ECOSYSTEM-BASED ADAPTATION AND AGROFORESTRY COMPLEX INTEGRATION IN JORDAN NDC UPDATES

ADVANCING CLIMATE POLICY THROUGH PARTICIPATORY APPROACH

A POLICY INFLUENCING PAPER
OUTPUT OF PROJECT

'ECOSYSTEM-BASED AGRICULTURE RESILIENCE IN THE LEVANT THROUGH AGROFORESTRY'

By partners

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INTEGRATING ECOSYSTEM-BASED ADAPTATION AND AGROFORESTRY COMPLEX INTEGRATION IN JORDAN NDC

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SUMMARY

This policy influencing paper is based on NDC2.0 and NDC3.0 for reference. It provides insight to the enhancement of future NDC updates for Jordan guided by the prototypic applications achieved on the project 'Ecosystem-Based Agriculture Resilience in the Levant through Agroforestry (EBAR)'. The project is thankfully funded by the IUCN-Global EbA Fund.

I- OBJECTIVE

The objective of this paper is to

- Promote the integration of Ecosystem-based adaptation with Agroecology/Agroforestry, where relevant, to engender broader implementation and scaling up of benefits and positive impact in climate adaptation and mitigation at the national decision-making level,
- Advance policy perspective through a bottom-up approach starting from implementations into decision making to provide solid grounds for the attainment of NDCs,
- Improve policies and decision making in support of better attainment of NDC through the advising of practical implementations of proven capacity for enhanced outcomes.

II- INTRODUCTION

An effective employment of the recommendations that will be herewith detailed for NDC policy alignment to EbA & Agroforestry, obligate the treatment of certain themes and concepts to advise consistency and relevance shared below.

A- Ecosystem-Based Adaptation (EbA): Concept and Applications

Ecosystem-Based Adaptation (EbA) is an innovative approach that leverages the sustainable management, conservation, and restoration of ecosystems to help communities adapt to the adverse impacts of climate change.

- Unlike traditional engineering solutions, EbA emphasizes the contribution of nature and natural systems to provide resilience against climate shocks, enhance livelihoods, and maintain ecological integrity.

- The concept recognizes that healthy ecosystems—forests, grasslands, and other—offer natural buffers against climate hazards such as floods, droughts, heatwaves, and storm surges, while simultaneously delivering multiple co-benefits, including biodiversity conservation, carbon sequestration, and water regulation.

Adoption of EbA as a climate adaptation measure has gained traction because it offers cost-effective, sustainable, and socially inclusive solutions. Success points include stakeholder engagement, integration of traditional ecological knowledge, institutional support, and access to financial incentives such as green bonds or economic schemes.
EbA's promotion is underpinned by its ability to provide multiple, synergistic outcomes: reducing climate vulnerability, enhancing food and water security, creating green jobs, and supporting economic resilience. Expected results range from improved disaster risk reduction and stabilized microclimates to strengthened community well-being and biodiversity preservation.
Critical to implementation is a systemic approach that combines scientific assessments, participatory planning, and adaptive management. EbA is increasingly embedded in national adaptation plans, urban resilience strategies, and regional climate policies, reflecting its recognition as a viable, long-term alternative to grey infrastructure. By aligning conservation goals with climate adaptation objectives, EbA represents a paradigm shift in sustainability planning, emphasizing the inseparable link between human well-being and the integrity of natural systems. Its widespread promotion and replication are expected to deliver enduring ecological, economic, and social benefits, establishing EbA as a cornerstone of climate-smart development globally.

B- Agroecology/Agroforestry: Concept, Applications, and Global Impact

Agroecology/Agroforestry is a land-use system that integrates trees and shrubs with crops and livestock to create more diverse, productive, sustainable, and resilient farming landscapes. This approach blends agricultural and forestry practices, providing ecological, social, and economic benefits. It is based on the understanding that trees contribute to the farm ecosystem by improving soil fertility, conserving water, enhancing biodiversity, and providing shade and wind protection, while still allowing for agricultural production.
Globally, agroforestry systems are applied in diverse forms, ranging from alley cropping and silvopasture to forest farming and windbreaks. Adoption of agroforestry has proven successful across different regions due to its ability to address multiple challenges simultaneously, such as food security, climate change mitigation, and environmental degradation. Active participation from farmers, access to training and technical support, and the introduction of financial incentives or alternatives, such as subsidies, green jobs, or carbon credits, are important foundations. Agroforestry has been widely promoted because it provides a sustainable alternative to conventional monoculture farming, which often leads to soil erosion, loss of biodiversity, and declining productivity.
The expected results and benefits of agroforestry are profound. These include enhanced biodiversity, increased carbon sequestration, improved water management, and better resilience to climate change impacts, such as droughts and floods. Economically, agroforestry systems can increase farm productivity, reduce dependency on external inputs, and offer diversified income streams through multiple alternative products. Moreover, agroforestry practices promote high

socio-cultural contributions to rural life and livelihoods by valuing rural countryside, creating new jobs, and enhancing community resilience.
In summary, agroforestry represents a critical strategy for sustainable agriculture, promoting environmental health, economic stability, and social equity. As a climate-smart solution, it addresses key challenges of land degradation, food security, and climate adaptation, making it an essential practice for global agricultural transformation.

