



LEBANON'S NATIONAL
BIODIVERSITY
STRATEGY AND ACTION PLAN

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Established in 1993, the Lebanese Ministry of Environment is the national authority responsible for developing environmental policies and strategies, preparing environmental legislation, coordinating environmental action across sectors, and ensuring the protection and sustainable management of Lebanon's natural resources. The Ministry promotes sustainable development through biodiversity conservation, pollution prevention and control, environmental assessment, climate action, natural resource management, environmental monitoring, and the implementation of national, regional, and international environmental agreements, in collaboration with public institutions, local authorities, civil society, academia, the private sector, and international partners.

The GEF is a family of funds dedicated to confronting biodiversity loss, climate change, pollution, and strains on land and ocean health. Its grants, blended financing, and policy support helps developing countries address their biggest environmental priorities and adhere to international environmental conventions. Over the past three decades, the GEF has provided more than \$23 billion and mobilized \$129 billion in cofinancing for more than 5,000 national and regional projects.

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Foreword

Lebanon's rich biodiversity is far more than a natural asset; it is a living expression of our country's identity, resilience, and shared heritage. From its mountains and forests to its rivers, coasts, and valleys, this natural wealth has long sustained our environment, shaped our communities, and enriched our cultural and economic life. Yet today, this precious legacy faces mounting pressures driven by unsustainable land use practices, pollution, climate change, economic hardship, and increasing anthropogenic impacts.

In response to these pressing realities, I am pleased to present the updated National Biodiversity Strategy and Action Plan (NBSAP) 2025, through which Lebanon renews its national commitment to the conservation, sustainable use, and equitable sharing of the benefits arising from biodiversity. This strategy reflects our collective responsibility to safeguard the ecological foundations upon which present and future generations depend.



The NBSAP 2025 promotes integrated action across sectors, recognizing biodiversity not as an isolated environmental concern, but as a cross-cutting pillar of sustainable development and national resilience. It advances ecosystem-based approaches, strengthens biodiversity governance, supports local communities, and reinforces synergies with climate change adaptation, disaster risk reduction, and the sustainable management of land and water resources. Importantly, it also provides a practical roadmap for implementation, monitoring, and resource mobilization.

The successful implementation of this strategy will require the shared commitment and collaboration of all stakeholders: government institutions, municipalities, civil society organizations, academia, the private sector, and local communities, supported by strong partnerships with international organizations and development partners. Protecting Lebanon's biodiversity is a collective responsibility and an enduring investment in the well-being, dignity, and future of our nation.

On behalf of the Ministry of Environment, I extend my sincere appreciation to all national and international partners who contributed to the preparation of this updated NBSAP, particularly the United Nations Development Programme and the Global Environment Facility. I call upon all stakeholders to join efforts in transforming this strategy into tangible action, so that Lebanon's natural heritage may remain protected, restored, and sustainably managed for generations to come.

Tamara Elzein, PhD
Minister of Environment

Foreword

Biodiversity lies at the foundation of sustainable development and effective environmental governance. In Lebanon, ecosystems and natural resources underpin livelihoods, food and water security, and economic resilience, even as the country continues to navigate compounded and protracted crises. Protecting and sustainably managing this natural capital is therefore not only an environmental necessity, but a critical development priority.

The United Nations Development Programme (UNDP) is proud to support the Government of Lebanon in the development of the updated National Biodiversity Strategy and Action Plan (NBSAP) 2025, a strategic milestone that reaffirms Lebanon's commitment to halting and reversing biodiversity loss in line with the Kunming Montreal Global Biodiversity Framework. This updated NBSAP responds to both global obligations and national priorities, providing a coherent, evidence based roadmap to guide action through 2030 and beyond.



Developed through an inclusive and participatory process, the NBSAP reflects strong national ownership and broad stakeholder engagement across public institutions, civil society, academia, and local communities. It strengthens policy coherence across biodiversity, climate change, and sustainable development agendas, while placing particular emphasis on implementation, monitoring, and accountability. The strategy highlights the critical role of local actors, including women and youth, as key partners in advancing nature-positive solutions, and underscores the importance of innovation, data-driven decision-making, and sustainable financing.

The NBSAP also provides a practical framework to translate global commitments into measurable national actions. By integrating biodiversity considerations across sectoral policies and development planning, it positions nature as a driver of resilience, risk reduction, and inclusive growth, especially vital in a context marked by economic pressures, environmental degradation, and increasing climate impacts.

I commend the Ministry of Environment for its leadership and stewardship throughout this process, and I extend my sincere appreciation to all national and international partners whose contributions helped shape this important strategy. UNDP remains committed to supporting Lebanon in operationalizing the NBSAP, strengthening institutional capacities, and mobilizing partnerships and resources to turn ambition into tangible impact.

Together, we can ensure that biodiversity conservation and sustainable use are embedded at the heart of Lebanon's development pathway, benefiting both people and nature, and becomes a driver of resilience, stability, and inclusive development, helping embed nature-positive solutions at the heart of Lebanon's long-term development trajectory.

Blerta Aliko

UNDP Resident Representative



List of Tables

Table 2-1	Species Richness in Lebanon	23
Table 2-2	Red List Status of Terrestrial Plant Species in Lebanon	24
Table 2-3	Red List Status of Terrestrial Animal Species in Lebanon	24
Table 2-4	Species Count Recorded in Each Nature Reserve (NR)	28
Table 2-5	Nature Reserves in Lebanon	30
Table 2-6	Nature Sites under the Protection of the MoE	31
Table 2-7	List of Protected Forests by the MoA	32
Table 2-8	Sites in Need of National Protection	34
Table 2-9	List of Himas	35
Table 2-10	List of Key Biodiversity Areas	37
Table 2-11	Lebanon's Ecological Footprint, Biocapacity, and Deficit in 2024	38
Table 2-12	Identified Wetlands of Lebanon	41
Table 3-1	Summary of Stakeholder Engagement Activities for the Update of the NBSAP	56
Table 4-1	Lebanese Legislation Related to Biodiversity	62
Table 4-2	Biodiversity-Related International Conventions Ratified by Lebanon	72
Table 4-3	Lebanese Policies, Strategies and Action Plans Relevant to Biodiversity	75
Table 4-4	Gaps in National Legal Framework Related to Each GBF Target, and Recommendations for Alignment	81
Table 5-1	National Target, Relevant GBF Goals and Target, National Action, Relevant Indicator, Responsible Party, Timeline, and Cost	155
Table 6-1	Examples of Financing Sources	253
Table 6-2	Stakeholders Communication Means Used during NBSAP Update Process and Recommended for NBSAP Implementation	263

