaptation (EbA)", May 2017
- Republic of Albania, Ministry of tourism and environment, EbA Technical Guidelines, final report, April 2018
- Republic of Albania, Ministry of Environment, EbA Protocols report, August 2017
- Albania, training manual, Nov 2018
- Final post training Event, June 2018
- Final post training Event, Nov 2018
- Kune Vaini, REC, Communication plan, March 2018
- Building the resilience of Kune-Vaini Lagoon through ecosystem-based adaptation (EbA), Project Document, February 2015 and revised results framework, December 2017
- 2016 Audit Report
- 2017 Audit Report
- Project expenditure report and budget excel files
- Kune Vaini Protected Areas Management Plan (2009-2018)
- Draft Climate Change Policy
- Albania Second National Communication to the UNFCCC
- Albania Third National Communication to the UNFCCC
- UN Environment Program of Work (2014-2015)
- UN Environment Medium Term Strategy 2014-2017
- UNDP. Terminal Evaluation of the project "Identification and Implementation of the Adaptation Response Measures in the Drini-Mati River Deltas"
- Activity Report from sub-contractors (small business, REC, reforestation)

- Anonymous (2016): Lezhë, peshkatarët: Katastrofë ekologjike në lagunën e Kunes, ngordhin peshqit. SotNews https://sot.com.al/aktualitet/lezh%C3%AB-peshkatar%C3%ABt-katastrof%C3%AB-ekologjike-n%C3%AB-lagun%C3%ABn-e-kunes-ngordhin-peshqit
- Bushati M. (2013): Studim mbi prodhimtarinë parësore dhe sigurinë shëndetësore të saj në liqenin e Butrintit (Sarandë). PhD theses. FNS, UT. pp.196. http://www.fshn.edu.al/system/app/pages/search?scope=search-site&q=bushati
- Kola M. (2019): Assessment of phytoplankton in the Kune-Vaini lagoon system, in Lezha. Master theses, FNS, UT. 90 pp.
- Gjata I. (2019): Assessment of aquatic macrophytes in the lagoon system of Kune-Vaini, Lezha. Master theses, FNS, UT.
- Lika R. (2019): Zooplankton dynamics in Kune-Vaini Lagoon system Lezha. Master theses, FNS, UT.
- Miho A., Mitrushi R. (1999): Phytoplankton data and trophic state of Lezha lagoons. Albanian Journal of Natural and Technical Sciences (AJNTS) (Academy of Sciences, Tirana, Albania) 1/1: 69–76.
- Miho A., Kashta L., Beqiraj S. (2013): Between the Land and the Sea - Ecoguide to discover the transitional waters of Albania. Julvin 2, Tiranë. 462 pp. ISBN 978-9928-137-27-2. http://www.fshn.edu.al/home/publikime-shkencore.
- Miho A. (2018): Building activities within protected areas are often unfriendly and unsustainable to wetland conservation – Albanian case. Thalassia Salentina, Volume 40, suppl. 2 (2018) - Alblakes3 2017: 91-112. http://siba-ese.unisalento.it/index.php/thalassiasal/article/view/19508/16618
- Miho A., Beqiraj S., Graf W., Schiemer F. (2018): The Vjosa river system in Albania: a summary of actual challenges and agendas / Das Vjosa Fluss System in Albanien: eine Zusammenfassung der wichtigsten Herausforderungen und Aufgaben. In: The Vjosa in Albania – a riverine ecosystem of European significance. Acta ZooBot Austria, 155/1: 377-385. http://www.fshn.edu.al/home/publikime-shkencore
- Mullaj A., Hoda P., Shuka L., Miho A., Bego F., Qirjo M. (2017): About green development in Albania. Albanian j. agric. sci., Special edition, Agricultural University of Tirana, ALBANIA: 31-50. https://sites.google.com/a/ubt.edu.al/rssb/biotech_2
- Rama U. (2019): Physical and chemical parameters and nutrients profile in Vaini lagoon system before and after the opening of the tidal channel. Master theses, FNS, UT.
- Schiemer F., Beqiraj S., Graf W., Miho A. (2018): The Vjosa in Albania – a riverine ecosystem of European significance. Acta ZooBot Austria, 155/1: 377-385. http://www.fshn.edu.al/home/publikime-shkencore

ANNEX A: SUMMARY ANALYSIS OF EBA MAINSTREAMING GUIDELINES, TOOLS & APPROACHES (TO ASSIST UPSCALING IN ALBANIA)

A series of EbA focused guidelines do exist on the international arena that are of relevance to this Strategic Framework. As adopted for Albania (McCue 2017[19]), most EbA guidelines (IUCN 2016, CI 2018, and UNEP 2019[20]) divide EbA interventions into a series of steps, each one addressing an important aspect to ensure the successful implementation and monitoring of an EbA intervention. In each step, a list of activities are proposed and best practices mentioned on how to conduct these activities.

One recently produced document is produced by Conservation International (CI)[21] which outlines best practices for EbA identification, implementation and monitoring and from this, interesting lessons can be deemed for an upscaling strategy that may apply for Albania. These guidelines seek to upscale the evidence base of EbA and information on its co-benefits and costs, and measure the institution's impact from the project site to the global level. This is needed as there is a key barrier globally to EbA implementation due to an underdeveloped evidence base and lack of standard methods for EbA integration into project design and operations. The CI work is useful for Albanian EbA upscaling as it provides general guidance and best practices for the identification, design, implementation, monitoring and evaluation of EbA interventions, especially for projects that already have the financial resources to implement EbA intervention(s). It also includes information on vulnerability assessments, which are important to identify climate threats and impacts that EbA is meant to address. Stakeholder engagement is also addressed, which is key to ensuring that the visions of partners, governmental bodies and local communities are embedded in all project steps.

A list of EbA focused guidelines and reference documents are reviewed below to help with future site specific upscaling approaches:

[19] http://kuneVaini.com/wp-content/uploads/2018/09/EbA-Guidelines-English-compressed.pdf
[20] UNEP-IEMP. (2019). Research on Ecosystem-based Adaptation (EbA): A Reference Guide. Document produced as part of the GEF-funded EbA South project.
[21] Conservation International (2018) Guidelines for Designing, Implementing and Monitoring Ecosystem-Based Adaptation Interventions

TITLE	SUMMARY OVERVIEW/DESCRIPTION OF CONTENT
FEBA (Friends of Ecosystem-based Adaptation). (2017). Making Ecosystem-based Adaptation Effective: A Framework for Defining Qualification Criteria and Quality Standards (FEBA technical paper developed for UNFCCC-SBSTA 46). Bertram, M.,1 Barrow, E.,2 Blackwood, K.,3 Rizvi, A.R.,3 Reid, H.,4 and von Scheliha-Dawid, S.5 (authors). GIZ, Bonn, Germany, IIED, London, UK, and IUCN, Gland, Switzerland. pp.https://www.iucn.org/sites/dev/files/feba_eba_qualification_and_quality_criteria_final_en.pdf	Provides a useful and practical assessment framework for designing, implementing and monitoring EbA measures by proposing a set of 3 elements, 5 qualification criteria and 20 quality standards and example indicators. For this consultancy, there is a useful series of sections that seek to simplify the assessment framework that helps answer the questions "what makes EbA effective?", and "how strong is this EbA initiative? The reference is international in focus and so can apply to the Albanian situation.
CBD (2018) Voluntary Guidelines For The Design And Effective Implementation Of Ecosystem-Based Approaches To Climate Change Adaptation And Disaster Risk Reduction: https://www.cbd.int/doc/c/3f7a/4589/5cc1b7058bf52427fa9bae84/sbstta-22-inf-01-en.pdf	The reference is international in focus and so can apply to the Albanian situation. It is an up to date and relevant Guidance document that is designed to help brief policy makers, practitioners and communities in a range of sectors in terms of how to mainstream EbA Eco-DRR into future decision making. The main audience for these guidelines are policy-makers and implementers including subnational governments (regions, provinces, cities and municipalities), indigenous peoples and local communities (IPLCs), NGOs, private sectors, research institutions and funders. The guidelines can also be consulted when implementing related practices, such as community-based adaptation and public works programmes with an ecosystem focus. These guidelines may also be applied in other contexts, such as the application of ecosystem based approaches into the development, humanitarian, aid, disaster relief, water management, construction, health and other fields. For this consultancy, the Guidelines refer to a series of "Toolboxes" which provide examples of existing tools and guidance for each stage and refer to other more comprehensive databases of tools, such as the 'Inventory of tools and methodologies relevant for EbA practitioners'. Of importance, it refers to the recent IIED inventory of EbA Tools being used around the world and their effectiveness for use (see https://www.iied.org/call-for-feedback-inventory-tools-support-ecosystem-based-adaptation). Of relevance regards the link to gender and community issues, a table is produced of international "Toolboxes" that integrate knowledge, technologies, practices and efforts of indigenous peoples and local communities (See Table 3). In addition Annex III provides a useful listing to existing guidelines and principles for EbA and Eco-DRR and related practices that were considered for the development of the principles and safeguards presented in the document.
— International EbA Community of Practice: https://www.adaptationcommunity.net/ecosystem-based-adaptation/international-eba-community-of-practice/	The international EbA Community of Practice website focuses on knowledge and experience sharing and mutual learning beyond projects, institutions and regional boundaries on EbA. Its purpose is to jointly develop harmonised approaches, evidence-based lessons learned and best practices for how to plan and implement effective EbA to help people adapt to the adverse effects of climate change through a collaborative learning process. Its value to this consultancy is that Members of this knowledge and exchange network are primarily from national governments, international organisations, civil society and research institutions with an interest in strengthening Ecosystem-based Adaptation in planning and decision-making. Interesting selection of webinar events, Youtube channels, short videos etc are used to convey the principles of the "Community".
— Ecosystem-based approaches to adaptation: strengthening the evidence and informing policy;	IIED and partners are working in 12 countries to promote effective EbA and sustainable development. The approaches set out in this website do not fall within the OECS nations studied within this consultancy, through exemplars use show close synergies with the international best practices that need to be adopted within these countries. The IIED work demonstrates how they have worked to