C- Jordan NDC Reflections

Jordan is one of the Levantine countries that have elaborately produced policies and governance structure pertinent to addressing climate change and its impacts.

- Jordan developed its first Intended Nationally Determined Contributions (INDCs) in 2015, published in 2016. The National Climate Change Committee (NCCC) chaired by the Ministry of Environment is the reference authority to produce the INDCs.
- The 2020 NDC update marked remarkable achievements at advancing the governance structure and organization to meet climate commitments.
  - Jordan has developed
    - The National Climate Change Bylaw (No. 79, 2019) including procedures for climate change activities and planning processes
    - The NDC Action Plan in 2019
    - The National Adaptation Plan in 2021
    - The National Climate Finance Plan
    - The National Climate Change Policy (NCCP) for 2013-2030
    - The Fourth National Communication report (FNC) to the UNFCCC in 2022.
  - Climate change action was also decentralized with the governorates producing their local action plans, thus enhancing efficiency and attainment of national goals.
  - Jordan also developed sectoral action plans addressing the different sectors.
- The NDC 3.0 of September 2025 rightfully states the significant achievements of the past period to meet the ambitious contribution measures in the various sectors. Of the promised 31% reduction in GHG, 28.5% were achieved by shifting to renewable energies.

D- EBAR Project Contributions

The project 'Ecosystem-Based Agriculture Resilience in the Levant through Agroforestry (EBAR)' employed agroecology/agroforestry practices and techinques to advance climate resilience with Ecosystem-based Adaptations. Our EbA-AF complex is structured to support agriculture productivity to attain food security, increase soil fertility and support farmer livelihood by developing the foundations for a sustainable agriculture system and management through the use of natural ecosystems and biodiversity. Local biodiversity elements are employed for their specific virtues to develop more stable agriculture systems and better managed farmlands that are increasingly adapted to overcome climate impact, shocks and induced losses. For that, the designed agroforestry system is nested in the broader ecosystem of the target regions, and draws its functionality from the natural ecosystem.

EBAR is a regional project to promote sustainable agriculture with ecosystem-based adaptations in the Levant; it was implemented in Lebanon, Syria and Jordan through national organizations

as country partners. The Friends of Nature-Lebanon is the lead non-governmental organization with a history at developing the national agroforestry portfolio since 2015; FON is responsible for project structure, supervision and monitoring, designing and driving implementation and capacity building of the three partners, as well as the portfolio of Lebanon.
Jordan's national partner, the *National Center for Research and Development (NCRD)* received capacity building and knowledge transfer from the lead partner to establish a nucleus unit in Jordan, versed at addressing and implementing the Ecosystem-Based Adaptation/Agroforestry complex in their network. A prototypic implementation module was executed in the region of Ajloun taking the Ajloun nature reserve for the local ecosystem. In collaboration with the Royal Society for the Conservation of Nature (RSCN) whose direct legal responsibility is managing natural reserves in Jordan, and since the project falls within the Ajloun Biosphere Reserve, NCRD trained nearly 60 farmers in the vicinity of the reserve on the principles of agroecology/ agroforestry and its integration in their farmlands taking the Ajloun reserve for a natural reference. The NCRD team also engaged in collection of local knowledge.

Project achievements are outlined as follows.

1. The NCRD team now constitutes the national representative or focal point or focal reference who harness enhanced capacity from knowhow to skills, training material, and hands-on experience to expand project objectives and outcomes for national outreach and to drive farm applications.
2. The developed and executed module is now available for replication across Jordan to support both agriculture and natural ecosystems.
3. The EBAR project addresses directly the needs and commitments declared in the 2021 NDC update to build on for policy enhancement jointly with implementations. Certainly, NCRD represents the national actor for this contribution.

III- IMPORTANCE OF THIS PAPER FOR CLIMATE-NDC POLICY INFLUENCING

1. 2025 marks the end of the 5-year interval for the sequential updating of NDCs. Jordan's NDC update could be now in progress. This paper comes timely to suggest amendments to incorporate into the coming update based on the above detailed engagements and EBAR project achievements. Suggestions are focused on certain key aspects brought forward from 2021 NDC update to influence new adoptions and directions.
2. The NDC embodies the national commitment of the global agenda consequent to the Paris Agreement. EBAR project stems from the global concerns and approaches of climate impact to advance national accomplishments. For that, EBAR is targeting climate policies, NDCs in particular, to converge this reciprocity between national and global frameworks.
3. NDC implementation in Jordan corresponds with a broad framework of governance and legislations. By targeting the NDC, any policy introduction, amendment or development will permeate to the various channels responsible for NDC implementation; this facilitates addressing a broad scope concept and action such as EbA-Agroforestry complex value for climate resilience and its ensuing treatment and integration into the national framework.

