



WES-BCA
Water and Environment Support –
Biodiversity and Climate Action
in the Neighbourhood South region

Validation workshop for confirming the selected site and proposed NBS options, building consensus among institutional and local actors

8 September 2026

Gefinor Hotel, Beirut, Lebanon

“Activity Title: Design of NBS in a Pilot Area in Lebanon”

Activity Code: C1_N-LB-2

Concept Note & Agenda

1. BACKGROUND

1.1. CONTEXT

As part of Component I of the EU-funded project **“Water and Environment Support – Biodiversity and Climate Action in the Neighbourhood South Region” (WES-BCA)**, a national activity entitled **“Design of Nature-Based Solutions in a Pilot Area in Lebanon”** was launched in cooperation with the Ministry of Energy and Water and other relevant national and local stakeholders.

The objective of the activity is to demonstrate how stormwater flood/rainwater can be managed as a resource through site-specific design and feasibility analysis of NBS with consideration for local ecosystems and biodiversity protection. The activity includes:

1. A presentation on international Best Management Practices (BMPs) and Nature Based Solutions (NBS) applicable to stormwater/rainwater management in Lebanon, emphasizing nature-based, low-cost, and scalable solutions.
2. The selection and validation of a pilot area based on hydrological criteria, technical feasibility, and stakeholder input.
3. The development of a basic design for stormwater/rainwater detention, retention and reuse in the pilot area with consideration for enhancing local ecosystems and biodiversity.
4. A concluding workshop to present outcomes, gather feedback, and explore opportunities for scaling and replication.

The specific objectives of the activity are to:

1. engage institutional and local stakeholders in the identification and validation of a pilot area for NBS implementation based on technical, environmental, and institutional feasibility.



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2. conduct hydrological and ecological assessments and develop a shortlist of one or more suitable NBS options tailored to the selected pilot area.
3. develop a Pre-Feasibility Study for the selected intervention(s), integrating stormwater management functions with biodiversity support and implementation considerations.
4. enhance knowledge of Best Management Practices (BMPs) in NBS and promote their adaptation for arid and semi-arid contexts.
5. strengthen stakeholder capacities for planning, implementing, and maintaining NBS in Lebanese urban environments, through a series of consultations and a concluding workshop.

During the first phase of the activity, consultations were undertaken with national, regional and local institutions, and available studies, maps and datasets were reviewed. Several potential areas were initially considered, including the Shouf Biosphere Reserve and its buffer zone, Zahle and Beirut. Based on stakeholder interest, local support, the relevance of the identified water-management challenges and the potential for practical NbS implementation, the Shouf Biosphere Reserve and its surrounding municipalities were advanced as the priority area for the activity.

Within the selected pilot area, potential intervention locations and Nature-Based Solution (NBS) options were identified through consultations with the Shouf Biosphere Reserve and other relevant stakeholders.

The technical work undertaken to date has included field visits, compilation and review of available hydrological, spatial and site characteristics information, and the identification of potential intervention locations and suitable Nature-Based Solution (NbS) options for the selected pilot area. This work has been informed by consultations with relevant stakeholders and has taken into account stakeholder priorities, local support and implementation considerations. Building on these findings, the proposed NbS interventions are currently being prepared and will be presented during the workshop for discussion and validation.

Nature-Based Solutions (NBS) offer a sustainable approach by working with natural processes to manage water, reduce risks, and deliver co-benefits for people and ecosystems. Specifically, Natural Water Retention Measures (NWRM)—such as vegetated swales, detention ponds, infiltration trenches, small check dams and runoff harvesting ponds, or combination of some of them —emulate natural hydrological processes by enhancing infiltration and reducing vulnerability to floods and droughts.

The proposed interventions are being developed to strengthen stormwater management, enhance biodiversity and ecosystem services, and contribute to climate resilience and the fulfilment of WEFE Nexus objectives in the selected pilot area.



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The activity has now reached the stage at which the proposed pilot site and the preliminary NbS interventions will be presented to the relevant stakeholders for validation.