related outputs: https://www.iied.org/ecosystem-based-approaches-climate-change-adaptation	synthesise findings and produce practical guidance in the form of an inventory of tools, designed to help practitioners and policymakers incorporate EbA into climate adaptation planning (eg: the "EbA Tools Navigator" (see https://www.iied.org/sites/default/files/uploads/2019/01/eba_tools_navigator_tutorial_jan_2019.pdf).
— UNEP-WCMC (2018) EbA Tool Navigator: The searchable database of tools and methods relevant to EbA –	The EbA Tools Navigator has been developed through a collaboration between two International Climate Initiative (IKI) funded projects: Ecosystem-based adaptation (EbA): Strengthening the Evidence and Informing Policy, implemented by IIED, IUCN and UNEP-WCMC; and Mainstreaming Ecosystem-based adaptation (EbA): Strengthening EbA in Planning and Decision Making Processes, implemented by GIZ. Both projects aim to show climate change policy-makers and adaptation practitioners when and why EbA is effective – the conditions under which it works, and the benefits, costs and limitations of natural systems approaches – and to promote the better integration of EbA principles into policy and planning. The EbA Tools Navigator serves two purposes: • To provide a baseline, by outlining existing tools and their utility, in order to better understand gaps in the current availability and accessibility of tools and methods to support the planning and practice of EbA • To help EbA planners and practitioners to find and understand tools and methods to support their own efforts in planning and implementing EbA The Navigator consists of two interdependent parts: i) a database of EbA tools and methodologies; and ii) examples of tool application, to provide information on experiences using EbA tools. It also includes an interface for searching the database and viewing search results. This tutorial provides guidance on how to search the database and on how users can provide information on their experiences of the various tools included in the database. Need to contact sylvia.wicander@unep-wcmc.org for current draft (2019).
— UNEP coastal ecosystem-based adaptation (EBA) website: http://web.unep.org/coastal-eba/ ; includes the decision-support tool: http://web.unep.org/coastal-eba/coastal-EBA-DST ; and a coastal EbA options manual: https://www.unep-wcmc.org/system/dataset_file_fields/files/000/000/380/original/Options_for_Ecosystem_based_Adaptation_in_Coastal_Environments_low-res.pdf?1462462607	The UNEP guide is aimed at coastal environmental and adaptation managers and planners, principally in government departments and agencies but also in business and civil society organisations. As such, the guide aims to provide a broad understanding of the principles and concepts of coastal EBA, present a range of different coastal EBA options, illustrated with existing examples, and discuss the issues and challenges that need addressing in EBA implementation. The guide is intended as a resource that can be consulted according to need. Together with the accompanying Coastal EBA Decision Support Tool (available online at http://web.unep.org/coastal-eba/ coastal-EBA-DST), it supports environmental decision-makers in choosing, implementing, monitoring, evaluating and, over time, adaptively managing coastal EBA. No Albania or regional specific case studies are included within the Guide.
— Nature-based Solutions policy platform: http://www.nbspolicyplatform.org/	This platform makes information about climate change adaptation planning across various countries as easy as possible by providing a portal of possible options and solutions to embrace the better use of nature-based solutions. The reference is international in focus and so can apply to the Albanian situation.
— Nature-based Solutions Initiative: http://www.naturebasedsolutionsinitiative.org/	This is a programme of research, policy advice and education aimed at understanding the potential of Nature-based Solutions (NbS) to global challenges and, where appropriate, increasing their sustainable implementation through the application of science. They have collated scientific information on nature-based climate change adaptation and makes this more accessible to decision makers through this platform. They have also assessed the role of NbS in climate change policy, with a focus on the plans of all signatories of the Paris Agreement. This platform will continue to grow with more studies, policy guidance and functionalities to help decision-makers rapidly access and locate the most relevant evidence. An interesting web link to EbA Advisors and "allies" is included on the website which may be of value to this consultancy. HTTP://WWW.NATUREBASEDSOLUTIONSINITIATIVE.ORG/ALLIES-AND-ADVISORS/

	Within the "Evidence Search" tab, there is no specific reference exemplars are included within this listing with reference to Albania.
— **IUCN Publications:** https://www.iucn.org/commissions/commission-ecosystem-management/our-work/nature-based-solutions/publications-nature-based-solutions	The Commission for Ecosystems Management (CEM), within its Ecosystem Management/Ecosystem Management Programme (EMP) have developed a number of successful initiatives and Thematic groups on ecosystem services and on ecosystem restoration that shall play an important role to support the work in resilience. For example, the work of the Fisheries Expert Group provides an innovative view on fisheries, promoting a more balanced harvest across the food-chain to promote more sustainable fisheries and a higher resilience of the fish-stock has a mandate to provide expert guidance on integrated approaches to the management of natural and modified ecosystems, in order to promote effective biodiversity conservation and sustainable development. Consequent to the adoption of the "One IUCN Programme" concept, CEM will work closely with the Regional and Global Thematic Programmes at project, country, regional and global levels. Synergies with other Commissions will be a strong component of the CEM strategy. CEM will also work with other partners of IUCN in order to achieve its Mission in line with the overall mission of the Union. Regional Chairs (RC) provide leadership and guide the development and implementation of CEM's work within their region. They also promote establishment of regionally based specialist groups, facilitate membership growth and foster initiatives for training and capacity building in the region.Their website includes a very useful suite of publications on EbA.
— **World Bank (2017) Implementing nature-based flood protection. Principles and implementation guidance** https://naturebasedsolutions.org/guidance	The Natural Hazards – Nature-based Solutions platform is a hub for projects, investments, guidance and studies making use of nature to reduce the risks associated with natural hazards. Their objective is to host and facilitate the exchange of knowledge, experiences and lessons learned from a range of stakeholders, to provide guidance on the planning and implementation of nature-based solutions, and to champion these solutions in the arenas of policy-making and investment for disaster risk reduction. The guidance was developed and agreed upon by a group of leading international institutions who are engaged in designing, planning, financing and/or implementing nature-based solutions around the world. The website (as similar to the IEED and UNEP approaches) encourages projects to contribute their nature-based project and experiences to the "Natural Hazards – Nature-based Solutions" database, to help grow the community of practitioners, scientists and donors who are using nature-based approaches to reduce disaster risk. The online Guidance document entitled "World Bank. 2017. Implementing nature-based flood protection: Principles and implementation guidance. Washington, DC: World Bank" is of value as it attempts to be one step towards standardized guidelines for all nature-based flood management-based solutions.
Participatory Monitoring, Evaluation, Reflection & Learning Manual (PMERL)	The PMERL Manual helps practitioners to measure, monitor and evaluate changes in local adaptive capacity, for better decision-making in Community-Based Adaptation (CBA) activities. The approach provides an on-going platform for local stakeholders to articulate their own needs and preferences, beyond the lifetime of a project. Originally developed by CARE in partnership with the International Institute for Environment and Development (IIED) in 2012 (original version *available here*), this new shorter and more simple edition has been produced in response to feedback from practitioners. Available from: *https://careclimatechange.org/tool-kits/pmerl/*.
The CRISTAL Screening Tool - http://www.iisd.org/cristaltool/	CRiSTAL is a project-planning tool that helps users design activities that support climate adaptation (i.e., adaptation to climate variability and change) at the community level. CRiSTAL stands for "Community-based Risk Screening Tool – Adaptation and Livelihoods." Community-based – CRiSTAL focuses on projects at the local community level. Risk Screening – CRiSTAL helps users to identify and prioritize climate risks that their projects might address. Adaptation and Livelihoods – CRiSTAL helps users to

	identify livelihood resources most important to climate adaptation (i.e., adaptation to climate variability and change) and uses these as a basis for designing adaptation strategies. It is freely available for download and use.
Climate Vulnerability and Capacity Analysis - http://careclimatechange.org/tool-kits/cvca/	By combining local knowledge with scientific data, the CVCA process builds people's understanding about climate risks and adaptation strategies. It provides a framework for dialogue within communities, as well as between communities and other stakeholders (e.g. local and national government agencies). The results provide a solid foundation for the identification of practical strategies to facilitate community-based adaptation to climate change.
Promoting Local Innovations - https://www.iucn.org/content/promoting-local-innovations-pli-community-based-climate-change-adaptation-coastal-areas-facilitators-guide-pli-workshop	This facilitator's guide for the Promoting Local Innovations (PLI) workshop has been developed to provide conservation and development practitioners working with coastal communities with an interactive and participatory tool that they can use to promote local innovations for climate change adaptation. The main objective of such a PLI workshop is to facilitate a social learning process between different stakeholder groups (local community, governmental agencies, and academia, NGOs) to identify and promote local innovations for climate change adaptation in form of community driven action plans.

ANNEX B: FIELD MISSION (MAY 2019) MEETING OBSERVATIONS

B1: UNDP Albania

Present: Violeta Zuna, Eno Dodbiba (National Project Manager /Team Leader for UNDP Albanias' Biodiversity Conservation and Marine Protected Area Programme)

- The main objective of the MCPA project is to secure the protection of Albania's unique coastal and marine biodiversity for current and future generations. Its immediate objective is to improve the coverage and management effectiveness of Albanias' network of marine and coastal protected areas as an essential complement to its network of terrestrial Pas.
- Copies of the UNDP (originally funded by GEF – now through the Italian Agency for the Cooperation on Development) entitled "Treasures of the 2 Seas" were handed over which is essentially a photo album presenting the natural, cultural, and landscape values found within the Marine Protected Area (Marine Park) of Karaburun-Sazan (south Albania). UNDP have been working on this work since 2010.
- The Marine Protected Area (MPA) is designated on the sites of Karaburuni Peninsula and Sazani Island being the central element for nature conservation and the city of Vlore being the central element for development. This marine environment is characterized by many diversified ecosystems and a diverse range of marine species with ecological and economic importance. Opportunities for upscaling EbA in this area is good.
- A second project is starting (GEF funded) looking at Financial Mechanisms for Protected Areas which is designed to help NAPA move forward with their Management Plan. 3 Pilot sites are being considered with Financial Business Plans designed for each one.
- Details of the work to date can be found at www.karaburunsazanmpa.com. Also recommended to review MCPA project documents at the IWLEARN.org website. http://mcpa.iwlearn.org/
- Key barriers to success and upscaling inevitably are linked to political will, the need to place EbA and CCA on the agendas of local decision makers and the need to better engage and train decision makers/parliamentarians on the importance of CCA/EbA for the future.
- UNDP are currently planning for their Exit Strategy which may involve aspects of upscaling or replication around the country (no decision made as yet).
- A Donor Conference is planned for Feb 2020 whereby all donors shall present their strategies for project interventions. It is hoped that some synergies and collaborative partnership arrangements can be made at that event to help any EbA upscaling strategy that is designed for the UN Environment project.
- Way Forward? Review new inputs likely to be included in the pending 4th National Communication on Climate Change. Also attempt to embrace all current links to Conventions being signed (ask Deputy Minister of MoTE).