IV- NDC POLICY RECOMMENDATIONS FOR EbA-AF INTEGRATION IN NDC UPDATES AND ENSUING POLICIES AND FRAMEWORKS

The following insights and recommendations are based on the 2021 NDC 2.0 and 2025 NDC 3.0 updates, and will refer to the content of these updates to advise improvement and integration of EbA-Agroforestry complex.

Importantly, NDC3.0 maintains a focus on adaptation, involvement of more sectors and the effective engagement of stakeholders in a whole of society approach. That is where this paper is highly relevant to make a difference. Nonetheless, it is important to recap on the adaptation measures undertaken; these majorly include Nature-based climate solutions as:

- Expanding afforestation and rangeland restoration by additional 1000 dunums and 1 million afforested trees planted; 32500 trees also planted in urban areas; thus, totally sequestering around 11,900 tons of CO2- equivalent each year
- expanding water harvesting techniques,
- enhancing sustainable and smart agriculture, and innovative agricultural practices,
- and promoting climate smart land use planning.

The Economic Modernization Vision (EMV 2023-2033) emphasizes water efficiency, climate smart practices in agriculture and forestry, and circular economy, while incentivizing climate resilient agriculture through Central Bank of Jordan. EMV unit is affiliated with the Ministry of Planning and International Cooperation (MoPIC); it is tasked with reviewing and updating NDCs for national, regional, and international implementations.

- For that, this paper is highly important to support the above measure through the employment and incentive building on EbA-Agroforestry complex to plays its role in a smarter climate resilient agriculture embedding effective use of water toward productivity as well.

Following are the means for integration of EbA-Agroforestry complex in Jordan's climate vision stemming from both NDC 2.0 and NDC 3.0, as the former was more cater to sector development.

A- WATER AND AGRICULTURE SECTORS

NDC2.0 indicated that both sectors had strategies provisioned to support resilience and improvement. Their strategies end in 2025, which makes this year decisive toward the evaluation of outcomes and the development of the following phase. Thus, this policy paper is of high significance to come in time to adopt amendments into the following policy cycle.

- The National Water Strategy (2016- 2025) incorporated provisions for climate change, water-energy-food nexus, sustainability of overexploited groundwater resources, the adoption of new technologies including decentralized wastewater management, and reuse of treated wastewater, as well as commercialization and consolidation of wastewater services and increasing private sector participation.

- The National Strategy for Agricultural Development (2016-2025) had the goal of sustainable development of agricultural resources that will preserve the biodiversity, favor investment and create a close link between production and market demand.
- The National Food Security Strategy guides transformation to more efficient inclusive resilient and sustainable Agri-food systems for better production, better environment, and better life.

NDC3.0 expresses an Economic Modernization Vision (EMV 2023-2033) that expands the adoption of climate smart practices in agriculture and forestry, providing examples as precision irrigation and other.

Recommendation

The EbA-Agroforestry complex provides significant benefits to water, agriculture system and food production, particularly to make these sectors sustainable, as will be realized in the following sections. For that, we recommend that:

- the sequels of the above three strategies integrate this complex. EbA and agroecology/agroforestry have immense potentials to support the development of these sectors. It is important to recognize their benefits and the roles they can play, and to define their uses and applications in what supports each strategy and assists at enhancing each sector.
- NDC3.0, following updates and resulting strategies integrate EbA and agroecology/ agroforestry as a fundamental measure to enhance the climate smart practices, and to include those in the for financial frameworks for bank incentives to agriculture, for all the benefits engendered from this complex into climate resilience, adaption and mitigation combined.

B- AGRICULTURE IN THE MITIGATION SCOPE

In **NDC2.0**, Agriculture was assessed to emit 1% of the total emissions, but still the sector is found to be a contributor and not a sink for carbon dioxide.
The prospected measures to achieve the NDC target included:

- Climate smart agriculture
- Urban tree plantations
- Rangeland restoration
- Forest tree and side road Plantations

NDC3.0 still voice these targets knowing that great accomplishments were attained in the sectors.

Comment

The EbA-Agroforestry complex is an excellent methodology for transforming the agriculture sector from emitter to sink and sequester of CO2. The various techniques and practices can be tailored to enhance carbon sequestration. The complex can be incorporated in the natural landscape as well as the productive landscape with high flexibility to tackle challenges.