Conceptual Setup of the Proposed NBS Solution

Building upon comprehensive baseline assessments—including recent catchment mapping, soil and land-use characterization, and preliminary stormwater volume calculations for multiple return periods (5 to 50 years)—a conceptual Nature-Based Solution framework has been developed for the selected site. Conceived essentially as a resilient "blue-green shield", the proposed intervention is based on a combination of natural water retention and detention mechanisms. Conceptually, it aims to safely intercept and attenuate peak surface runoff, promoting a relatively fast groundwater infiltration while mitigating local flood risks. By integrating these natural hydrological functions, the solution protects local communities and infrastructure while enriching aquifers, enhancing local biodiversity and provides Non-Conventional Water Resources (NCWR) for potential reuse. This approach aligns perfectly with the objectives of WEFE (Water-Energy-Food-Ecosystems) Nexus, offering a low-energy, highly adaptable solution.

Note: Detailed technical specifications, engineering analyses and the conceptual design of the proposed intervention(s) will be finalized and presented in the forthcoming Pilot Site Selection Report, taking also into account the outcomes of this validation workshop. The presentations and validation intervention(s) will subsequently form the basis for the development of the Pre-Feasibility Study, which will further develop the conceptual design solutions and assess and, if necessary, adapt accordingly the feasibility report for their implementation from technical, environmental and ecological perspectives, while considering maintenance, implementation phasing and biodiversity enhancement. The Pre-Feasibility Study will also include socio economic and financial pre-feasibility review, analysing stakeholder interest, cost logic and the potential for upscaling, all of which will be used for making the appropriate recommendation for the optimization of the intervention.

2. OBJECTIVES OF THE WORKSHOP

The overall objective of the workshop is to validate the selected pilot site and obtain stakeholder agreement on the NbS options that should be advanced to the conceptual-design stage.

More specifically, the workshop aims to:

- Present the activity, the site-selection process and the technical, environmental, social, institutional, institutional and implementation considerations used to identify the preferred pilot site.



- Present the available site baseline data, including mapping of catchment characteristics, runoff and erosion issues, existing drainage conditions, land use and biodiversity considerations.
- Confirm or refine the understanding of site conditions through local and institutional knowledge.
- Introduce the preliminary NBS options and explain their intended protective and restorative functions and benefits.
- Assess the feasibility of the proposed NbS options across technical, environmental, social, institutional, economic and O&M (Operation and Maintenance) dimensions.
- Build consensus on the preferred intervention or combination of interventions and agree on the immediate next steps.
- Identify and/or confirm any conditions, modifications, additional information or field investigations required before advancing the engineering design.

3. APPROACH TO MEET THE EVENT'S OBJECTIVES

The workshop will follow an interactive and decision-oriented approach, combining presentations with facilitated stakeholder discussion. The expert team will first present the activity framework, site-selection methodology, findings and preliminary NbS options. Maps, photographs, site-selection criteria and preliminary technical illustrations will be used to make the discussion site-specific and accessible to both technical and non-technical participants.

An interactive working session will then invite participants to review the findings and provide input on four main themes:

- confirmation of the site's stormwater, erosion and drainage challenges;
- suitability and expected benefits of the proposed conceptual NbS options,
- environmental, biodiversity, land-access, socio-economic, institutional and maintenance considerations;
- requirements and responsibilities for advancing the intervention.

The facilitation team will distinguish between points of agreement and proposed modifications. The agreed conclusions will be documented and incorporated into the Pilot Site Selection Report and the subsequent work.



4. RESOURCE PERSONS & MODERATION

The roundtable will be facilitated by the WES-BCA expert team responsible for implementing Activity C1_N-LB-2 and supporting the design of the NbS options in the pilot area, in Lebanon. Main Resource Persons:

- Dr Abbas FAYAD – Senior Local Hydrologist - in person
- Mr Ioannis VASILAKOS – Senior Civil/Environmental Engineer- online
- Ms Eleni AVRAMIDI – Senior Biodiversity Expert - online
- Ms Mona Fakih – WES-BCA focal Point, Director of Water, General Directorate of Hydraulic and Electric Resources - in person
- Ms Suzan TAHA – Key Water Expert, WES-BCA - on-line
- Prof. Michael Scoulllos, Team Leader, WES-BCA - on-line

5. TARGET AUDIENCE

The workshop will bring together representatives of institutions and stakeholder groups with responsibilities, expertise or interests relevant to the selected pilot area and the proposed NbS interventions, including:

- the Ministry of Energy and Water (MoEW), as the principal beneficiary of the activity;
- the Ministries of Environment, Agriculture, Public Works and Transport, and Interior and Municipalities;
- the Shouf Biosphere Reserve management team;
- the relevant municipality(ies) and Union(s) of Municipalities;
- the Beirut and Mount Lebanon Water Establishment and other relevant public authorities and agencies;
- local farmers, landowners, agricultural cooperatives, community representatives and other local stakeholders;
- LARI, universities and other technical and research institutions;
- local environmental NGOs and civil society organisations, including organisations representing women and youth; and
- engineers, planners and other professionals with relevant technical or local or expertise.