B2: National Agency of Protected Areas (NAPA)

Present: Zamir Dedej (General Director)

- Recommends any upscaling strategy should focus on Vaini (not Kune aspect)
- Strategy for tidal channel interventions needs to be better planned and managed. Recommend new hydrodynamic modelling before any intervention takes place. Urgent requirement for harder stabilized engineering "walls" at the mouth of the channel. The use of wood in this process would be a good way forward. Any channel also needs to be shorter in size and not too broad.
- Maintenance requires a dredger nearby and operated by RAPA or local govt body. This is needed especially in the summer months to maintain the opening to avoid risk of eutrophication
- Albania National Forest Policy (2019-2030) is of relevance and a potentially important entry point for a sustained EbA upscaling strategy. The current policy (recently produced) was funded by the Swedish Government for the MoTE which is linked to a new draft law of the forest sector. The purpose is to attempt to strengthen the sector, turning it into its natural equilibrium and contributing to the nation's economy as a tool for rural development and poverty alleviation. This is important for Lezha as deforestation in the area (due to illegal logging practices) has contributed to causing erosion and flooding.
- Tree planting needs to include clear budgets for maintenance as may sapling often die and require constant silviculture techniques to survive. This increases costs especially during the early phases of planting. Interventions close to the current tidal channel entrance are a positive idea for upscaling to other lagoon areas. Feasibility studies are needed (hydrodynamic) at a number of lagoons to determine the long term environment sustainability of any proposed intervention put forward.
- In any EbA scheme, its key to ensure that lagoons increased their fish stock biodiversity. Need to ensure fishermen are educated not to fish at the entrance to the lagoon (impacting on fish stocks insider the lagoon area).
- Need to determine beach carrying capacities at Lezha (Vaini) area. A repair to the main road to the beach is also a key aspect to consider. Recommend that issues such as beach risks, carrying capacity, zoning needs, furniture and washing facilities and education needs are embraced. This could be addressed through adoption of ISO13009 (Beach Services) which is new and could represent a good framework for future beach management around Albania.
- Way Forward? Highly recommend that the current NAPA Protected Areas Management Plan is updated, especially the Action Plan which is outdated. This would be the best entry point for EbA upscaling around Albania and should be translated into English for review as part of this consultancy. This can embrace efforts to update a specific Monitoring Plan for protected area management. Here is also a need to review and update the Maintenance Strategy (produced by Professor Bago) and from this to set out a long term strategy which is currently being produced by the University of Tirane (Faculty of Science). An implementable monitoring strategy using students and academics is then possible.
- Important to ensure that strategies for outreach and visibility are improved in any upscaling strategy (including visitor centres) as part of a Communications Plan for NAPAs work. This can then be promoted to tour operators to help improve access to visitors and tourists.

B3: GIZ

Present: Fationa Sinojmeri (in absence of Marita Meksi)

- Current Climate Change Adaption in Trans-boundary Flood Risk Management in Western Balkans, started in 2012 and continuing through to 2021. The third phase has already started Now about to start Phase 3 (consultants being appointed). Phases 1 and 2 regarding initiatives relating to EbA, focused primarily on the National Adaptation Plan and its financing strategy, with priority actions set (15th priority action is entitled "Building the resilience of Kune Vaini Lagoon System through the Ecosystem based Adaptation"). MoTE are in the process of agreeing on proposed climate change strategies (one strategy which includes climate change adaptation and mitigation).
- Key focus of this GIZ work is again in the Drini River and is working with 3 other countries where the Drini flows through. Key work involved setting up- upgrading the regional hydrological model for the Drini basin (Panta Rhei) to improve flood forecasting and to then design suitable community focused EWS work, further implementation of EU Flood Directive, and strengthening the capacities of local and central level institutions on flood risk management.
- A series of FRM Plans are being produced in Albania (including local plans for local government) during the previous phases of the project. FRM measures are being put forward and implemented including drain clearing exercises at agreed locations in Shkodra and Fierii (starting in Nov and Dec 2018).
- Copies of the recent student exercise to promote the importance of EbA as a support to flood risk management (FRM) in Shkodra were tabled to demonstrate the appetite that GIZ have for EbA approaches to address FRM. Early ideas for interventions are proposed for south east of Obot I Vjeter along the Buna River and another also inland in Urela (north of Shirq). More wetland reforestation and restoration is proposed for Dajc village (2ha of acacia planting). A separate video of their approach is also available from GIZ.
- Upscaling of this work is being linked to helping the delivering/implementing the steps of the EU Floods Directive as the key driver. Useful to have a regional hydrological model to make upscaling (or downscaling of findings) possible and to help put forward "end to end" EWS strategies.
- Strategy for upscaling should make use of previous phase successes and communicate the findings to key decision makers. Possible link with UN Environment and UNDP at Vlore Bay area (south Albania).
- Way forward? GIZ need time to agree on their future strategy for interventions which may be possible from September 2019 onwards.
- Potential for promoting Eco DRR as an approach for Albania is something to consider (though this would not attract GCF related funding).
- Recommend any EbA upscaling strategy (if possible) to demonstrate a harmonized link with gender issues.

B4: Ministry of Tourism and Environment

Present: Adrian Kamenica (Secretary General)

- The project scale is sufficient to demonstrate the need for upscaling (circa US$2M).
- Funding from GEF for this can be challenging and only small amounts likely.

- Important for Albania to focus on donor grants and not loans if at all possible. Future use of green taxes may be possible to fund EbA but this should not be introduced within the current political climate.
- New donors may be worth considering such as Japan (JICA).
- GCF Focal Point is the Deputy Minister though she is balancing this with being the Focal Point for UNFCCC and GEF. More work is needed to demonstrate GCF Readiness.
- Important to demonstrate the economic value of upscaling wherever possible, particularly within key sectors such as the benefit to tourism, agriculture, water resources, flood defence management and forestry etc. Mainstreaming the message of how nature based solutions can provide a cost saving service to Albania is critical. For every US$1 spend on EbA, US$3 of benefits can be attained. This message needs to be better conveyed and possibly be linked to disaster risk reduction.
- Important to review the latest Budget Financial Plan for the Government to determine budget lines for the environment and climate change plus also hard infrastructure projects.
- Important to consider (when upscaling) the role of nature based solutions (NBS) within wider watersheds/catchments/river basins.

Present: Dr Pellumb Abeshi (General Director of Environmental Policies)

- Important to focus on re-afforestation programmes if possible within watersheds and river basins.
- Possible replication focal area may be the Mati River which is prone to significant flooding (lower lying surrounding area).
- Recommended that upscaling strategy would be more valuable to demonstrate the Municipality of Lezha is a key focused EbA success story area. Government currently have programmes (water irrigation channel interventions) in place for the area and trying to introduce EbA techniques (NBSs) to support these programmes could prove very valuable to then convey and promote in other regions in the future.
- Tidal channel upscaling needs to ensure that no down-drift impacts on sediment transport occur. Use of NBS to stabilize the opening of tidal channels is needed.
- IPA work is underway to produce an Albanian climate change strategy.

Present: Klodiana Marika and Elvana Ramaj (General Director of Environmental Policies)

- The approach needs to embrace elements of Upscaling, Replication and Mainstreaming
- Water resources are now not part of MOTE (now under the Prime Ministers Office) through the NEM (within MOTE) carry out water quality monitoring.
- Forestry issues are now aiming to be devolved to the Municipalities (linked to a new Forest Fund). Forests in protected areas fall under the responsibility of NAPA.
- Biodiversity related issues (including legislation) are progressing well as is the work required to comply with the Convention for Biological Diversity (CBD).
- Agriculture development (irrigation) is being impacted upon by new land development issues and coupled with poor land use regulatory control measures, often resulting in an increased frequency of flood risk (with no building controls in place).
- DRR issues now fall under the Ministry of Defence. Budget lines exist for early warning systems and risk mitigation etc.
- CCA – no specific Department now exists for climate change despite UNDP moving towards the production of the next Fourth National Communication on Climate Change in 2 years time.

- Need for Govt to include Budget lines for CCA (not present at present). The change took place when the Prime Ministers Office were granted responsibility for water resources.
- Training of Parliamentarians is needed on the importance of CCA and EbA to try to garner support for a specific CC Division.
- ICZM needs updating since the 1996 plan that was produced. There is a strong case for Albania needing a new National Coastal Zone Adaptation Strategy (NCZAS) to include advisories on building codes, planning regulations and advisories on the use of NBS to combat coastal erosion and flooding. This should also link to the NAPA Management Plan for the protection and role of protected areas as "biological corridors" to support coastal resilience. The ICZM Protocol (Barcelona Convention) is not signed by Albania and efforts to do this are required.

B5: Meetings with Stakeholders in Lezha (16 May 2019)

Present: Linda Maci (Head of Policy Development Sector - Regional Development)

A link to the Municipality Plan (Konceptu I Zhvillimit Rajonal) was provided for review (in Albanian).

ANNEX C: FINANCING MECHANISMS TO SUPPORT EBA UPSCALING

Many different mechanisms have been developed either to create a financial incentive for better EbA upscaling and mainstreaming, or to raise funds to cover the costs of adapting to climate change. This Annex briefly reviews both economic instruments for CCA and other mechanisms being used to fund EbA focused interventions.

Financing Instrument Options

Environmental taxes

A common approach to finance environmental protection is to charge for the right to make use of ecosystem services, with the objective either of reducing use of those services to a sustainable level, or of generating revenue, or both. "Ecosystem (or environmental) services" could mean several things; the pollution-absorbing capacity of the environment (this would be an emissions tax), the production of renewable resources (this could be a charge for fishing quota or a stumpage fee), or the right to use land with particular amenities such as being on the coast. In its theoretical form, such charges are the only tool used to reduce use of the services; there would be no quota.

Environmental taxes could also be imposed on non-renewable resources, to slow down their consumption or create an incentive to use them more sustainably. Various land-based taxes could operate in this way. A tax on impervious (paved) surface might encourage leaving as much space as possible unpaved, which could facilitate absorption of water into the ground, reducing runoff, flooding, and coastal pollution. A tax on all lagoon or coastal land might encourage developers to move inland whenever possible, reducing coastal pollution and reducing the risks from storm surges and sea level rise. Where the demand for coastal land is high and most of it has already been developed such a tax might, however, be more effective as a way to generate revenue than as a way to reduce development.

Usually such measures are designed both to reduce activities to a sustainable level and to raise revenue. The revenues raised can go into the government's general fund or can be earmarked for environmental protection activities. Economists typically prefer that they become part of general revenues, arguing that the priorities for how government money should be spent are unrelated to how the funds are generated. Environmentalists argue for such funds being allocated to environmental protection, often because they suspect that they will guarantee more funds for the environment this way than through the priorities guiding the general government budgeting process.

The design of these taxes involves finding a balance between reducing undesirable activities and generating revenue. A very high fee will reduce environmental harm altogether but generate no revenue. A very low fee will neither reduce harm nor generate substantial revenue. At the fee level that maximizes revenue in the short run, too many actors in the industry may choose to make use of the service (emitting pollution, catching fish, etc.), which will not be environmentally sustainable. Alternately, the fee level that maximizes revenue could lead consumption to be below sustainable yield, unnecessarily reducing the level of economic activity. Setting the level of such taxes is difficult, and calls for a detailed understanding both of the physical or biological nature of the environmental services and of the market for those services.

Designing environmental taxes that actually do create incentives for better EbA intervention strategies would not be straightforward in Albania. While some threat to the Albanian lagoons comes from poor land

management practices, land-based pollution, or fishing, the most serious long-term threats appear to be derived as a consequence of climate change. While this might be affected by environmental taxes in the major greenhouse gas emitting countries, it will not be addressed by taxes imposed on consumers in Albania. Taxes that are borne by those making use of Albania's coastal lagoons, notably tourists, serve only to generate revenue, not to create economic incentives to engage in activities that actually resolve coastal management problems being faced in the country.

Cap and Trade Schemes

Cap and trade schemes have the same objective as environmental taxes; to create an incentive to reduce pollution or resource use to an acceptable level. Instead of using the tax level to achieve that goal, they set a ceiling on the total amount that can be emitted or used, and then issue marketable permits to pollute or to use the resource. When the system is introduced, those permits are either given away (usually based on previous level of emissions or use) or auctioned off. From both an economic and a financial perspective, the latter is better, since it ensures that those who have the most to gain from either polluting or harvesting resources will purchase the permits. It also provides a one-time infusion of income to the government, ensuring that the public sector is compensated for private use of the resources. However, in practice permits are usually given away rather than auctioned off, because politically this is much more acceptable.