List of Figures

Figure 2-1	Protected Areas in Lebanon	29
Figure 2-2	Important Bird Areas in Lebanon	36
Figure 2-3	Lebanon's Ecological Footprint and Biocapacity (per capita, 1961-2020)	39
Figure 2-4	Land Type Affected by Fires in Lebanon Between 2015-2023	44
Figure 3-1	Structure of the NBSAP 2016 Report and the Post-2020 Global Biodiversity Framework	53
Figure 6-1	Operationalization Plan of the NBSAP	248

List of ACRONYMS

ABCL	Association for Bird Conservation in Lebanon
ABD	Agrobiodiversity
ABS	Access and Benefit-Sharing
ABTs	Aichi Biodiversity Targets
ACE	Association for Community and Environment
ACNR	Abbassiyeh Coast Nature Reserve
AECID	Agency for International Cooperation and Development
AF	Adaptation Fund
AFD	Agence Française de Développement
AFDC	Association for Forests, Development, and Conservation
AFED	Arab Forum for Environment and Development
AFESD	The Arab Fund for Economic and Social Development
AHTEG	Ad Hoc Technical Expert Group
ALI	Association of Lebanese Industrialists
APJM	Association for the Protection of Jabal Moussa
ARE	Agriculture and Rural Empowerment
AUB	American University of Beirut
AUST	American University of Science and Technology
BCH	Biosafety-Clearing house
BDL	Banque Du Liban
BIOFIN	Biodiversity Finance Initiative
BLNR	Beit Leef Nature Reserve
BMZ	Federal Ministry for Economic Cooperation and Development
CAS	Central Administration of Statistics
CBD	Convention on Biological Diversity
CBNRM	Community Based Natural Resources Management

CBOs	Community Based Organizations
CCA	Climate Change Adaptation Strategy
CDR	Council for Development and Reconstruction
CDW	Construction and Demolition Waste
CEDAW	Convention on the Elimination of All Forms of Discrimination Against Women
CEO	Chief Executive Officer
CEPF	Critical Ecosystem Partnership Fund
CHM	Clearing House Mechanism
CIMIC	Civil-Military Cooperation Directorate
CITES	Convention on International Trade in Endangered Species of Wild Fauna and Flora
CMS	Conservation of Migratory Species
CNRS	Centre National de la Recherche Scientifique
CoM	Council of Ministers
COP	Conference of the Parties
CR	Critically Endangered
CSOs	Civil Society Organizations
CSR	Corporate Social Responsibility
DGUP	Directorate General of Urban Planning
DNR	Debl Nature reserve
DPNA	Development for People and Nature Association
DSI	Digital Sequence Information
EBI	Ethiopia Biodiversity Institute
ECODIT	Ecology and Development
EEA	European Environment Agency
EIA	Environmental Impact Assessment
ELARD	Earth Link and Advanced Resources Development

EN	Endangered
EPR	Extended Producer Responsibility
EU	European Union
FAO	Food and Agriculture Organization
FFEM	Fonds Francais pour l'Environnement Mondial
GBF	Global Biodiversity Framework
GBV	Gender Based Violence
GCF	Green Climate Fund
GCU	Genetic Conservation Units
GDI	Gender Development Index
GEF	Global Environment Facility
GET	Global Ecosystems Typology
GFC	Global Forest Coalition
GFDRR	Global Facility for Disaster Reduction and Recovery
GFN	Global Footprint Network
GHG	Green House Gase
GIS	Geographical Information System
GIZ	German Agency for International Cooperation
GM	Grievance Mechanism
GMO	Genetically Modified Organism
GoL	Government of Lebanon
GRM	Grievance Redress Mechanism
GYBN	Global Youth Biodiversity Network
HCH	Higher Council for Hunting
HDI	Human Development Index
HENR	Horsh Ehdn Nature Reserve
HI	Headline Indicator
IAS	Invasive Alien Species
IBA	Important Bird Area
ICF	International Climate Fund
ICZM	Integrated Coastal Zone Management
IDRC	International Development Research Center CANADA

IEE	Initial Environmental Examination
IFAD	The International Fund for Agricultural Development
IFS	International Financial Statistics
ILO	International Labour Organization
IOE - UOB	Institute of the Environment - University of Balamand
IPM	Integrated Pest Management
ISF	Internal Security Forces
ITPGRFA	International Treaty on Plant Genetic Resources for Food and Agriculture
IUCN	International Union for Conservation of Nature
IWRM	Integrated Water Resources Management
JCNR	Jaj Cedars Nature Reserve
JICA	Japan International Cooperation Agency
KCNR	Karm Chbat Nature Reserve
KMGBF	Kunming-Montreal Global Biodiversity Framework
KNR	Kafra Nature Reserve
LARI	Lebanese Agricultural Research Institute
LEDS	Lebanon's Low Emission Development Strategy
LEF	Lebanese Environment Forum
LGIF	Lebanon Green Investment Facility
LIVCD	Lebanon Industry Value Chain
LPA	Lebanese Petroleum Administration
LRA	Litany River Authority
LRI	Lebanese Reforestation Initiative
LU	Lebanese University
MCNR	Machaa Chnaniir Nature Reserve
MDG	Millennium Development Goals
MEHE	Ministry of Education and Higher Education
METT	Management Effectiveness Tracking Tool
MIF	Mediterranean Investment Facility
MoA	Ministry of Agriculture
MoE	Ministry of Environment
MoEW	Ministry of Energy and Water