6. REQUIREMENTS FROM THE PARTICIPANTS

Participants are expected to:



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- review the information presented by the expert team;
- contribute local and institutional knowledge concerning runoff, drainage, erosion, land ownership and/or access, biodiversity and existing infrastructure;
- assess the suitability, benefits and potential constraints of the proposed NbS options;
- identify relevant ongoing or planned projects, possible synergies and potential implementation risks;
- provide recommendations regarding construction access, maintenance responsibilities, institutional coordination and community involvement;
- indicate whether the selected site and proposed intervention concept can be endorsed, including any socio-economic considerations and conditions as well as eventual modifications required; and
- contribute constructively to identifying the next steps and additional information needed for the pre-feasibility assessment.

7. LANGUAGE

The meeting will be conducted in English, with simultaneous interpretation provided - EN/AR/EN.

8. DATE AND VENUE

The event will be held on **the 8th of September 2026 in Gefinor Hotel, Beirut, Lebanon**, in line with the daily schedule set out in the agenda below.



AGENDA

Validation workshop for confirming the selected site and proposed NbS options, building consensus among institutional and local actors

8 September 2026
Gefinor Hotel, Beirut, Lebanon

Time

(Lebanon)

09:00–09:30	Registration and Welcome Coffee
09:30–09:45	Welcome and Opening Remarks
	Welcome and Introductory notes Prof. Michael SCOULOS, Team Leader, WES-BCA Ms Ivanka TODOROVA, Water and Wastewater Program Manager, Delegation of the European Union to Lebanon Mr Elias AKL, Director General of Hydraulic and Electric Resources, Ministry of Energy & Water Ms Mona FAKIH, WES-BCA Water Focal Point, Director of Water, General Directorate of Hydraulic and Electric Resources, Ministry of Energy & Water Ms Hanan HASSAN, Water Resources Management Consultant & Sector Technical Lead, Al-Shouf Cedar Society – Shouf Biosphere Reserve
09:45–10:20	Presentation of the activity
	Introducing the activity in Lebanon (15 min) - Objectives and expected outputs - Overall activity approach and implementation process - Purpose and expected outcomes of the Validation Workshop Ms Suzan TAHA, Key Water Expert, WES-BCA – online Introduction to Nature-Based Solutions (NbS) and Natural Water Retention Measures (NWRM) (20min) - Key concepts and principles - Benefits and relevance for stormwater management, climate resilience and ecosystem restoration Mr Ioannis VASILAKOS, Senior Civil/Environmental Engineer
10:20–11:20	Presentation of the Technical Findings
	Site selection methodology and assessment of candidate sites Mr Abbas FAYAD, Senior Local Hydrologist Selected pilot area and its characteristics and justification Mr Abbas FAYAD, Senior Local Hydrologist Preliminary Nature-Based Solution (NbS) concept and proposed interventions Mr Ioannis VASILAKOS, Senior Civil/Environmental Engineer Issues requiring stakeholder feedback and validation Mr Ioannis VASILAKOS, Senior Civil/Environmental Engineer



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(Lebanon)

11:20-11:40	Coffee break
11:40-13:00	Interactive Working Session • Validation of the selected pilot area • Technical suitability of the proposed NbS interventions • Biodiversity and ecological considerations, including suitable native/local plant species, surrounding land uses and cropping patterns • Social, Institutional and implementation considerations • Operation and maintenance aspects • Implementation Opportunities and constraints, including stakeholder interest, cost implications and potential for scaling Moderated by: Mr Abbas FAYAD, Senior Local Hydrologist With technical inputs from: Mr Ioannis VASILAKOS, Senior Civil/Environmental Engineer, and Ms Eleni AVRAMIDI, Senior Biodiversity Expert
13:00-13:20	Summary of the Discussion, Conclusions and Next Steps • Key recommendations from the validation session Mr Abbas FAYAD, Senior Local Hydrologist • Finalisation of the Pilot Site Selection Report & Preparation of the Pre-feasibility Report Mr Ioannis VASILAKOS, Senior Civil/Environmental Engineer
13:20-13:30	Workshop Evaluation (10 min) All Participants
13:30-14:30	Lunch