Once permits are allocated, companies can sell them if they wish. The sale price is set by the market. As with environmental taxes, this ensures that the companies with the most to gain (i.e. those facing the highest costs to reduce pollution or those with the highest profits from resource use) will end up buying the permits, since they will be willing to pay the most for them. Those who do not buy permits will reduce their emissions or stop using the resources. This means that emissions reductions will be achieved at the lowest possible cost to the total economy, i.e. in the most efficient way.

Albania has no cap and trade schemes in place. Given that the primary problem associated with climate change adaptation and coastal lagoon protection is neither control of pollution nor limiting the harvest of a renewable resource, such schemes probably are not a promising tool for improving management of the Albanian coast.

Environmental Fees

Environmental fees can be similar to taxes; however the concept here is that the user of a service is paying for the costs involved in providing that service. This is the principle behind trash management fees, drinking water charges, or sanitation charges; in all of those cases the public sector is providing a service that the user should pay for as if it were provided privately. If the logic of such fees is followed closely, the level is set based on what it costs to provide the service, and the revenue is used to cover those specific government costs.

However, revenues do not always go towards covering the costs of service provision. For example, international experience with National Park entry fees shows that there is often some disagreement about whether parks are a public amenity that should be available to everyone, or simply a form of recreation that should be fully paid for by those who engage in it. Historically, National Parks and protected areas have been regarded as a public amenity paid for out of general revenues. The entry fees are often not sufficient to cover the full costs of the park system – or even its operating costs, not including the direct or opportunity cost of the land – and they often go to the treasury rather than being dedicated for park management.

Albania has fees associated with some of its lagoon park activities. Most of the fees are however low and this is often not sufficient to deter environmentally undesirable economic activity, nor does it generate enough revenue to finance EbA related activities. The same is true of fees associated with tourist use of natural areas.

Payments for Environmental Services

Payments for environmental services (PES) are mechanisms through which individuals or companies that rely on an environmental service (often clean water) pay those upstream from them to stop engaging in activities that might disrupt that service (typically to reduce sedimentation or pollution from upstream). The key feature of PES as an economic instrument is that it involves a willing seller of services (in the private sector), and a willing buyer (in the private or public sector), exchanging at a price they agree on.

In the case of PES systems related to clean water, the downstream user is facing high costs to treat water for drinking or food processing, and it would cost less to pay those upstream not to pollute than it would cost to treat the water prior to use. The classic case of such a PES system is the payments made by the New York City to communities near the city's water supply reservoirs, in return for those communities not allowing development of land whose runoff would flow into the reservoirs. This ensured that the water flowing to the city would be clean enough that the city would not have to invest in a water treatment plant. While this is economically rational from the perspective of the city, it is worth nothing that it runs directly counter to the polluter pays principle, which virtually all governments say they subscribe to; it implicitly says that the upstream residents have a right to use their land as they wish, and those downstream who want clean water must pay them not to pollute.

The New York example is a "pure" PES system, in that the direct beneficiaries of the clean water (New York City taxpayers) are paying those who can ensure access to clean water (the communities in the Catskill Mountains where the reservoirs are located) to continue providing that service. In some cases, however, the government payments to upstream "providers" of environmental services are not directly linked to benefits from the services. Those are not market-based economic instruments, because there is not a clear beneficiary of the service who is willing to bear the cost of ensuring that it will continue to be provided, as there is in the New York City case. Rather, it is simply the taxpayers, many of whom may not benefit from upstream environmental conservation activities, who are paying. These could be simply considered subsidies, if PES is actually defined as a measure that depends on the working of a market in a way that leaves both the sellers (those protecting the environment) and the buyers (those paying to ensure that environmental services will be available) better off.

There are currently no PES systems in place in Albania. To the extent that the threats to the coast come from economic activities such as rapid land development or polluting industry, a PES system to prevent that harm would involve those who want to make use of ecosystem services paying the developers or polluters to change their behavior. This implicitly assumes that the developers or polluters have the right to do whatever they want on the coast or close to lagoon areas, and other users have to pay to ensure their access to the same resources. Most stakeholders would probably not find this to be reasonable.

Insurances

Insurance has been proposed as a way to manage the costs imposed by coastal flooding or other weather-related disasters, particularly as climate change worsens. This would fund the response to disasters; it would not fund the EbA related tools that could prevent them. It would shift the burden of the cost from those who are actually affected by them to the pool of people (or organizations) that have purchased insurance. As climate change worsens, the risk will increase, and the insurance premiums will go up; even now, premiums for flood insurance are typically too high for most at-risk property owners to be able to afford it. While this may seem like a useful short-term approach, it does not replace EbA related adaptation techniques; in fact, it can create an incentive *not* to invest in adaptation, if those at risk expect their homes or other property to be replaced by the insurance company when there is a flood. It also does not generate the funds needed to sustain this EbA Upscaling Strategic Framework.

Notwithstanding these caveats, there is considerable appeal for insurance as a way to eliminate the financial shocks from extreme coastal storms. The GoA may wish to consider the possibility of purchasing a so-called "parameterized" insurance policy that would pay out in the case of a storm exceeding specified levels of wind, water heights, or other measures. If any companies were to offer climate change insurance products, they would be required to build the capacity to analyze whether the industry could actually afford to pay out on claims without bankrupting itself. Elsewhere in the world, some insurance companies are using differential pricing to create an incentive to invest in adaptation measures, since those will reduce the risk of disaster and thus the probability that the insurance company will have to pay out.[22] Albania must seek to mainstream EbA as a key adaptation policy to address climate change in order to prevent disaster in the first place; insurance cannot change that, and (in Albania) is likely to be unaffordable even if it is available.

Public-Private Partnerships (PPPs)

Public-private partnerships (PPPs) typically involve a private company that builds and operates some kind of public facility under contract to the government. The facility – for example, a trash incinerator or a water treatment system – generates revenue from the fees paid by all citizens for the services it provides. The company operates the plant and keeps the revenue for a pre-determined period of time, during which it recovers its investment plus a reasonable profit. At the end of that period the facility reverts to the government, which then operates it and earns the revenue. Such a system enables the public sector to get the facility built without having to put in the investment capital itself.

It is not clear that this kind of system is a viable mechanism in Albania for developing NbS or EbA related infrastructure as in most cases, it does not generate revenues. One could imagine such a partnership between (for example) a resort or lagoon tourist attraction owner and the government, to cover the costs of infrastructure needed to protect the asset. The "revenue" could be construed as a portion of the attractions charges. However, it is likely that the tourism developer would not want to turn management of the infrastructure (and associated revenues) over to the government after some period of time, because that would put them at risk if the government did not maintain it well enough. Since the tourist attraction itself (rather than the community as a whole) would be the beneficiary of the infrastructure, the developer (or later attraction owner) has a much greater incentive to ensure maintenance of that investment than the government does.

Debt for nature swaps

Debt for nature swaps are mechanisms through which an impact investor – sometimes an environmental NGO such as the World Wildlife Fund (WWF) or The Nature Conservancy (TNC) buys back a portion of a country's debt at a discounted rate and issues a new, lower loan to the country on condition that the country spend the savings on some form of conservation. The greater the risk that the country has defaulting on an original debt, the greater the discount available to the purchaser of the debt, thus the more the debtor country can gain from the transaction. In addition to the direct financial benefits, the restructured debt is typically repaid in local currency, allowing the debtor country to retain its foreign exchange reserves for purposes other than loan repayment. Debt for nature swaps were first developed by the World Wildlife Fund (WWF) in the 1980s, and have been used by many countries to generate funds for biodiversity conservation. While the country benefits from the debt reduction and restructuring, these mechanisms require them to spend more on conservation than they would have done otherwise, even if this would not be their highest priority for use of the resources.

[22] Kahn, Matthew E., Brian Casey, and Nolan Jones, "How the Insurance Industry Can Push Us to Prepare for Climate Change." *Harvard Business Review*, 28 August 2017. https://hbr.org/2017/08/how-the-insurance-industry-can-push-us-to-prepare-for-climate-change

Whether such a mechanism might be viable in Albania depends on whether holders of the country's debt would be willing to sell it back at a discount; i.e. on whether they expect to get paid back what they have invested in the country. It suggests that debt for nature swaps is not that likely to be a useful strategy for raising funds for EbA schemes in Albania.

Blue Bonds

"Blue bonds" are bonds whose revenue is to be used for activities related to ocean conservation, coastal zone management, or similar issues. They are analogous to the "green bonds" that have become a relatively common conservation finance mechanism. These bonds attract investors who have a moral commitment to putting their funds into projects that will benefit the environment or who have some regulatory or certification requirement mandating that they do so. Green bond funds are being used for a variety purposes, including pollution reduction, brownfields clean-up, and reducing greenhouse gas emissions. As the market has grown, concerns have arisen about whether the bonds actually benefit the environment. In response, both international and national certification systems have been developed, with third-party verification, to ensure that the environmental goals are actually being achieved.[23]

Similar financial instruments are under discussion to raise funds for "blue" issues such as marine conservation and coastal zone management. However, because these instruments are new, the certification systems are not yet fully in place and more work will be needed before this become a routinely accessible source of financing for coastal focused EbA. Moreover, while bonds may be a useful tool for obtaining capital needed for climate change adaptation, this does not address the question of how the money will be paid back. Such bonds do not increase the total funding available; they only offer a way to borrow money that must be repaid later out of government revenue.

Lotteries

In some jurisdictions, lotteries are routinely used to raise funds for conservation or other environmental activities. The UK Heritage Lottery Fund and the State of Oregon Lottery are examples of well-established systems raising funds that are allocated to community projects including environmental protection, conservation of rivers and marine areas, and other activities.[24] The amount that can be raised from a lottery depends on ticket price, how many tickets can be sold, how much of the revenue goes to prizes, and the administrative cost. According to the UNDP, just under 30% of the revenue usually funds projects, the rest going to prizes and administration.[25]

From February 2017, the national lottery Lotaria Kombetare administers the lotto in Albania. As 2016 drew to an end, the Austrian Lotteries through a subsidiary firm ran the lottery in Albania. It is possible that a separate lottery could be established to raise funds for EbA and climate change adaptation. Such a lottery would have to be distinctly different from the national one identified above in order to avoid being in direct competition with it. This might be done by presenting the purchase of those tickets much more explicitly as a social act rather than as gaming. If the funds were clearly earmarked for something of public interest, such as maintenance and protection of National Parks or public beaches, the public might be interested in buying the special tickets, possibly even if they cost more than the national lottery tickets and the expected payoff were lower. If this were of interest, it would make sense to consult with Lotaria Kombetare if they could take on the management of a second lottery, with tickets sold through the vendors with whom they already work, it would probably be more efficient than trying to create a second network for selling ticket

[23] See, for example, https://www.climatebonds.net/standards/about
[24] UK: https://www.hlf.org.uk/our-projects; Oregon: https://www.oregonlottery.org/beneficiaries/
[25] http://www.undp.org/content/sdfinance/en/home/solutions/lotteries.html

Premium license plates or stamps

Some countries use premium license plates or postage stamps to raise funds for specific social programs, including environmental protection. In the United States, the states of Maryland and Virginia both offer special license plates that support the protection of the Chesapeake Bay, Maryland charging an initial $20 premium for the plate and an annual $10 premium each time the registration is renewed, Virginia charging a $25 premium each year. A portion of the premium in each state goes to a special trust that supports projects related to the cleanup of the Bay. In Maryland, the plates brought in about $3.6 million per year for environmental activities in 2015 and 2016.[26] In Virginia, the plates have brought in only about 10% that amount;[27] the reason for the difference is not clear.