MoIM	Ministry of Interior and Municipalities
MoInf	Ministry of Information
MoJ	Ministry of Justice
MoPWT	Ministry of Public Works and Transport
MoSA	Ministry of Social Affairs
MoT	Ministry of Tourism
MPA	Marine Protected Area
MRV	Monitoring, Reporting, and Verification
MSP	Marine Spatial Plan
MSW	Municipal Solid Waste
MW	Megawatt
MYTF	Mediterranean Youth Task Force
NA	National Action
NAP	National Adaptation Plan
NARP	National Afforestation and Reforestation Program
NAS	National Agriculture Strategy
NBSAP	National Biodiversity Strategy and Action Plan
NCE	National Council for Environment
NCLW	National Commission for Lebanese Women
NDC	Nationally Determined Contribution
NDU	Notre Dame University
NIS	Non-Indigenous Species
NNR	Nmayrieh Nature Reserve
NORAD	Norwegian Agency for Development Cooperation
NPMPLT	National Physical Master Plan for the Lebanese Territory
NT	National Target
NT	Near Threatened
NWSS	National Water Sector Strategy
ODA	Official Development Assistance
OECD	Organization for Economic Co-operation and Development
OECM	Other Effective Area-based Conservation Measures
OMSAR	Office of the Minister of State for Administrative Reform

OWL	Other Wooded Land
PA	Protected Areas
PARC	Protected Area Connectedness Index
PFAN	Private Financing Advisory Network
PGRFA	Plant Genetic Resources for Food and Agriculture
PINR	Palm Islands Nature Reserve
PPIAF	Public Private Infrastructure Advisory Facility
PPP	Private Public Partnership
PROPARCO	Promotion and Participation Company for Economic Cooperation
RMF	Rene Moawad Foundation
RNR	Ramya Nature Reserve
RWE	Regional Water Establishment
SBR	Shouf Biosphere Reserve
SBSTTA	Subsidiary Body on Scientific, Technical and Technological Advice
SC	Steering Committee
SCCF	Special Climate Change Fund
SCNR	Al Shouf Cedars Nature Reserve
SDG	Sustainable Development Goals
SEA	Strategic Environmental Assessment
SEA	Sexual Exploitation and Abuse
SEEA	System of Environmental-Economic Accounting
SEP	Stakeholders Engagement Plan
SEPASAL	Survey of Economic Plants for Arid and Semi-Arid Lands
SFM	Sustainable Forest Management
SH	Sexual Harassment
SIDA	Swedish International Development Cooperation Agency
SOER	State of the Environment Report
SPA	Specially Protected Areas
SPAMI	Specially Protected Area of Mediterranean Importance
SPA/RAC	Specially Protected Areas Regional Activity Centre
SPNL	Society for the Protection of Nature in Lebanon
SWM	Solid Waste Management

SWOT	Strengths, Weaknesses, Opportunities, and Threats
TCFNR	Tannourine Cedar Forest Nature Reserve
TEEB	The Economics of Ecosystems and Biodiversity
TNFD	Taskforce on Nature-related Financial Disclosures
UK	United Kingdom
UN	United Nations
UNDP	United Nations Development Programme
UNEP	United Nations Environment Programme
UNESCO	United Nations Educational, Scientific and Cultural Organization
UNESCO-MAB	United Nations Educational, Scientific and Cultural Organization - Man and the Biosphere Programme
UNHCR	United Nations High Commissioner for Refugees
UoB	University of Balamand
UoMs	Union of Municipalities
USAID	United States Agency for International Development
USEK	Université Saint Esprit de Kaslik
USEPA	United States Environmental Protection Agency
USJ	Université Saint Joseph
VU	Vulnerable
WB	World Bank
WDPA	World Database of Protected Areas
WHNR	Wadi Al Houjeir Nature Reserve
WHO	World Health Organization
WFP	World Food Programme

EXECUTIVE SUMMARY



الفصل الأول: المقدمة ونظرة عامة

صادق لبنان على اتفاقية التنوع البيولوجي (CBD) عام ١٩٩٤، وأعدّ لاحقاً أول استراتيجية وطنية وخطة عمل للتنوع البيولوجي (NBSAP)، إلى جانب التقرير الوطني الأول للتنوع البيولوجي في عام ١٩٩٨. وفي عام ٢٠١٦، جرى تحديث الاستراتيجية الوطنية وخطة العمل (NBSAP) لتتضمن أهداف أيتشي للتنوع البيولوجي (ABTs) التي تم اعتمادها خلال مؤتمر الأطراف العاشر للاتفاقية (COP10). وعلى الرغم من الجهود المبذولة على الصعيدين الوطني والعالمي، لا تزال مؤشرات التنوع البيولوجي تشهد تراجعاً على المستوى العالمي وفقاً لاتفاقية التنوع البيولوجي (CBD)، وهو اتجاه يُتوقع استمراره في حال استمرار الممارسات الحالية دون تغيير. واستجابةً لهذا التراجع، اعتُمد إطار كونمينغ-مونتريال العالمي للتنوع البيولوجي لما بعد عام ٢٠٢٠ خلال مؤتمر الأطراف الخامس عشر (COP15) لاتفاقية التنوع البيولوجي في ديسمبر ٢٠٢٢، بهدف عكس مسار فقدان التنوع البيولوجي بحلول عام ٢٠٣٠، وتحقيق رؤية عام ٢٠٥٠ المتمثلة في "العيش في انسجام مع الطبيعة". يرتكز الإطار العالمي للتنوع البيولوجي على أربعة أهداف شاملة محددة لعام ٢٠٥٠، وهي:

الهدف أ: الحماية والاستعادة:



الحفاظ على تنوع الأنواع وسلامة النظم البيئية، وتعزيزها، واستعادتها.