Recommendation

- We recommend to enhance the implementation of EbA-Agroforestry complex on agriculture lands and to promote its applications on large scale to provide a substantial impact on carbon footprint.
- We recommend that the complex be part of all the defined mitigation measures where it fits perfectly well based on its criteria and engendered benefits for the sector and climate mitigation combined.

C- NATIONAL ADAPTATION PLAN

***NDC2.0** Statements*

As stated in the 2021 NDC update: "National Adaptation Plan (2021) consolidate the country's vision on adaptation supported by the prioritized adaptation actions that link the economic sectors and country level vulnerabilities to enhance long-term resilience and adaptive capacity with consideration for gender and the needs for the most vulnerable groups. The NAP identified seven vulnerable sectors to climate change, these are the agriculture, water, urban, biodiversity, coastal, social and economic development and health."

NAP includes the sectoral vulnerability analysis, the sectoral adaptation measures and the roadmap for implementation. The implementation measures are identified as follows:

1. Policy based measures.
2. Technology based measures.
3. Social mobilization-based measures.
4. Nature based measures.
5. Economic development-based measures

Recommendations (referenced to the above underlined statements)

i. 3 of the 7 identified vulnerable sectors can be well influenced by agroecology/agroforestry applications to provide better resilience, namely agriculture, water and biodiversity.
   - We recommend to feature EbA-Agroforestry complex in these three sectors for adoption of implementation. NCRD is capable to play the national unit to provide support on implementations.

ii. Socio-economic development would also be well enhanced with agroecology/agroforestry providing social and economic benefits. The benefits of EbA-Agroforestry complex would be reaped in socio-economic advancement either as a result of implementation or as a drive for implementation or both.
   - If treated as a drive, then we recommend to integrate EbA-Agroforestry complex as a concept and means for implementation under the socio-economic sector too. This equally justifies the integration of EbA-Agroforestry complex under the economic development measures (measure 5).

iii. EbA-Agroforestry embodies the Nature-based Solutions (measure 4)
   - We thus recommend that the EbA-Agroforestry complex be profusely adopted and managed under this measure to become a major focus of implementation for its broad benefits.

iv. EbA-Agroforestry implementation needs to be supported through policy to generate broad scale benefits to the many sectors and over the largest terrain and implementation possible.
    - We thus recommend that this complex be integrated into the policy-based measure (measure 1) in order to facilitate adoption by faculties and departments and throughout the governance bodies, reaching down to implementation actions.

v. Collectively, we recommend the engagement of media and social media to support at social mobilization in order to promote EbA-Agroforestry complex to farmers and public at large, as well as spreading awareness on success stories and practices, and environmental issues generally (measure 3 was *highlighted by stakeholders in the consultation workshop)*

D- WATER MASTER PLAN FOR WATER RESOURCE MANAGEMENT

The Water Master Plan identifies Climate Change impacts as one of its pillars, and recognizes the use of water in agriculture as an important factor for resilience and adaptation.

***NDC2.0** Statements*

As stated in NDC, the key strategic approaches for addressing adaptation challenges in the water sector are defined as follows:

1. Integrating Climate adaptation and resilience in policy and institutional reforms in the water sector
2. Improved water demand management and reducing gap between water demand and supply
3. Improving adaptive capacity of water utilities
4. Improved efficiency in water use for sustainable development
5. Improving contribution of non-conventional water resources to the national water budget
6. Improving rainfall early warning systems and reducing flood risks
7. Supporting watershed and basin level management of water resources including transboundary water

Recommendations (referenced to the above underlined statements)

i. We recommend to integrate EbA-Agroforestry complex under approach 4 because EbA-Agroforestry complex is beneficial to improve the efficiency in water use for sustainable development at least in the agriculture sector. In Agroecology/agroforestry farming systems, the amount of water invested in crop production will be tailored for effective use and reduced losses in various forms.

ii. With the above effect, we strongly recommend to integrate EbA-Agroforestry complex under approach 2. EbA-Agroforestry surely enhance water demand management in the agriculture sector to rationalize supply and balance water use toward higher productivity; thus, its integration under approach 2 would also be highly beneficial.

iii. For enhanced broad-spectrum implementations and proper support from governance, EbA-Agroforestry endorsement in respective policies and institutional reforms (approach 1) will promote better implementation and attainment of resulting benefits in shorter time. We thus recommend to address the integration of EbA-Agroforestry complex under approach 1.

iv. Watershed and basin level management (approach 7) would greatly benefit from incorporating EbA-Agroforestry concept and applications into the management tools and advising the agriculture sector and the conservation/environment sector to employ this measure. Thus, featuring EbA-Agroforestry complex under approach 7 is highly recommended.

v. EbA-Agroforestry complex presents an effective mean to reduce and prevent flood risks. We recommend to feature this complex under approach 6 (*This was highlighted by stakeholders in the consultation workshop*).