In Albania, such a scheme would probably bring in less money, primarily because its population is much lower than that of Virginia or Maryland. Although vehicle registration fees are low in Albania, the road taxes are much higher than vehicle registration charges in either state. This might make people less willing to pay a premium to support conservation, reducing the potential to generate revenue in this way.

Finally, some countries use premium stamps to raise money for specific causes, referred to as semi-postal or charity stamps. In Europe and the United States, they have commonly been used to raise funds for health-related causes. Given Albania's history as a key country "off the international travel radar" for many travelers, it is possible that such stamps might be of interest to collectors, as well as being used to send letters. However, the potential of such stamps to raise significant revenues for EbA upscaling is probably limited.

Subsidies

Subsidies are public funds provided to cover the costs of actions considered desirable, without anything given in return. In a country like Albania they would typically be paid either out of national government revenue or with foreign grants, i.e. paid by the taxpayers of another country. In the first case, the question becomes one of where the government would get the funds, which private sector actors should receive compensation, and why. Since the government's primary focus in considering how to finance EbA is to find a way to induce the private sector to contribute more than it does now, using tax revenue to subsidize private actions to protect the coasts does not address the problem.

The second option – international donor support for EbA – is obviously of interest. Substantial funding is, of course, available for climate change adaptation in developing countries. However, the expectation is that international funds will become increasingly difficult to obtain, which is why the government is currently focused on how to generate more money from private sources.

Voluntary contributions

This strategy might be worth considering, as a national or perhaps an NGO-sponsored venture in Albania, with the revenues going into an "Ecosystem Trust" or similar. Participating hotels (or attractions) might be offered the opportunity to retain a modest portion of the funds, to allocate according to their own priorities, with the rest going to the trust. Participation would give the hotels both reputational benefits and some funds; if participation were made as simple as possible, so the administrative costs were low, many of them might be willing to join the scheme. The revenues they retain might in some sense offset the Ecosystem Trust fund that they no longer control because of the recent changes in the structure of that revenue source, enabling them to continue supporting projects in the communities around them. The trust would manage the

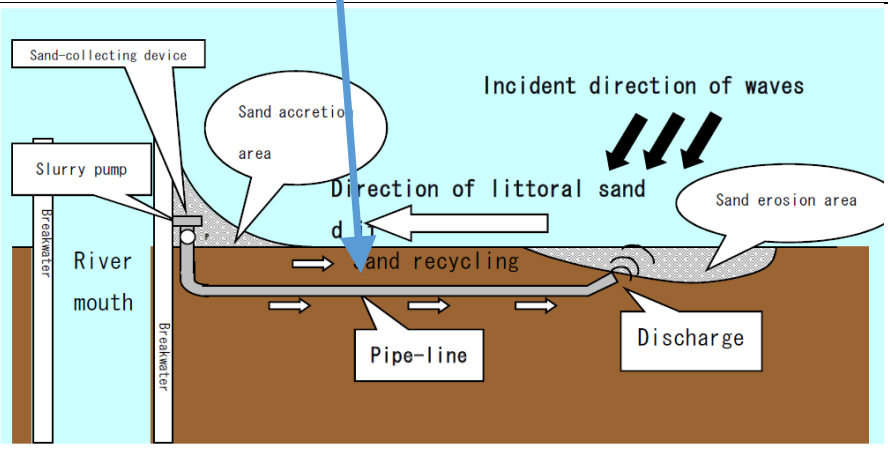
[26] https://cbtrust.org/wp-content/uploads/2016-Chesapeake-Bay-Trust-Final-Financial-Statements.pdf
[27] http://dls.virginia.gov/commissions/cbr.htm?x=fnd

bulk of the money, using it to address EbA issues that benefit the general public rather than the hotels/attractions themselves.

ANNEX D: TIDAL CHANNEL REMEDIAL RECOMMENDATIONS

Options for the Kune Vaini Tidal Chanel

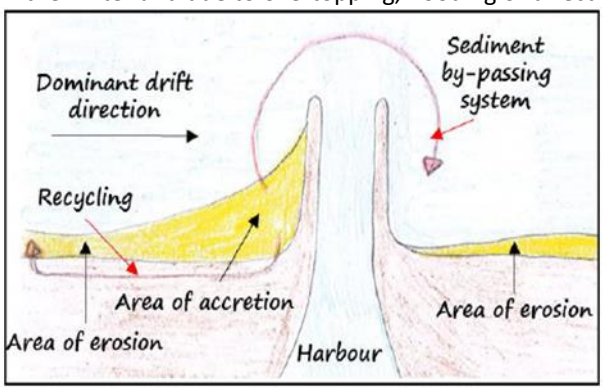
Option 1: DO NOTHING. Continued close of the tidal channel mouth as a consequence of south to north littoral drift. Material N/A Cost nothing	
OPTION 2: HARD ENGINEERING TIDAL CHANNEL GROYNES (X 2) Hard engineering tidal entrance structures on either side of the tidal channel mouth (longer to the south to capture littoral drift as a consequence of south to north littoral drift) Material Rock or geotextile tube structure. Cost $$$	
OPTION 3: HARD ENGINEERING TIDAL CHANNEL GROYNES (X 1) Hard engineering tidal entrance structures on the southern entrance only of the tidal channel mouth (to capture littoral drift as a consequence of south to north littoral drift). Possible siltation from the north from periodic storms events. Material Rock or geotextile tube structure. Cost	

$$	
OPTION 4: HARD ENGINEERING TIDAL CHANNEL GROYNE (X 1) PLUS SOUTHERN GROYNE FIELD Hard engineering tidal entrance structures on the southern entrance only of the tidal channel mouth (to capture littoral drift as a consequence of south to north littoral drift). Possible introduction of 2 geo-synthetic or rock groynes to capture littoral drift. <u>Material</u> Rock or geotextile tube structure. <u>Cost</u> $$$	
OPTION 5: HARD ENGINEERING TIDAL CHANNEL GROYNES (X 1) PLUS SEDIMENT BYPASSING TO THE NORTH Hard engineering tidal entrance structures on the southern entrance only of the tidal channel mouth (to capture littoral drift as a consequence of south to north littoral drift). Possible introduction of sediment bypassing to the north to reduce impact on coastal processes to the north. <u>Material</u> Rock or geotextile tube structure. Sand pump (or pipeline – see below) <u>Cost</u> $$$	
OPTION 5b: SEDIMENT RECYCLING AND BYPASSING USING SELF SINKING SUCTION PIPES The diagrams shows the same option s as 5 but with the possibility of using a pipeline to help "recycle" sand back to an agreed location to the south (to encourage sand recycling). <u>Material</u> Rock or geotextile tube structure. Sand pump (or pipeline – see below) <u>Cost</u>	 **Fig-3 Outline of sand bypass system using self-sinking suction pipe.**

$$$	

What is Beach Recycling?

Beach recycling is the process of collecting material from where it has naturally accumulated in a down-drift location and transporting it to the up-drift end of a beach frontage on a regular basis. Beach recycling does not provide additional materials to the coastal cell, only redistribution. Beach bypassing is where material that is locally in excess of requirements and accreting against a structure such as a harbour arm causing a blockage is moved further along the frontage in the natural drift direction. A beach is a coastal defence that offers protection to the hinterland from erosion, flooding and encroachment by the sea. Beaches act as a natural buffer as they efficiently dissipate wave energy. This reduces damages to hard landforms at the back of the beach, and assets in the hinterland due to overtopping, flooding or direct wave action.



Key Design Considerations

Beaches are dynamic structures, as such they respond to changes in the coastal environment over short- and long-term. These responses, such as overtopping or landward migration are natural to a beach and therefore should not be seen as a negative process however they do need to be considered for the management of the beach. A beach must be assessed to identify the standard of protection (SoP) it offers at present, and that at which it is likely to provide in the future. When required, the SoP of the beach can be increased or coastal squeeze can be reduced through beach recycling; the movement of material from a down-drift location to the up-drift end of a beach frontage on a regular basis. When considering beach recycling, the sediment supply and transport within the coastal cell should be evaluated along with the effects of disturbing the existing process.

Preliminary Studies Required

The main factors driving natural processes (e.g. longshore drift, cross shore storm response) that alter beaches and need to be considered are; wave conditions, water level variations, nearshore currents and wind conditions. Exceptional or extreme values of these driving factors are important for beach designers, in addition to the natural profiles of the beach, however significant changes in beaches can be caused by frequent small events and seasonal variations.

Environmental Impacts

If it is carried out in a sensitive manner, beach recycling can be one of the most environmentally friendly and sustainable ways of reducing or reversing a beaches deterioration and thereby reducing the threats of coastal **erosion** and flooding. Environmental impacts to the local vegetation can be mitigated by avoiding plant tracking over vegetated areas etc. The environmental impacts of hybrid opportunities would need to be considered on a case-by-case basis.

Hybrid Opportunities

Beach recycling is often paired with other interventions including nature-based and hard interventions.
For example, groynes or an offshore breakwater may be used to reduce sediment loss within a coastal cell, beach vegetation planting could be used to stabilise the backshore, reef creation could be used to reduce erosion or beach recycling may be used in conjunction with a sea wall, to stop the toe of the sea wall being undermined through scour.

Adaptability to Climate Change

It is recognised that a healthy beach is probably the most effective form of sea defence (provided it is not constrained by space or material supply limitations) due to its ability to adapt its shape naturally to changing wave and tidal conditions and can dissipate wave energy. A beach can be designed for future SLR, with hybrid structures being used to account for climate change. However when incorporating hybrid structures, such as seawalls inland, the resulting effect of coastal squeeze should be considered, resulting in the

erosion of beach material. It would be anticipated that the frequency of recycling required will increase with climate change.

Buildability

The buildability of beach recycling is relatively simple compared to other interventions available, however as hybrid structures are developed the buildability is dependent on the additional structure. Beach recycling can be undertaken using land or seaborne transport depending on access, tidal range, beach levels and the quantity of material to be moved. Shore parallel structures such as groynes can act as barriers making the transport of the recycled material along the beach more problematic. When beach recycling has been selected as an intervention, all relevant permits must be gained before works can begin.

International Example

The St. Augustine Inlet Management Plan (IMP), establishes strategies to best manage sand bypassing activities for placement of beach quality sand on adjacent eroding beaches of inlet or pass. The intent of the IMP strategies is to replicate the natural drift of sand that is interrupted or altered by an inlet so that each level of government can take all reasonable efforts to maximize inlet sand bypassing that will be designed to balance the sediment budget of an inlet.

https://floridadep.gov/sites/default/files/StAugustineIMP.pdf

ANNEX E: LONG TERM MONITORING AND RESEARCH STRATEGY

The following proposal was prepared by Prof. Dr. Ferdinand Bego in 2019.