الهدف ب: الازدهار مع الطبيعة:



ضمان الاستخدام المستدام للتنوع البيولوجي واستعادة خدمات النظم البيئية المتدهورة.

الهدف ج: تقاسم الفوائد بشكل عادل:



ضمان التقاسم المنصف للفوائد الناتجة عن الموارد الجينية، والمعارف التقليدية، والمعلومات التسليلية الرقمية.

الهدف د: الاستثمار والتعاون:



تأمين الموارد والقدرات والشراكات اللازمة لسد فجوة التمويل السنوي للتنوع البيولوجي، المقدرة بـ ٧٠٠ مليار دولار.

وتُدعم هذه الأهداف بـ ٢٣ هدفاً عالمياً ينبغي تحقيقها بحلول عام ٢٠٣٠، من أبرزها: حماية ٣٠٪ من الأراضي والبحار واستعادة النظم البيئية المتدهورة، ووقف انقراض الأنواع، والحد من التلوث والأنواع الغازية، ودمج التنوع البيولوجي في جميع عمليات اتخاذ القرار، وتأمين ٢٠٠ مليار دولار سنوياً لدعم التنوع البيولوجي، إلى جانب ضمان المشاركة العادلة، وتحقيق المساواة بين الجنسين، وإتاحة الوصول إلى المعرفة.

استجابة للتحديات الوطنية والعالمية المتعلقة بالتنوع البيولوجي، عمل لبنان على تحديث استراتيجيته الوطنية وخطته للتنوع البيولوجي (NBSAP) بما يتماشى مع إطار كونمينغ-مونتريال العالمي للتنوع البيولوجي. ويأتي هذا التحديث تنفيذاً لقرار مؤتمر الأطراف الخامس عشر (COP1٥) رقم (١٦/١٥)، الذي يدعو الدول الأطراف إلى مراجعة وتحديث استراتيجياتها وخططها الوطنية بما ينسجم مع الإطار العالمي للتنوع البيولوجي (GBF)، وتقديمها قبل انعقاد مؤتمر الأطراف السادس عشر (COP1٦).

ويعرض هذا التقرير النسخة المُحدّثة من الاستراتيجية والخطة الوطنية للتنوع البيولوجي في لبنان، ضمن مبادرة عالمية ممولة من مرفق البيئة العالمي تهدف إلى تسريع الجاهزية وتمكين الإجراءات المبكرة لتنفيذ الإطار العالمي للتنوع البيولوجي (GBF) لما بعد عام ٢٠٢٠. ومن خلال هذا المشروع، حصل لبنان على دعم تقني ومالي لتحديث استراتيجيته، بما يشمل دمج الأهداف الوطنية للتنوع البيولوجي، وأنظمة

المراقبة، والسياسات ذات الصلة. وقد تم تنفيذ المشروع من قبل برنامج الأمم المتحدة الإنمائي (UNDP) بالشراكة مع وزارة البيئة اللبنانية.

إن تنفيذ الاستراتيجية الوطنية وخطة العمل للتنوع البيولوجي المحدثة، والمتوافقة مع الإطار العالمي، يستلزم تنسيقًا محكمًا بين مؤسسات الدولة والقطاع الخاص والمجتمع المدني، كما يتطلب تمويلًا مستدامًا، وآليات رصد فعالة، ومشاركة حقيقية لأصحاب المصلحة، بهدف وضع التنوع البيولوجي على مسار التعافي وضمان استخدامه المستدام للأجيال القادمة.

الفصل الثاني: الوضع القائم للتنوع البيولوجي في لبنان

يقدم الفصل الثاني نظرة عامة على واقع التنوع البيولوجي في لبنان، وأهمية الحفاظ عليه واستخدامه المستدام، بالإضافة إلى أبرز التهديدات التي يواجهها، وأسبابها وتبعاتها. تتميز المناظر الطبيعية في لبنان بتنوع واسع يمتد من المياه الساحلية والوديان النهرية إلى الغابات الجبلية الشاهقة، ما يوفر موائل غنية لتشكيلة واسعة من الكائنات الحية. ويعود هذا التنوع إلى الطوبوغرافيا الفريدة للبلاد ومناخها المتوسطي، حيث يضم لبنان كتلة غنية من التنوع البيولوجي تشمل ٩,١١٩ نوعًا معروفًا، منها ٤,٦٣٣ نوعًا نباتيًا و٤,٤٨٦ نوعًا حيوانيًا.

على الرغم من أن مساحة لبنان لا تتجاوز ٠,٠٧٪ من مساحة اليابسة عالميًا، إلا أنه يحتضن حوالي ١,١٪ من الأنواع النباتية في العالم، و٢,٦٣٪ من أنواع الزواحف والطيور والثدييات العالمية. وتصنف حوالي ٨,٥٪ من الأنواع النباتية في لبنان على أنها مستوطنة، و١,٣٪ نادرة، و٤,٦٪ مهددة. كما تغطي الغابات ١٣٪ من مساحة البلاد، إلى جانب الأراضي الحرجية الأخرى (OWL) بنسبة (١٦,٢٨٪)، بما في ذلك غابات الأرز والشوح التي تستضيف عددًا

من الأنواع النباتية المستوطنة والمهددة وذات القيمة الاقتصادية.

يضم لبنان ما يزيد على ٤,٤٨٦ نوعًا حيوانيًا، يعيش ٤٦٪ منهم في الموائل البرية. ومن بين هذه الأنواع، يُصنف ٧٨ نوعًا على أنها أنواع مهددة. وتشير القائمة الحمراء للاتحاد الدولي للحفاظ على الطبيعة إلى وجود نوع واحد من الحيوانات البرية مهدد بالانقراض بدرجة حرجية، و١٥ نوعًا مهددًا بالانقراض، و٣٠ نوعًا معرضًا للخطر، و٣٢ نوعًا قريبًا من التهديد.