E- CLIMATE CHANGE POLICY FOR RESILIENT WATER SECTOR

The "Climate Change Policy for Resilient Water Sector" was developed in 2016 to provide concepts, solutions, and implementation mechanisms for building resilience to climate change.

Recommendation

EbA-Agroforestry plays a substantial role at enhancing the effectiveness of water use in agriculture and protection of water volumes. We recommend that EbA-Agroforestry be devoted an explicit lead status at the policy level, and be well integrated in all implementation activities to protect the water volumes.

F- CLIMATE –SMART AGRICULTURE ACTION PLAN

Jordan developed the "Climate –Smart Agriculture Action Plan" which aims to strengthen farmers adaptation and resilience to climate change and support mitigation efforts as well. Climate Smart Agriculture is recalled in **NDC2.0** and **NDC3.0**.

Recommendation

i. As explained in the above sections for policies and actions, we highly recommend that the Climate –Smart Agriculture Action Plan acknowledges the importance of EbA-Agroforestry complex for its added value at strengthening farmers adaptation, resilience and general mitigation efforts, and derives the implementation modules from the complex with its practices and techniques. NCRD has pioneered an initiative for such implementation, which can be built on and expanded over large scale.

ii. We also recommend that the action plan develops a roadmap for broader farmer engagement in EbA-Agroforestry with well-defined targets and actions to achieve results. Again, NCRD team can provide support with the capable unit established to conduct the activities.

G- AGRICULTURE AND FOOD SECURITY

Agriculture sector will be facing serious challenges. As stated in 2021 NDC update, the key strategic objectives and approaches to address those challenges include several entries; only relevant entries are selected for recommendations below.

*G1. **NDC2.0** Statements*

Integrating climate resilience in the policy and institutional reforms in the agriculture sector through the following key measures:

1. Developing & implementing a climate change agriculture resilience investment plan
2. Providing economic incentives for climate change mitigation and adaptation programs at farm levels
3. Activation of land use laws to prevent urban expansion on agricultural lands
4. Modification of policies and implementation of action plans with emphasis on socioeconomic strategies intended to meet the agricultural impacts of climate change
5. Enhancing the capacities of climate change related unit and directorates at Ministry of Agriculture and NARC.

Recommendations (referenced to the above underlined statements)

We highly recommend the integration of EbA-Agroforestry complex in the policy of the agriculture sector to attain its valuable benefits. The key measures that would best support this integration are:

i. The agriculture resilience investment plan (measure 1) can support agroforestry practices financially and facilitate investments toward their implementation. The plan should explicitly integrate agroecology/agroforestry techniques and practices as ecosystem-based resilience factors favorable for long-term investment.

ii. Economic incentives at farm level (measure 2) are recommended to include a consideration for the support of farm development into EbA-agroforestry systems.

iii. Policies for socioeconomic strategies (measure 4) also would benefit farmers tremendously by including EbA-agroforestry applications under the policies and implementation action plans, and as part of the strategies to enhance socio-economic benefits in agriculture and rural development. It is recommended that these tools include clear statements of support for development of EbA-agroforestry systems.

iv. C.C units and directorates (measure 5) must enhance their capacities to treat agroecology/agroforestry properly with appropriate endorsement measures; it is advisable to provide capacity building for the relevant governance structure to incorporate EbA-agroforestry systems, promote and support their implementation.

*G2. **NDC2.0** Statements*

Improving drought management systems through a set of key measures.

1. Enhancement of the effectiveness of the drought management system
2. Strengthen the financial resources available for compensation of farmers after drought
3. Establishment of subsidy programs to prevent the collapse of animal production
4. Use of farmers' indigenous knowledge and tradition to adapt to climate change under drought conditions

Recommendations (referenced to the above underlined statements)

i. EbA-Agroforestry is instrumental to enhance effectiveness of combating drought. We recommend to integrate the EbA-Agroforestry complex under measure 1 in the management system as a tool, in association with other means.
ii. Recapping on farmers knowledge is a way employed to broaden agroforestry applications tailored to the specificities of their regions; incorporating local knowledge of local species and their benefits would revive the culture and reproduce the benefits in a sustainable approach. It is thus recommended to include EbA-Agroforestry under measure 4 as a mean of employment and protection of local knowledge.