Introduction

This is a long-term monitoring and research strategy for the EbA and climate change adaptation interventions implemented by the project in the Kune-Vaini lagoon. The monitoring and research strategy describes:

i) the overall objectives of the monitoring and research strategy (i.e. to measure the long-term socio-economic and ecological impacts of the EbA and climate change adaptation interventions implemented by the project);
ii) the long-term monitoring protocols that should be carried out by Regional Agency for Protected Areas (RAPA) staff to measure the socio-economic and ecological impacts of the tidal inlet channel, reforestation and dune rehabilitation interventions;
iii) a research framework for the MSc students that are receiving bursaries through the project, and how this research aligns with the long-term monitoring and research objectives;
iv) a communication plan to disseminate the results of the monitoring and research and raise awareness of the benefits of EbA in Albania (aligned with the communication plan already developed for the project); and
v) a plan for the continuation of monitoring by RAPA after the project has finished.

The monitoring and research strategy (MRS) is aligned with the management plan for the Kune-Vaini protected area and the monitoring program to assess the climate change impact on ecosystems in Drini-Mati River Deltas (DMRD) area prepared under the previous project *"Identification and implementation of adaptation response measures to Drini - Mati River Deltas".* Both documents are reviewed and consulted not to repeat or duplicate them, but to find synergies and complement them, bearing always in mind the existing human and financial capacities of the RAPA staff and research institutions engaged with research and monitoring activities.

The MRS is also based on the current research being conducted as part of EbA project in Kune-Vaini lagoons, which involves 6 MSc students that are receiving bursaries through the project. 5MSc students are selected from the Faculty of Natural Sciences and one from the Faculty of History-Philology in the first year courses 2018-2019, respectively three students from MSc course on Environmental Biology, two students from MSc course on Chemistry and one students from MSc course on Geography. Each student is closely supervised by at least one supervisor (tutor), expert in related field (as described in the MSc Research Program). In addition to expertise related support by tutors, the selected students are using the lab facilities, instruments and literature available at each of the research groups.

This strategy will allow for the development of technical reports (on a bi-annual basis) that describe the results of the monitoring and research.

Why Research and Monitoring?

Coastal and Estuarine habitats are distinguished for their high productivity and biodiversity: they are the foundation of estuarine foodweb. When considering climate change scenarios we should bear in mind the following three main messages:

1) Climate change will impact coastal ecosystems that are already greatly modified by humans

2) Ecological interactions are highly dynamic: they vary spatially and temporally within coastal zone

3) Wide range of adaptation outcomes; we need greater knowledge and predictive capacity

Climate change along the coastal area is forcing: increased air temperature, increased water temperature, increased winter rainfall, increased flooding, decreased summer river flow, increased peak/daily river flow and decreased annual river flow. All these will lead to changes in flow velocities, sediment type/input, nutrients, salinity and temperature that ultimately may cause the following impacts: substrate change (erosion/siltation), eutrophication, turbidity (decreased light), water quality and nutrient cycling.

Marsh/Wetlands distinguished as productive avian/mammal habitat, migration corridors, nutrient/water cycling, agricultural centers will be subject of: lower river flow, decrease sediment, higher salinity, coastal erosion, loss of marsh, increase floods and siltation, change in nutrients, peat decay, change in vegetation and eutrophication.

Marsh/Tidal channel habitat, known for serving as spawn/nursery habitat, migration corridor, nutrient/water pathway are expected to be subject of: increase temperature and salinity, decrease dissolved oxygen, lower flow velocities, siltation, increase/decrease nutrient, decrease habitat and connectivity, physiologic “salinity” barriers, anoxia, stagnation, loss of substrate/benthic community, eutrophication, regime change.

Pocket Estuaries, such as coastal lagoons that provide with nursery/forage habitat, important along migration corridors will be subject of: increase temperature and salinity, decrease dissolved oxygen, increase siltation and turbidity, increase/decrease nutrient, change in access to habitat, change in substrate, change in benthic community and eutrophication.

Based upon the above assumptions we can conclude that:
1) Climate change impacts will add complexity to coastal ecosystems already affected by human activities

2) Dynamic ecological interactions require improved understanding of spatial/temporal variability

3) We need to have in place baseline and environmental variability data and monitoring to evaluate change and test models.

Research and monitoring in Kune-Vaini lagoon system related with EbA and climate change adaptation interventions (the opening of a tidal channel inlet, reforestation and dune rehabilitation) will in this context be an instrument to test all these assumptions, to assess and evaluate the effectiveness of the EbA interventions, to learn and disseminate the gained knowledge, to raise awareness of the benefits of EbA in Albania and to help further adaptation management of the coastal wetland areas, in general, and Kune-Vaini, in particular.

1. Aim and Objectives

The overall objectives of the monitoring and research strategy (MRS) is to measure the long-term socio-economic and ecological impacts of the EbA and climate change adaptation interventions implemented by the project. Measuring the effectiveness of EbA interventions is essential to understand how the Kune-Vaini lagoon system is adapting with the new EbA interventions implemented and to check whether we are doing the right things, and ultimately to learn and adapt accordingly.

2. Research and Monitoring

This document identifies a number of research themes and monitoring indicators to measure socio-economic and ecological impacts of the three main adaptation interventions carried out by the EbA project "Building the resilience of Kune-Vaini Lagoon (KVL) through ecosystem-based adaptation (EbA": 1) the opening of a tidal channel inlet, 2) reforestation, and 3) sand-dune rehabilitation.

2.1 Research themes and framework

The current research conducted by 5 MSc students from the Faculty of Natural Sciences, University of Tirane is targeted to measure the impact of the opening the new tidal channel inlet on the lagoon system of Vaini. At least 5 sites/stations will be visited and sampled every two months during the period Sept 2018-July 2019 within the Kune-Vaini lagoon system (Zaje, Ceka, Merxhani), with the main focus in Vaini system (Ceka and Zaje) where the new tidal channel has been recently constructed (see Tab. 1, and Fig. 2).

The research in each sector (Biological and Chemistry aspects) is being carried out according to applicable EU standards (see detailed Plans of each MSc theses). The research results will be part of at least 5 MSc theses that will be due by the end of the first year, (July 2019). Furthermore, the work might be replicated by 5 additional follow up MSc theses during the second year (October 2019-July 2020). However, the selected students that show interest and ability, will be offered to continue to the end of Kune-Vaini Project on extending their research work in PhD theses.

The field trips are organized in joint groups of Botanists, Zoologists and Chemists, composed by the experts and students together (ca. 10 people in each field trip). This is to train properly the young researchers on the correct application of respective EU standards for all chemical and biological indicators. It will also help the team of experts and young researchers to draw up concrete conclusions, exchange information, prepare project reports, etc., in line with the Letter of Agreement of Kune-Vaini Project with the University of Tirane.

Data about **sampling stations** in Kune-Vaini lagoon system (Lezha) as proposed in this Research program are reported in table 1 and figure 1.

Table 1. Data about sampling stations in Kune-Vaini lagoon system (Lezha) under EbA Project.

Station name	Station code	Station information	Station Latitude	Station Longitude	Sampling type
Ceka 1	C1	Ceka at its northern part, Lezha.	41°44'22.81"N	19°35'13.66" E	**Chemistry (general, nutrients and chlorophylls); Phyto-plankton; Zoo-plankton;**
Ceka 2	C2	Ceka at its central part, in front of the new communication tidal channel, Lezha	41°43'40.00"N	19°35'16.15" E	
Ceka 3	C3	Ceka at its southern part, Lezha.	41°43'3.00"N	19°36'4.00"E	
Zaje 1	Z1	Zaje close to the communication channel with the Drini river, Lezha.	41°44'53.95"N	19°34'43.72" E	

Table 1. Data about sampling stations in Kune-Vaini lagoon system (Lezha) under EbA Project.					
Station name	**Station code**	**Station information**	**Station Latitude**	**Station Longitude**	**Sampling type**
Merxhani 1	M1	Merxhani, at its southern part, in front of tidal channel near Kune, Shengjini.	41°45'34.82"N	19°35'49.25" E	**Macro-phytes**

Research working groups

Chemistry

Master student Urma Ramaj, tutorial support by Prof. Majlinda Vasjari (Main tutor) & Dr. Sonila Duka, experts of analytical chemistry and water analyses.

Master student Denisa Muçaj, support by Prof. As. Loreta Wallja (Main tutor), Prof.as. Alma Shehu & Dr. Nevila Broli, experts of analytical chemistry and water analyses.

Biology

Master student Madalena Kola, tutorial support by Prof. Aleko Miho, expert of microscopic algae.

Master student Isidora Gjata, tutorial support by Prof. Lefter Kashta, expert of aquatic macrophytes (algae and higher plants).

Master student Ridjola Lika, tutorial support by Prof. Mihallaq Qirjo (Main tutor), expert of ecology, and Dr. Fundime Osmani, expert of zooplankton.

Socio-Economic aspects

The research of the Master student (Xhesiola Tuci, mentored by Prof. Romeo Hanxhari) from the Faculty of History and Philology, Department of Geography, is focused on measuring socio-economic impacts of the EbA and climate change adaptation measure implemented in Kune-Vaini lagoon system, including impacts on fishing, agriculture, and tourism.

Figure 1. Sampling stations for chemical and biological monitoring in Kune-Vaini lagoon system (Lezha) within Kune-Vaini EbA Project. (by Miho, 2018)

Coastal EbA interventions often result in multiple benefits to the local communities, economy and environment including: i) reduced flooding; ii) improved biodiversity, and iii) improved fisheries production. As such, this suite of interventions will improve the capacity of the ecosystem to adapt to climate change and provide important goods and services to local communities. In so doing, adaptation interventions and EbA will improve the local communities' capacity to adapt to the negative effects of climate change.

Three main adaptation interventions are carried out by the EbA project "Building the resilience of Kune-Vaini Lagoon (KVL) through ecosystem-based adaptation (EbA": 1) the opening of a tidal channel inlet, 2) reforestation and 3) dune rehabilitation. The figures 2 and 3 show the geographical location of these three EbA interventions, while Table 1 show the selected plant species per each of the reforestation plots. For each of these interventions in the following parts of this document some specific indicators are identified and protocols to describe how to measure them are drafted.

Figure 2. Map of the Kune-Vaini area with locations of EbA interventions (as proposed by EbA protocols-Albania, 2017)

Figure 3. Plantation along roadsides inside the Kune-Vaini lagoon (as proposed by EbA protocols-Albania, 2017)

Table 2. Appropriate climate resilient species planted in each plot (according to NCETSD & Diava Consulting, 2017)

Plot	Species selected to plant
8c & 21a	Alepo pine (*Pinus halepensis* Mill.) + Stone pine species (*Pinus pinea L.*).
21b & 21c	Stone pine (*Pinus pinea* L.); Ash (*Fraxinus ornus* L.)- native species & English oak (*Quercus pedunculata* Ehrh.) – native species,
27a	Aleppo pine (*Pinus halepensis* Mill.) & English oak (*Quercus pedunculata* Ehrh.) – native species.

Note: Due to land ownership claim issue, the plots 21b and 21c have been replaced by another plot (15 c), location of which is shown in the following figure (Figure 4).