ولا تقلّ النظم البيئية البحرية والعذبة غنى وتميزًا، فالمياه البحرية اللبنانية التي لا تتجاوز ١٪ من مساحة المحيطات عالميًا، تحتضن ٦٪ من الأنواع البحرية في العالم، أما المياه العذبة فتضم ٩٨٧ نوعًا، تشمل أنواعًا مهددة ومستوطنة.

ولحماية هذه الثروة الطبيعية، أنشأ لبنان ١٨ محمية طبيعية تغطي حوالي ٣,٧٪ من مساحته، بالإضافة إلى ٣٠ موقعًا طبيعيًا، و٢٣ غابة محمية، و٣٦ جُمى، وعلى الصعيد العالمي، تم تصنيف ٣ محميات محيط حيوي تابعة لليونسكو، و٤ مواقع على لائحة اتفاقية رامسار للأراضي الرطبة ذات الأهمية الدولية، و١٩ منطقة رئيسية للتنوع البيولوجي كما حددها صندوق الشراكة من أجل النظم البيئية الحرجية (CEPF)، و١٦ منطقة مهمة للطيور (IBAs)، وموقعين ذات أهمية خاصة في البحر المتوسط (SPAMI).

توفر النظم البيئية في لبنان خدمات حيوية لرفاهية الإنسان وازدهار الاقتصاد، تشمل تنظيم المناخ والمياه، وتوفير الغذاء والمياه العذبة والألياف، فضلًا عن الفوائد الثقافية والترفيهية، والوظائف الداعمة مثل تدوير المغذيات والتلقيح. غير أنّ القدرة الحيوية الإجمالية للبلاد في عام ٢٠٢٤ لم تتجاوز ١,٨ مليون هكتار عالمي (GHA)، في

حين بلغت البصمة البيئية ١٨,٦ مليون هكتار في العام نفسه، ما يعكس نمطًا غير مستدام في استخدام الموارد الطبيعية.

وتبقى الزراعة مصدر رزق أساسي لحوالي ٣٠٪ من السكان، غير أنّ تدهور التربة، وشح المياه، والتحوّل نحو محاصيل عالية القيمة إنما أقلّ إسهامًا في الأمن الغذائي، تُعد عوامل تضعف الإنتاجية. وعلى الرغم من أن الغطاء الحرجي سُجل بنسبة ١٣٪ من المساحة الإجمالية للبنان؛ إلا أنّ الغابات والأراضي الحرجية شهدت في السنوات الأخيرة ضغوطًا بشرية كثيفة تهدّد بقاءها؛ أبرزها قطع الأشجار غير القانوني الذي تفاقم مع الأزمة الاقتصادية ومارافقها من نقص حاد في الوقود وانقطاع الكهرباء، ما دفع العديد من الأسر إلى العودة لاستخدام الحطب، إضافةً إلى التمدّد العمراني وحرائق الغابات، ومؤخرًا الدمار الناتج عن النزاعات.

يواجه التنوع البيولوجي في لبنان جملة من التهديدات المتداخلة، يأتي في مقدّمها الاستغلال غير المستدام للموارد الطبيعية عبر التمدّن العشوائي، والمقالع والكسّارات، والمشاريع الترفيهية، والصيد، وقطع الأشجار غير القانوني، والجمع المفرط للنباتات الطبية والعطرية، وسوء إدارة المراعي، واستغلال الموارد المائية، واستنزاف التنوع البيولوجي والموارد البحرية، وتتفاقم هذه المشاكل بفعل حرائق الغابات، والتلوث الناجم عن مياه الصرف الصحي غير المعالجة، والنفايات الصلبة، والمواد الزراعية الكيميائية والركام، والانبعاثات الجوية؛ إضافةً إلى انتشار الأنواع الغريبة الغازية عبر التجارة، ومياه الاتزان للسفن، وضعف الرقابة الحدودية، وتغير المناخ؛ وإدخال أصناف محسنة جديدة تُضعف التنوع الزراعي المحلي؛ فضلًا عن التأثيرات الواسعة لتغيّر المناخ على النظم البحرية والساحلية والبرية والعذبة، بما في ذلك الاحترار،



Tannourine Cedar Forest Nature Reserve

في الاستراتيجية الوطنية وخطة العمل للتنوع البيولوجي (NBSAP) الصادرة في العام ٢٠١٦، ومواءمة أهدافها مع أهداف وإجراءات الإطار العالمي للتنوع البيولوجي (GBF) لما بعد عام ٢٠٢٠، إضافةً إلى متابعة عملية التحديث. وتولّت لجنة توجيهية وطنية تضم ممثلين عن المؤسسات العامة المعنية والأوساط الأكاديمية ومراكز الأبحاث مهام الإشراف والتنسيق، حيث عقدت اجتماعات دورية لمتابعة مسار التحديث وضمان توافقه التام مع أهداف الإطار العالمي للتنوع البيولوجي.

وأظهرت الدروس المستفادة من الاستراتيجية وخطة العمل الوطنية للتنوع البيولوجي (NBSAP) لعام ٢٠١٦ الحاجة إلى إنشاء آلية تنفيذ فعّالة، وتعزيز إدماج قضايا التنوع البيولوجي في مختلف القطاعات، وإنشاء جهة وطنية للتنسيق (موصى بها)، وتطوير منهجية مُنظمة لإدارة البرامج والمبادرات، وتأسيس وحدة تشغيلية (موصى بها)، إضافةً إلى بناء الشراكات وتعزيز القدرات المؤسسية والتقنية.