*G3. **NDC2.0** Statements*

Improving irrigation system efficiency

To enhance the effectiveness of irrigation systems in Jordan through various interventions at policy and practice levels including water harvesting, improving soil water storage capacity, use of supplementary irrigation, reduce soil erosion through community management, use of Ecosystem based Adaptation (EbA). Some key measure are:

1. Develop soil-water-plant monitoring programs (e.g. crop/environment forecasting, RS and GIS, lysimetric, etc.)
2. Water harvesting techniques, maximizing treated waste water re-use in agriculture, improving water use efficiency and the augmentation of drip irrigation in irrigated areas
3. Improving soil water storage and retention to maximize plant water availability by maximizing infiltration of rainfall
4. Use of supplemental irrigation from harvested rainwater in the critical stages of crop growth achieved through on farm rainwater harvesting and management system
5. Reduce soil erosion through community management, use of Ecosystem based Adaptation (EbA) measures and harvesting of rainwater amongst small farmers in rural areas
6. Shifting to water efficient crops
7. Supporting hydroponic and other water tolerant agricultural productivity systems
8. Enhancing productivity of rangeland management
9. Improving sustainable productivity of food chains

Recommendations (referenced to the above underlined statements)

i. Interestingly, Ecosystem-based Adaptation is noted in the NDC only under irrigation system efficiency. We recommend to expand on EbA measures from an Agroforestry approach and other as well under all the potential clauses as proven above, and not limit to irrigation efficiency as stated herein. We also recommend to link EbA-Agroforestry to the various measures that can be influence fundamentally, whether from policy to incentives and economic value down to application.
ii. EbA is also valuable at enhancing productivity of rangeland and their management in an Agroforestry system.
iii. EbA-Agroforestry categorically enhances soil water retention and levels.
iv. EbA-Agroforestry is not limited to a narrow scope of application, but can drive the above various measures in a positive productive way.

H- BIODIVERSITY AND ECOSYSTEMS

***NDC2.0** Statements*

Under section 4.3.1 of the NDC update, it is stated: Increasing the scope of ecosystem-based adaptation and climate-based planning in protected areas and special conservation areas.
There is a vital need to introduce and enhance Nature Based Solutions (NbS) for climate change adaptation and sustainable use of ecosystem services. This would include the identification and implementation of appropriate Ecosystem Based Adaptation (EbA) tools especially in Protected Areas and Special Conservation Areas under adequate management before replicating these solutions in other areas in Jordan. Key measures under this objective include:

- Implement ecosystem-based approaches to adaptation to protect, maintain, and restore degraded habitats with active community.

***NDC3.0** Statements*

With the appreciated accomplishments of the previous phase, NDC3.0 envisages afforestation to be employed for bridging biodiversity corridors and large-scale rangeland restoration in line with NBSAP.

Recommendations

The second mention of EbA in the 2021 NDC2.0 update was in this section, which concerns the natural ecosystems.

- Through EBAR project, NCRD established a prototype for broader implementation addressing the Jordanian context within the vicinity of nature reserves. With Agroforestry leading in the surrounding farmlands, protection to biodiversity and habitats from agro-pollutants is attained.
- In addition, agroforestry improves agriculture production employing local biodiversity, which adds value to the reserve and biodiversity, and promotes their expansion and sustainable use.
- Similarly for NDC3.0 statement, EbA-Agroforestry provides effective measures and techniques to establish biodiversity bridges and corridors across landscapes with and without integration of arable lands.
- We thus recommend to integrate the above pointed options for EbA-AF complex as part of the understanding of biodiversity protection, corridor bridging, and sustainable use.

I- THE GOVERNMENT INDICATIVE EXECUTIVE PROGRAM (GIEP)

***NDC2.0** statements*

The Government Indicative Executive Program (GIEP) (2021-2024) is a governmental planning framework that focuses on sector strategies and fiscal reforms. The program indicates supportive measures to enhance the implementation of the NDC Action Plan and Green Growth Action Plan including harmonizing the national policies to maximize the benefits.

Recommendation

i. Similarly for an effective and result oriented GIEP program and to raise the advantages of implementations, EbA-Agroforestry need to feature in the strategies and reforms under this program. This will assist to provide proper guidance to governed action plans to adopt EbA-Agroforestry applications, practices and techniques, to integrate and advance the respective contributions for NDC attainment.

ii. Since one of the GIEP tasks is to harmonize national policies, and as this project is recommending the featuring of EbA-Agroforestry in more than 1 policy or action plan, GIEP program would be a great support to diffuse EbA-Agroforestry benefits in all relevant policies and action plans. It is of particular significance that the GIEP adopt and integrate the EbA-Agroforestry systems and practices under all its activities and headings.
    - EbA-Agroforestry would thus be incorporated in the resulting improvement of responsiveness to national priorities and their implementations.

iii. As recommended under agriculture and food security, it is advisable to enhance the capacity of a large scope of stakeholders from state and non-state actors to address EbA-Agroforestry, with the state actors including climate officers and units and various directorates of relevant sectors. The GIEP program is apparently the most inclusive umbrella to undertake this mission for inclusivity and best harmonization of governance outputs in the climate resilience dimension.

iv. Nonetheless, it is important to recognize in parallel "**The ECONOMIC MODERNIZATION VISION**" at the Ministry of Planning, which is an active and comprehensive body that groups and connects a broad network of state and non-state actors and should be well consulted (*highlighted by stakeholders in the consultation workshop and in NDC3.0)*

J- NDC MEANS OF IMPLEMENTATION

***NDC2.0** Statements*

The means of implementation of NDC specifies 3 main means:

1. Capacity building
2. Technology transfer
3. Finance

***NDC3.0** Statements*

In NDC3.0, stakeholder engagement as a leverage for whole-of-society approach is strongly emphasized to support formulation and implementation.