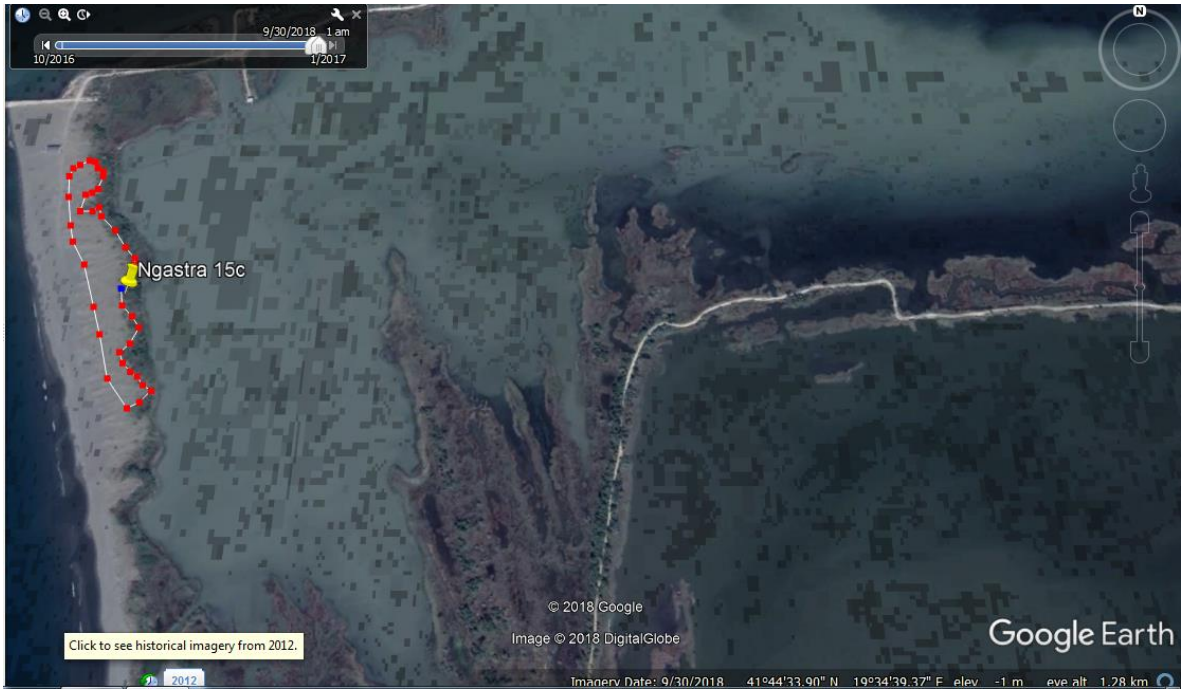


Figure 4. Location of the reforestation Plot 15 c replacing the plots 21 b and 21 c.

2.1.1. Proposed research themes related to tidal channel inlet

2.1.1.1. Research on hydrology/hydraulics and geomorphology for a long-term restoration and maintenance of appropriate conditions in lagoon waters and coastal dynamics in Kune-Vaini.

Aim: Understand the current ecological conditions in Kune-Vaini lagoons and propose measures to maintain lagoons in close-to-natural conditions.

Justification: The study will definitely precise on the way of operation and management of the coastal and lagoon waters. Hydrological and sediments physical/mathematical modelling will help to define the future management of waters and coasts, controlling coastal erosion, combating eutrophication, maintaining of physic-chemical parameters of lagoon waters in compatibility with biodiversity characteristics and fishery demands.

Responsibilities: NAPA, relevant Research Institutions on hydrology

Time-frame: 2019-2021

2.1.1.2. Evaluation of fish species composition and population dynamics in Kune-Vaini lagoons

Aim: Defining of future fishery management on the lagoon bodies, in compliance with biodiversity conservation targets of Kune-Vaini protected area.

Justification: Evaluation of fish population status, their population equilibrium, new grow and ratio trends, etc., will help on future actions for sustainable fishery development. Based on findings, proposals to restore natural ratio of fish populations will be proposed.

Responsibilities: NAPA, RAPA Lezha, Agriculture University of Tirane

Time-Frame: 2019-2022

2.1.1.3. Evaluation of the coastal lagoon habitat dynamics in Kune-Vaini

Aim: Identify the trends in coastal habitats and evaluate management effectiveness of the adaptation interventions

Justification: Evaluation of natural habitat dynamics in the coastal and lagoon system, will help assess the effectiveness of the adaptation interventions and eventually identify possible future actions. This can be done through GIS application using the existing topographic maps of the past (1960, 1986) and the current satellite imageries. A PhD or Master student from the Department of Biology of the Faculty of Natural Sciences will be engaged to carry out such a study, while ground truething and field surveys will be done in close cooperation with RAPA staff.
Period: 2019-2021
Responsibilities: FNS, RAPA-Lezha Management staff

2.1.2. Proposed research themes related to reforestation

2.1.2.1.Study on the vegetation structure and dynamics in the reforestation works implemented by EbA project intervention.

Aim: To assess the effectiveness of the EbA intervention and to propose, if appropriate, additional adaptation measures.

Justification: Reforestation works in few plots within Kune-Vaini area should be monitored and studied, so as to measure the effectiveness of the EbA adaptation intervention and eventually to propose new adaptation measures to ensure the long-term sustainability of the reforestation works. In each of the reforestation works, at least three permanent sampling plots (10 x 10 sqm) will be established and during the growing season (spring-autumn) they should be investigated in terms of annual growth of the planted seedlings and associated plant species growing inside reforestation plots. PhD and Master students from the Department of Biology of the Faculty of Natural Sciences will be engaged to carry out such a study, while field surveys will be done in close cooperation with RAPA staff.

Responsibilities: RAPA-Staff and FNS (Department of Biology and Research Center for Flora and Fauna)

Time-Frame: 2021-2029

2.1.2.2. Study of the ecological interactions between plant and animal communities evolved in the reforestation works implemented by the EbA project intervention.

Aim: To assess the effectiveness of the EbA reforestation intervention by measuring the interactions between plant and animal communities.

Justification: Studying the interactions between plant and animal communities in the EbA reforestations plots will be used as an instrument to measure the effectiveness of the EbA adaptation intervention and eventually to propose new adaptation measures to ensure the long-term sustainability of the reforestation works. In each of the reforestation works, at least three permanent sampling plots (10 x 10 sqm) will be established and will be investigated qualitatively and quantitatively in four seasons of the year in terms of plant and animal interactions in the biocenosis created in the EbA reforestation areas. PhD and Master students from the Department of Biology of the Faculty of Natural Sciences will be engaged to carry out such a study, while field surveys will be done in close cooperation with RAPA staff.

Responsibilities: RAPA-Staff and FNS (Department of Biology and Research Center for Flora and Fauna)

Time-Frame: 2021-2029

2.1.3. Proposed research themes related to sand-dune rehabilitation

Figure 5. Location of the site where sand-dune rehabilitation work has been undertaken (Note: the location of the site has changed from the initial plan of EbA interventions, as indicated in the Figure 2)

2.1.3.1. Study on the vegetation structure and dynamics in send-dunes restoration works implemented by EbA project intervention

Aim: To assess the effectiveness of the EbA intervention and to propose, if appropriate, additional adaptation measures.

Justification: Sand-dune rehabilitation work implemented in Kune-Vaini area should be monitored and studied, so as to measure the effectiveness of the EbA intervention and eventually to propose new adaptation measures to ensure the long-term sustainability of the

dune rehabilitation work. At least three permanent sampling plots (10 x 10 sqm) will be randomly established in the site where dune rehabilitation work took place and during the growing season (spring-autumn) they should be investigated in terms of annual growth and associated plant species growing in dune restoration intervention area. PhD and Master students from the Department of Biology of the Faculty of Natural Sciences will be engaged to carry out such a study, while field surveys will be done in close cooperation with RAPA staff.

Responsibilities: RAPA-Staff and FNS (Department of Biology and Research Center for Flora and Fauna)

Time-Frame: 2019-2029

2.1.3.2.Study of the ecological interactions between plant and animal communities evolved in send-dune rehabilitation works implemented by the EbA project intervention.

Aim: To assess the effectiveness of the EbA dune restoration intervention by measuring the interactions between plant and animal communities.

Justification: Studying the interactions between plant and animal communities in the EbA dune restoration intervention will be used as an instrument to measure the effectiveness of the EbA intervention and eventually to propose new adaptation measures to ensure the long-term sustainability of the dune rehabilitation work. At least three permanent sampling plots (10 x 10 sqm) will be established in the area where dune restoration work has been undertaken and will be investigated qualitatively and quantitatively in four seasons of the year in terms of plant and animal interactions in the biocenosis created in the EbA dune rehabilitation site. PhD and Master students from the Department of Biology of the Faculty of Natural Sciences will be engaged to carry out such a study, while field surveys will be done in close cooperation with RAPA staff.

Responsibilities: RAPA-Staff and FNS (Department of Biology and Research Center for Flora and Fauna)

2.2. Technical protocols for the long-term monitoring of the project's climate change adaptation interventions

Technical protocols for the long-term monitoring describes a set of indicators to measure (what?), the location (where?), time-frame (when?), the frequency (how often?), and who is responsible for monitoring.

The monitoring strategy of EbA interventions in Kune-Vainie should focus on those issues that cannot be properly monitored by other national monitoring programs. It will have to consider things from a different angle, and should: **firstly**, concentrate on issues that are related with climate change impacts on ecosystem resilience and services, specific estuarine and coastal water productivity, habitats and species, and **secondly**, bring an added value to existing national and local monitoring programs.

In particular, the Kune-Vaini EbA monitoring strategy will not replace the national monitoring systems; it can help the national systems, but it cannot substitute for them. Furthermore, one reiterated request is for the EbA monitoring strategy to be low cost, which implies that in its early years at least, it cannot focus on more than a few, key aspects that can be undertaken by RAPA Lezha monitoring staff.