كما تم إجراء مراجعة للتشريعات والسياسات الوطنية المتعلقة بالتنوع البيولوجي بهدف تحديد الثغرات وتقييم مدى توافقها مع أهداف الإطار العالمي للتنوع البيولوجي (GBF). واستُكملت هذه المراجعة بتحليل القدرات المؤسسية وتقييم الثغرات المرتبطة بكل هدف من أهداف الإطار العالمي للتنوع البيولوجي (GBF)، وبناءً عليه، تم وضع توصيات تهدف إلى مواءمة السياسات والتشريعات الوطنية مع متطلبات هذا الإطار.

وتضمّن التحديث أيضاً إعداد خطة وطنية لمراقبة التنوع البيولوجي بهدف متابعة مدى التقدم نحو الأهداف المحددة من خلال تقييم أنظمة المراقبة الحالية، وتحديد نقاط الضعف فيها، وتطوير مجموعة شاملة من المؤشرات.

وانخفاض هطول الأمطار، وارتفاع مستوى سطح البحر، وتدهور الأراضي، ونُدرة المياه، وتزايد الظواهر المناخية المتطرفة. وتشكل هذه التهديدات مجتمعةً خطراً على التنوع البيولوجي بمستوياته كافة، من خلال الضغوط المباشرة على الأنواع والنظم البيئية وما يترتب عليها من آثار غير مباشرة على رفاهية الإنسان تشمل المخاطر الصحية، وانعدام الأمن الغذائي، والخسائر الاقتصادية، والكوارث الطبيعية.

الفصل الثالث: منهجية تحديث الاستراتيجية الوطنية وخطة العمل للتنوع البيولوجي NBSAP

يقدم الفصل الثالث المنهجية الشاملة المعتمدة في تحديث الاستراتيجية الوطنية وخطة العمل للتنوع البيولوجي في لبنان (NBSAP)، بما يشمل مشاركة أصحاب المصلحة، ومواءمة الخطة مع الإطار العالمي للتنوع البيولوجي، ومراجعة الأطر المؤسسية والسياسية، إضافةً إلى إعداد خطة وطنية لمراقبة ورصد التنوع البيولوجي.

تمحور تحديث الاستراتيجية الوطنية وخطة العمل للتنوع البيولوجي في لبنان (NBSAP) حول مراجعة شاملة لاستراتيجية عام ٢٠١٦، من خلال تقييم محاورها الموضوعية الرئيسية للتأكد من مدى توافقها مع إطار كونمينغ-مونتريال العالمي للتنوع البيولوجي. وقد تمت مقارنة الأهداف والإجراءات الوطنية الثمانية عشر الواردة في نسخة الاستراتيجية لعام ٢٠١٦، مع الأهداف الأربعة الطويلة الأمد للإطار العالمي للتنوع الحيوي لعام ٢٠٥٠، ومع الأهداف الثلاثة والعشرين التي يتعيّن تنفيذها على نحو عاجل بحلول عام ٢٠٣٠. ويهدف هذا التحديث إلى تحقيق توازن بين الأولويات العالمية والخصوصية الوطنية للبنان مع إشراك أصحاب المصلحة بصورة فاعلة وتعزيز شعورهم بملكية هذه الخطة. تم تنظيم ورشتي عمل في عام ٢٠٢٤ بهدف استكمال المراجعة السريعة للمحاور الموضوعية

التنوع البيولوجي. وتتمحور الأولويات الأساسية حول تعزيز التزام المواطنين بالقوانين والأنظمة البيئية القائمة، وتفعيل تطبيق القوانين، وتعزيز التنسيق بين الوزارات والمؤسسات، ومراجعة الخطط الاستراتيجية وتحديثها، إلى جانب تعزيز نظام تقييم الأثر البيئي (EIA).

الفصل الخامس: رؤية التنوع البيولوجي، خطة العمل الوطنية ونظام المراقبة

يستعرض هذا الفصل رؤية لبنان للتنوع البيولوجي لعام ٢٠٣٠، ويحدد الأهداف الوطنية وخطة العمل المتوافقة مع الأطر العالمية. كما يحدد نظام وطني لمراقبة التنوع البيولوجي، بما يتيح تتبع التقدم المحرز ودعم عملية صنع القرار والسياسات ذات الصلة.

تتمثل رؤية لبنان للتنوع البيولوجي، كما وردت في الاستراتيجية الوطنية وخطة العمل المحدثة للتنوع البيولوجي (NBSAP)، في الآتي:

“بحلول عام ٢٠٣٠، تكون موارد لبنان من التنوع البيولوجي محفوظة ومُصانة وتُدار بشكل مستدام على مستوى النظم البيئية والمواطن الطبيعية والأنواع، بما يضمن قدرة البلاد على مواجهة الضغوط البشرية والطبيعية، ويوفّر لجميع المواطنين وصولاً منصفاً إلى خدمات ومنافع النظم البيئية.”

تدعم خطة العمل الوطنية هذه الرؤية من خلال ستة وعشرين هدفاً وطنياً وما يقابلها من إجراءات وطنية، وُضعت استناداً إلى مراجعة الاستراتيجية الوطنية وخطة العمل للتنوع البيولوجي (NBSAP) السابقة في لبنان للعام ٢٠١٦ وبما ينسجم مع إطار كونيغ-مونتريال العالمي للتنوع البيولوجي لما بعد عام ٢٠٢٠. وتتناول هذه الأهداف التهديدات والفجوات والفرص التي تم



Jaj Cedars Nature Reserve

وقد شكّل إشراك أصحاب المصلحة عنصراً محورياً خلال مراحل تطوير المؤشرات واستكمال الخطة، بما يضمن ملاءمتها وقابليتها للتطبيق في سياق التنوع البيولوجي في لبنان.

الفصل الرابع: الإطار التشريعي والسياسات الداعمة للتنوع البيولوجي في لبنان

ترتكز جهود لبنان في حماية التنوع البيولوجي على مجموعة واسعة من الأدوات القانونية، تبدأ بالإطار القانوني الوطني وتمتد إلى القرارات المحلية، إضافة إلى التزام البلاد بالاتفاقيات الدولية الخاصة بالتنوع البيولوجي. ويقدم هذا الفصل عرضاً مفصلاً للتشريعات الوطنية ذات الصلة بالتنوع البيولوجي، والاتفاقيات الدولية الموقعة من لبنان، والاستراتيجيات والخطط الوطنية التي تشكل الركيزة الأساسية لحوكمة التنوع البيولوجي في البلاد.