- Capacity building with targeted training and technical assistance to enable stakeholders to design mitigation and adaptation measures is well stated as support required at the sectoral and subnational levels.

Recommendation

The EBAR project provides attestation to the validity of the identified means to achieve the set results.

i. Knowledge transfer was conducted between Lebanon and Jordan teams to set the information base and enhance partner's capacity to deliver.

ii. Capacity building was employed to advance the skills of the NCRD team to transfer the information down to farmers through capacity building of grassroots.
iii. Stakeholders were engaged to advise the policy recommendations in a participatory approach to the bottom-up linkage of implementation to governance and decision-making through NDCs.
iv. Finances were necessary to accomplish. The project engendered generous funds from IUCN-Global EbA Fund to support project execution on a topic that is finding increased support in the donor sphere.

Accordingly, we recommend to adopt such structured process and procedure to support further implementations of EbA-Agroforestry on a broad national scope.

V- CONCLUSION

This policy influencing paper is produced to advise and orient the future updates and implementations of NDCs to be the more inclusive and representative of the EbA-Agroforestry integrated concept in support better implementation in agriculture, rural and natural landscapes.

In December 2025, the ND-GAIN Readiness Score for Jordan is 0.387 ranking 96 of 198 countries; whereas ND-GAIN Vulnerability Score is 0.366 ranking 49 of 198 countries. ND-GAIN Country Index of Jordan ranks 74 among countries with a score of 51. Indices reveal low vulnerability and good readiness to absorb climate impact, applauding the achievements of the past 5 years at transforming the susceptibility and high vulnerability of Jordan and reversing the trend.

An outcome of this policy paper is to further support enhancement of the readiness of Jordan, and reduce its vulnerability in the future.

- Since 45.45% of the natural hazards occurring in Jordan are related to types of floods induced by climate change impact, such as flash floods, the EbA-Agroforestry complex can be highly beneficial to reduce these hazards when implemented on landscape level.
- Similarly, storms contribute 27% of the natural hazards, and drought accounts for 18% of the natural hazards; both hazards can be well treated with the EbA-Agroforestry complex to reduce threat and frequency.
- Heat and landslides are considerable hazards that require careful attention.

Thus, the contribution of this concept to Jordan's resilience would be highly substantial when integrated in future NDC updates to gain potentials for national upscaling.

ANNEX 1

GENERAL RECOMMENDATIONS OF STAKEHOLDERS

This paper was presented to a group of stakeholders for discussion and feedback. Stakeholders generously provided general comments and recommendations that are captured herein. The more specific recommendations are integrated into the body of this document.

A- FUNDING

The subject of funding was raised to support activities discussed in this paper, particularly the adoption and implementation of Ecosystem-based Adaptation -Agroecology/Agroforestry.

- NDC 3.0 answers this question through the financial framework designed for climate actions from national and international resources. It also presented a scheme of incentives to be offered by the Central Bank of Jordan for sectors.

B- NATIVE KNOWLEDGE AND PRACTICES

a- Traditional Knowledge

Comment: Jordan is rich in traditional knowledge of various uses. The need to collect this knowledge was brought to light and is indeed of significance for many sustainable practices.

- NCRD team tried to capture this knowledge in the region of Ajloun
- Dedicated effort needs to be invested to truly support this topic on national scale, collect and verify the information. Afterwards would come the stage of dissemination of information.

b- Nature-Based Solutions

Comment: Compilation of NbS in native experiences and knowledge is important to advance their application

- A list of practices was compiled by ICARDA.

c- Agricultural Practices

Comment: are the agricultural practices documented? Some examples were provided by stakeholders

- RSCN reintroduced the buffalo through a rangeland project revived a traditional practice.
- Organic farming and permaculture exist in Ajloun, they constitute important lessons to learn from.
- FAO also established an architype in Ajloun for forests and women, where non-timber products were produced such as Carob products, and generated economic advantages as well as protection for the forests. Capacity building was provided to enhance knowledge and social media played a role at spreading information.
- NARC provide a successful agroforestry experience in Ajloun with farmers planting carob trees and employing land underneath for vegetable production.

Recommendation: design future projects specific for the purpose of

i. collating and filtering traditional knowledge

ii. documenting native NbS with a description of where they are applied and how to enhance re-application.
iii. collecting agricultural practices.