In order to further focus on the monitoring strategy for EbA and climate change adaptation interventions in Kune-Vaini lagoon system within its intended scope (Ecosystem-based adaptation), the following criteria are proposed in order to select more precisely elements to be monitored and :

a. a key « baseline » factor for a territorial study (e.g. climatic data, chemical and biological data, socio-economic data…)
b. a key element that gives value to the Kune-Vaini area (e.g. Biodiversity or Cultural heritage)
c. be practical for monitoring within the predictable conditions that will likely prevail in the mid-term in the Kune-Vaini area. This criterion is therefore introducing some pragmatism, to help distinguish between what would be —highly desirable— and what is —practically feasible under the prevailing conditions.
d. directly linked to an essential management objective of Kune-Vaini protected area.
e. directly linked with any of the EbA interventions undertaken in Kune-Vainie area.
f. part of a chain (Pressure → State → Response) or (Drivers → Pressure → Impact →
State → Response)

2.2.1 Monitoring protocol for the tidal channel inlet.

The priority parameters or variables to monitor as part of the monitoring protocol for the tidal channel inlet are:

- temperature, pH, salinity, conductivity, TDS, TSS, turbidity
- dissolved Oxygen, DO, BOD, COD
- flow velocities
- siltation, sedimentation
- nutrients [nitrogen compounds ($N\text{-}NO_3$, $N\text{-}NO_2$, $N\text{-}NH_4$) and phosphorus compounds (TP, SRP)]
- changes in chlorophyll (a, b) content
- changes in habitat and connectivity
- changes in phytoplankton and zooplankton
- changes in benthic community
- changes in fish stock and fish catch
- changes in breeding success of waterbirds (colonial waterbirds, such as herons, cormorants, waders, ducks, terns and gulls)

2.2.1.1. Monitoring physical and chemical parameters of waters in the lagoon system of Kune-Vaini

Aim/Output: Evaluation of environmental status of water bodies in Kune-Vaini lagoons and identify appropriate management actions to ensure good ecological conditions in the lagoons

Justification/Description: Frequent sampling and analyzing of surface and groundwater status in the lagoons. Parameters to measure are: temperature and salinity, ph, conductivity, turbidity, dissolved oxygen, nutrients (nitrogen, phosphate) and organic matter, chlorophyll content, etc. Some of these parameters such as temperature and salinity, ph, conductivity, turbidity, dissolved oxygen will be measured directly in the field. Existing ground wells will be used for sampling of ground waters.

Frequency: every two months in fixed stations.

Periodicity: every year during the first two years, and after 2020 every 3 years for some parameters such as nutrients (nitrogen, phosphate), organic matter, and chlorophyll content.

Responsibilities: NAPA, RAPA Lezha, Faculty of Natural Sciences.

2.2.1.2. Monitoring of sediment quality in tidal channels

Aim/output: Evaluation of sediments quality in the tidal channels of Kune-Vaini lagoon systems. Defining additional measures to control possible pollution sources and provide guidunace of the future use of dredged material.

Justification and description: Defining of the sediment status in the tidal channels between the sea and the lagoons and identification of possible pollution sources. Evaluation of the chemical status of sediments in tidal channels will determine their future use for coastal filling (beech nourishment, dumping etc.). This monitoring actions can be done with one samples per tidal channel for each of the lagoons (Merxhani, Ceka and Zaje).

Frequency: The frequency of such monitoring should be not lower than two times per year. One sampling and analyzing should be done before starting the tourism season (springtime), and another at the end of tourism season (autumn). One sampling per channel can be considered appropriate to know the sediment status for above mentioned areas.

Periodicity: Every 3 years

Responsibilities: RAPA Lezha, Faculty of Natural Sciences.

2.2.1.3. Monitoring of plankton (both phyto- and zoo-plankton) and benthos (phyto- and zoo-benthos)

Aim/Output: Evaluation of ecological status of the lagoon system and effectiveness of EbA interventions, such as opening and maintaining of the tidal channel inlets.

Justification/Description: Monitoring phyto- and zoo-plankton and phyto- and zoo-benthos communities will help with evaluation ecological status of lagoon habitat and measure the effectiveness of the EbA intervention (opening and maintaining of the tidal channel inlets). Based on the results obtained, possible changes on management actions to restore the natural conditions and ecological status of the lagoon will take place.

Frequency: 4 times/year (once per season)

Periodicity: Every year during the first two years and every three years after 2020

Responsibilities: NAPA, RAPA Lezha and Faculty of Natural Sciences

2.2.1.4. Monitoring of trends in wintering and breeding water birds and birds of prey

Aim/Output: Evaluation of water birds and birds of prey as an indicator of ecological conditions in the lagoon system of Kune-Vaini area and propose conservation actions pursuant to conservation goals of the protected area.

Justification/ Description: Monitoring of wintering and breeding water birds (colonial waterbirds, such as herons, cormorants, waders, ducks, terns and gulls) and birds of prey provides good indications on the ecological conditions of the lagoon system. Wintering water birds and birds of prey will be counted according to already established methodology applied in the country since early 90's, so as to allow comparison of the results. Breeding water birds and birds of prey will be monitored based on absolute counts of nesting pairs in the known breeding sites/colonies. If possible, and available, the drone will be used to count nests in order to increase accuracy and reduce stress on breeding birds.

Frequency: 2 times/year (one in Winter (January) and one in late spring/early summer)

Periodicity: Every year

Time frame: 2019 and on

Responsibilities: NAPA, RAPA Lezha and Faculty of Natural Sciences

2.2.1.5. Monitoring fish stock composition and fish catch in the lagoon system of Kune-Vaini

Aim/Output: Assess the impact of tidal channel inlet opening and maintenance on fish stock and fish catch in coastal lagoons, and propose measures to management on the lagoon bodies, in compliance with biodiversity conservation targets of Kune-Vaini protected area.

Justification/Description: Evaluation of fish stock and fish catch will serve as an indicator of the efficiency of the EbA intervention and based on findings, measures to restore fish populations will be proposed. RAPA-Lezha monitoring specialist will collect the data on fish catch and fish-catch by main fish species from the fishermen associations that manage the Kune-Vaini lagoons every year (on monthly basis) and data obtained on monthly and annually basis will be compared to assess the trend in fish catch and fish catch composition by species.

Frequency: every month and/or every year (total fish catch and fish catch by species)

Periodicity: Every year on monthly basis and annually

Time-Frame: 2019 and on

Responsibilities: NAPA, RAPA Lezha, Fishermen Associations managing the Kune-Vaini lagoons

2.2.2 Monitoring protocol for the reforestation

Aim/Output: To measure the efficiency of the EbA reforestation work undertaken by the project and to define and propose maintenance requirements in the reforestation plots
Justification/Description:

2.2.2.1. Monitoring of maintenance service

In order to favour the optimal development of seedlings and ensure a high percentage in their sprouting, **maintenance services needs to be carried out in the first two years after planting**. These maintenance works comprise 2 hoeing works and 2 irrigations in the first and the second year after planting as well as the use of chemical or organic fertilizers. Hoeing will

take place around the seedling, with a radius of 0.5 meters and a depth of 10-15 cm. The hoeing period will be from April to June and from August to September. It is recommended that hoeing should take place 2-3 days after rainfall, in order to retain in the hole the largest possible amount of water.

Frequency: twice a year (Spring and Autumn)

Periodicity: Every year during the first years (2019-2020)

Responsibilities: RAPA Lezha monitoring specialist and EbA local project technical advisor in cooperation with the contractual entity for reforestation work (maintenance worker)

2.2.2.2. Monitoring Seeding Survival

Monitoring of the seedling survival rate should be conducted in autumn, after the seedlings have completed a full growing season. Monitoring will take place by measuring the number of seedlings in the sample plots within the reforested areas.

Frequency: Once a year (Autumn)

Periodicity: Every year during the first two years (2019-2020)

Responsibilities: RAPA Lezha monitoring specialist and EbA local project technical advisor in cooperation with the contractual entity for reforestation work

2.2.2.3. Monitoring of the replacement of dead seedlings

Dead seedlings should be replaced during the next planting season. This will be undertaken based on the data derived from the field verification of seedlings survive in the next autumn. The quantity of seedlings to be replaced is equal to the number of those dried due to various reasons. The cost for re-planting should be covered by the contracted entity based on their contractual commitments.

Frequency: Once a year (Autumn)

Periodicity: Every year during the first years (2019-2020)

Responsibilities: RAPA Lezha monitoring specialist and EbA local project technical advisor in cooperation with the contractual entity for reforestation work

2.2.2.4. Monitoring of the protection measures

The reforested plot must be protected from grazing for a period of **2-3 years** and in case of the appearance of pests or diseases, they should be treated. First it is suggested that plot fencing is constructed in order to prevent the entry of animals inside the area. Also, the area should be encircled by a plastic tape and be supplied with an indicative board showing that it's a reforested area. Also the consultant, propose the assignment of a maintenance worker to safeguard the area and carry out the maintenance works.

Frequency: Four times a year (Spring, Summer, Autumn, Winter)

Periodicity: Every year during the first 2-3 years (2019-2021)

Responsibilities: RAPA Lezha monitoring specialist and EbA local project technical advisor in cooperation with the maintenance worker from contractual entity for reforestation work.

2.2.3 Monitoring protocol for dune rehabilitation

Aim/Output: To measure the efficiency of the EbA dune rehabilitation work undertaken by the project and to define and propose maintenance requirements of the dune vegetation.

Justification: It is strongly recommended that comprehensive records of progress be maintained. This monitoring will then provide the feedback needed to determine maintenance requirements and will help to measure the effectiveness of the revegetation. Record keeping can be done through simple means such as photography and note taking. It should include "before" and "after" photographs and should document plant survival rates, annual plant growth, watering and fertilizer regimes, vandalism etc. At least three sampling stations of 10 x10 sqm will be randomly selected and monitored on monthly basis during the growing season (March-October). RAPA Lezha monitoring specialist will be trained prior the monitoring.

Frequency: every month during growing season (from March to October)

Periodicity: Every year

Time frame: 2019 and on

Responsible: RAPA Lezha monitoring specialist and EbA local project technical advisor

3. Communication plan to disseminate the results of the monitoring and research

The results of monitoring and research will be communicated to general public through technical reports that will be produced on a bi-annual basis. Furthermore, it is recommended that general public is informed about the ongoing research and monitoring activity twice a year through an online portal of NAPA and RAPA Lezha. Other social media, such as Facebook, will be used to inform public about the research and monitoring activity related with EbA and climate adaptation measures and raise their awareness on climate vulnerability and adaptation. Publishing the results in scientific journals is also recommended.

4. Plan for the continuation of monitoring by RAPA after the project has finished

RAPA staff, especially those engaged with monitoring will actively be part of the monitoring and research activity related with EbA interventions. They will participate in any field survey to be organised by Master and or PhD students and other experts and in so doing they will get and practice knowledge and skills in monitoring work as part of their day to day job. The first two years of the implementation of this Monitoring and Research Strategy can be considered as an intensive on the job training program for RAPA Lezha staff, and through this exercise they will increase their own capacities and be able to conduct most of the monitoring program related with EbA and climate adaptation intervention on their own. Relationship and partnership of the RAPA staff with academia, such as Universities and Research Institutions and NGOs, will be strengthen and will further develop. The current Master thesis and forthcoming PhD thesis on the various themes identified as part of MRS document will pave the road for a long-term cooperation and collaboration with RAPA Lezha staff and ensure the sustainability of the monitoring activity in Kune-Vaini lagoon system. Being part of other monitoring programs, such as national environmental monitoring system, monitoring program of Drini-Mati River Deltas, and monitoring and research program of Kune-Vaini protected areas, will further guaranty the continuation of the monitoring activity from RAPA Lezha staff. On the other hand, the RAPA Lezha should develop a performance tracking records and promotion policy for its own staff engaged with monitoring and management of Kune-Vaini protected area, so as the carrier progress is tracked and assessed on a systematic way.

Concluding, an effective monitoring for EbA interventions in Kune-Vaini lagoon system should be:

- question-driven, and therefore scientifically sound;
- based on a study design that produces a robust data set;
- clear on what is monitored and why;
- based on a simple, repeatable, and consistent data collection protocol;
- standardized across all its phases, including clear routine for data management and analysis;
- based on continued funding;
- led by researchers/agencies that are committed over the long-term.