وقد أظهرت المراجعة الوطنية الشاملة لمدى تناسق السياسات الوطنية مع الأهداف الثلاثة والعشرين للإطار العالمي للتنوع البيولوجي (GBF) وجود فجوات قانونية ومؤسسية على المستوى الوطني، ما ساهم في التوجيه في إعداد توصيات دقيقة حول السياسات الوطنية المطلوبة من أجل تعزيز قدرة لبنان على تحقيق الامتثال الكامل لالتزاماته الدولية في مجال



Mount Hermon Nature Reserve

وتشكّل خطة المراقبة التي طورها لبنان خارطة طريق عملية توضّح الخطوات والمسؤوليات والموارد والجدول الزمني اللازمة لتفعيل عمليات المراقبة المرتبطة بالاستراتيجية الوطنية وخطة العمل للتنوع البيولوجي المحدّثة (NBSAP). كما يميّز الإطار بين المؤشرات الرئيسية، والمكوّنة، والتكميلية، والوطنية، مع الإشارة إلى أن العديد من المؤشرات العالمية لم تصبح قابلة للتطبيق بعد بسبب النقص في البيانات.

لا تزال هناك فجوات كبيرة في نظام المراقبة الحالي في لبنان، بما في ذلك الاستخدام المحدود لمنهجيات طويلة الأمد قائمة على المؤشرات، والحاجة إلى جمع منتظم لبيانات الأهداف الرئيسية مثل النظم البيئية (الهدف ١)، والأنواع والتنوع الجيني (الهدف ٤)، والتلوث (الهدف ٧)، وخدمات النظم الايكولوجية (الهدف ١١)، والحوافز الضارة (الهدف ١٨). ولمواجهة هذه التحديات، يتوجب على لبنان وضع ترتيبات مؤسسية

تحديدها خلال المشاورات مع أصحاب المصلحة، حيث تم الجمع بين المبادرات القائمة حاليًا وإدراج إجراءات جديدة تستجيب للتطورات العلمية والسياقات الاجتماعية والسياسية المتغيرة.

يستند تطوير النظام الوطني لمراقبة التنوع البيولوجي وخطة العمل في لبنان إلى الإطار العالمي لمراقبة التنوع البيولوجي الذي اعتمد في مؤتمر الأطراف الخامس عشر ((COP١٥)، والذي يوفّر مجموعة من المؤشرات الموحدة لقياس التقدّم نحو تحقيق إطار كونمينغ-مونتريال العالمي للتنوع البيولوجي. ويُعدّ إنشاء نظام وطني متين للمراقبة والرصد خطوة أساسية لتقييم حالة التنوع البيولوجي واتجاهاته، وتقييم فعالية تنفيذ الاستراتيجية الوطنية وخطة العمل للتنوع البيولوجي المحدّثة (NBSAP)، ودعم صنع السياسات، وتعزيز حشد الموارد، والالتزام بمتطلبات اعداد التقارير الوطنية الخاصة باتفاقية التنوع البيولوجي (CBD).

واضحة، وتأمين الموارد المالية، وإنشاء آليات لمسح البيانات، وتشكيل مجموعات استشارية، وتحديد خطوط الأساس، وتعزيز التواصل، وبناء القدرات الوطنية. وبعد تشغيل نظام المراقبة والرصد، يجب الحفاظ عليه باستمرار من خلال المراجعة الدورية للمؤشرات، ومتابعة التطورات العالمية، وتلبية متطلبات التقارير، وجمع أصحاب المصلحة، وتعميم النتائج، وتحديد احتياجات بناء القدرات، واستكشاف فرص الدعم والتمويل الإضافي.

الفصل السادس: خطة التشغيل

يقدم هذا الفصل تصورًا لكيفية تنفيذ الاستراتيجية الوطنية وخطة العمل للتنوع البيولوجي المحدثة (NBSAP)، من خلال تحديد الترتيبات المؤسسية والمالية والتقنية اللازمة لتحويل الاستراتيجية إلى إجراءات عملية وفعّالة. سيشكّل الاعتماد الرسمي للاستراتيجية الوطنية وخطة العمل للتنوع البيولوجي (NBSAP) بموجب قرار صادر عن مجلس الوزراء خطوة أساسية لبدء التنفيذ، من خلال تعزيز المساءلة المؤسسية وتشجيع إدماج أولويات التنوع البيولوجي في عمليات التخطيط. ويوصى بإنشاء هيئة وطنية للتنسيق تتولى متابعة تنفيذ الاستراتيجية الوطنية وخطة العمل للتنوع البيولوجي (NBSAP) والإشراف عليه، وفي حال توفرت الظروف الملائمة، يمكن إنشاء وحدة تشغيلية تعمل كأمانة سر لهذه الهيئة، تكون مخصصة بالكامل لمراقبة التقدم في تنفيذ الاستراتيجية ورفع التقارير إلى الهيئة.

ولتعزيز تنفيذ الاستراتيجية الوطنية وخطة العمل للتنوع البيولوجي (NBSAP) بفعالية، يصبح من الضروري إقامة شراكات مع وكالات التنمية، ووضع برنامج تنفيذي شامل، وتعزيز القدرات البشرية والتكنولوجية، وتوفير الموارد المالية من مصادر وطنية ودولية، وإضافةً إلى مصادر تمويل مبتكرة.