C- PRACTICAL KNOWLEDGE ON FLORA

Comment: There are huge gaps to total lack of knowledge on native plant species that can or should be planted. If a list of exists, there is no reference on where they are found and where to plant them,…

- Endemics are not available in nurseries either.

Recommendation: design future projects to compile the knowledge on local flora for their uses not only for biodiversity value.

D- GOVERNANCE

Comment: There is fear that the national committees for the sectors do not network; they are scattered and fragmented.

iv. Solution: The Economic Modernization Vision (EMV) is the body that is reconsolidating networking and coordination among national committees and all relevant bodies. EMV stands as a national reference to enhance governance.

Recommendation: fear engage EMV on agroforestry integration in climate policy and mainstream it in governance frameworks.

E- SUSTAINABILITY OF PRACTICES

Comment: There is fear that activities, initiatives and outputs are not sustained over long-term after projects end, but lose impact with time.

- Plantations are majorly based on funded projects. People are not finding enough incentive to keep planting or taking care of orchards after project ends.
- Grazing is not restricted and overgrazing is becoming more and more present in the arable lands of Jordan; they are not based on prior assessment of land and soil.

Recommendation:

- create and activate monitoring systems, rangers, environmental police and the judicial police, not limited to sustainability.
- sensitize people to appreciate the importance of their lands and plantations.
- Conduct follow up assessments.

F- ENVIRONMENTAL MEDIA AND AWARENESS

Comment: mediatic coverage for the environmental success stories is nearly absent.

Recommendation:

- address the media to provide time for the national efforts on environment and climate, such as the reforestation and afforestation initiatives, and other.
- Augment environmental awareness and its cultural value.

- Leverage environmental and agricultural engagement on modern social media platforms to reach a broad audience, particularly youth.

G- CONCERN OVER DATA AND INFORMATION

Comment: The need for data and information surfaced many times, it captures the high concern of the stakeholders to the quality, availability, and accessibility of information. Some of the concerns are:

- What applies where from plant species to practices, care, sustainability, irrigation, etc
- How to reconstruct the natural ecosystem? Indicators are required and requested.
- A need to study, research and assess the native and local plants beneficial for agroforestry/agroecology. Support for research is generally needed.
- How to refer to good practices and how to select them?
- Of the many applications that were conducted on all levels, which were successful? Need to know.
- Studies and information on climate change should be provided, by ministries or other; stakeholders need to be aware and able to retrieve accurate information if they wish to base projects on relevant studies
- Monitoring and evaluation should not be neglected, for agroforestry or other, to tailor practices to Jordanian territory.

HEADLINE RECOMMENDATION: as a priority in answer to the above, we recommend to

HOLD A NATIONAL CONGRESS FOR DATA COLLECTION

We, as NCRD and Friends of Nature, take this endeavor for a priority for future planning. The objectives of the congress are to

- capture and answer the multiple concerns of stakeholders transparently and objectively,
- conduct extensive consultations with broader array of stakeholders, which is essential given the constructive engagement the small group of stakeholders revealed in this consultation
- Coordinate all the efforts and network to maximize interest and use
- compile the good exercises and the wrong/faulty exercises, which are equally important to learn from so same mistakes would not be repeated. (what went wrong and why to avoid). Apparently, a lot of good lessons were generated, but also some failures were reiterated.
- Collect the information and data produced by the many actors in the field: who did what? so this information would not remain fragmented and only remembered by those who encountered it.
    - Produce lists of the accurate information, references, projects, etc.. and their results
    - Determine accessibility of the information (links, libraries, etc..) and trusted source

- Filter the information for value, preference, outcome, duplication, etc… and for updating and upgrading
- Develop means to interpret and present the information to end users
- Identify gaps to be filled by research and further studies
- Determine priorities and applicability
- Develop a roadmap for future implementations and proper use of available information to leverage practices.

STAKEHOLDER ENGAGEMENT

Stakeholder dialogue took place at the national partner premises, the National Center for Research and Development. The concurrent holding of large workshop at the Ministry of Environment precluded the participation of some stakeholders. Nonetheless, the attendees reflected a significant representation of important establishments. 10 establishments were represented through 12 participants.

Stakeholder affiliations

Governmental

- Ministry of Agriculture - Ajloun Agriculture Directorate
- National Agricultural Research Center (NARC)

iNGOs

- International Center for Agricultural Research in the Dry Areas (ICARDA)
- Food and Agriculture Organization of the United Nations (FAO).
- Land Degradation Neutrality (LDN) Initiative
- International Union for Conservation of Nature - IUCN-ROWA
- IUCN West Asia Councilor

Academia

- University of Jordan

National NGOs

- Royal Society for the Conservation of Nature (RSCN)
- Jordanian Society for Desertification Control and Badia Development