يتطلب تنفيذ الاستراتيجية توفير موارد مالية مخصصة تُقدر بنحو ٦,٢ مليون دولار أمريكي كقيمة إجمالية، أي ما يقارب ١٠ ملايين دولار سنويًا خلال الفترة الممتدة بين عامي ٢٠٢٥ و ٢٠٣٠. وترتكز استراتيجية التمويل على ثلاثة مصادر رئيسية: المصادر الوطنية، والمصادر الدولية، وفرص التمويل الجديدة، مثل مبدأ الملوث - يدفع، وتخصيص الإيرادات الحكومية، والإيرادات البيئية المستحدثة، ومبادلة الديون بتدابير لحماية الطبيعة، والآليات المبتكرة، وغيرها.

يواجه لبنان تحديات حادة تُعيق مبادرات الحفاظ على التنوع البيولوجي نتيجة الصعوبات الاقتصادية المستمرة، وعدم الاستقرار السياسي، وتصادف التوترات الإقليمية. ما يستدعي اعتماد مقاربة استراتيجية ومرنة وقادرة على الصمود، وتمتد الفترة الزمنية لتنفيذ الاستراتيجية الوطنية وخطة العمل للتنوع البيولوجي (NBSAP) بين عامي ٢٠٢٥ و ٢٠٣٠ مع تحديد مهل زمنية لكل إجراء وطني، الأمر الذي يتطلب جهودًا مستمرة، ومستوى عاليًا من المرونة والتخطيط التكيفي.

Chapter 1: Introduction and Overview

Lebanon ratified the Convention on Biological Diversity (CBD) in 1994 and subsequently developed its first National Biodiversity Strategy and Action Plan (NBSAP) and National Biodiversity Report in 1998. In 2016, Lebanon updated its NBSAP to integrate the Aichi Biodiversity Targets (ABTs) adopted at COP10. Despite global and national efforts, CBD reports indicate that biodiversity continues to decline worldwide, a trend expected to persist under business-as-usual scenarios. In response, the Kunming-Montreal post-2020 Global Biodiversity Framework (GBF) was adopted at CBD COP15 in December 2022, with the aim of reversing biodiversity loss by 2030 and achieving the 2050 Vision of “Living in Harmony with Nature.”

The GBF is structured around four overarching goals set for 2050:



Goal A: Protect and Restore:

Maintain, enhance, and restore ecosystem integrity and species diversity.



Goal B: Prosper with Nature:

Ensure the sustainable use of biodiversity and restore declining ecosystem services.



Goal C: Share Benefits Fairly:

Equitably share the benefits derived from genetic resources, traditional knowledge, and digital sequence information.



Goal D: Invest and Collaborate:

Secure the resources, capacity, and partnerships required to close the \$700 billion annual biodiversity finance gap.

These goals are supported by 23 Global Targets to be achieved by 2030, notably conserving 30% of land and seas, restoring degraded ecosystems, halting species extinctions, reducing pollution and invasive species, integrating biodiversity into all decision-making, mobilizing \$200 billion annually for biodiversity, and ensuring equitable participation, gender equality, and access to knowledge.

In response to national and global biodiversity challenges, Lebanon has updated its NBSAP in line with the Kunming–Montreal GBF. This process was undertaken in accordance with COP15 Decision 15/6, which requests Parties to revise and update their NBSAPs to align with the GBF and submit them ahead of COP16.

This report provides Lebanon’s updated NBSAP as part of a global initiative funded by the Global Environment Facility (GEF) to fast-track readiness and enable early actions for post-2020 GBF implementation. Through this project, Lebanon received technical and financial support to update its NBSAP, including the integration of national biodiversity targets, monitoring systems, and relevant policies. The project was implemented by the United Nations Development Programme (UNDP) in partnership with the Lebanese Ministry of Environment (MoE).

The implementation of Lebanon’s GBF-aligned NBSAP will require coordinated action across government, the private sector, and civil society, backed by robust financing, monitoring, and stakeholder engagement. This approach aims to place biodiversity on the path to recovery and ensure its sustainable use for future generations.

Chapter 2: Lebanon’s Biodiversity Baseline

Chapter 2 provides an overview of the status of biodiversity in Lebanon, highlights the importance of

biodiversity conservation and sustainable use, and outlines the main threats it is facing, including their causes and consequences.

Lebanon's diverse landscapes, ranging from coastal waters and river valleys to high mountain forests, host an exceptional variety of life, driven in part by the country's unique topography and Mediterranean climate. Lebanon is home to a biodiversity mass of 9,119 known taxa, comprising 4,633 floral taxa and 4,486 faunal taxa.

Despite covering just 0.007% of the world's land area, Lebanon hosts approximately 1.11% of global plant species and 2.63% of global reptile, bird, and mammal species. Around 8.5% of Lebanon's floral species are endemic, 1.3% are rare, and 4.6% are threatened. Forests cover 13% of the country's territory, alongside Other Wooded Lands (OWL) (16.28%), with the relic Cedar and Fir forests hosting several endemic, threatened, and economically valuable plant species.

Lebanon's fauna diversity exceeds 4,486 species, among which 46% thrive in terrestrial habitats. Within this group, 78 terrestrial animal species are threatened. According to the IUCN Red List, these are classified as 1 species Critically Endangered, 15 Endangered, 30 Vulnerable, and 32 Near Threatened. The country's marine and freshwater ecosystems are equally remarkable; although Lebanese coastal waters represent less than 1% of the global ocean surface, they host 6% of all global marine species. Freshwater biodiversity in Lebanon totals 987 species, including threatened and endemic taxa.

To safeguard this natural wealth, the country designated 18 nature reserves covering approximately 3.7% of Lebanon's area, along with 30 Nature Sites, 23 Protected Forests, 36 Himas, 3 UNESCO Biosphere Reserves, 4 Ramsar wetlands of international importance, 19 Key Biodiversity Areas

(KBAs) as identified by the CEPF, 16 Important Bird Areas (IBAs), and 2 Specially Protected Areas of Mediterranean Importance (SPAMI).

Lebanon's ecosystems provide vital services to human well-being and economic prosperity, including climate and water regulation; the provision of food, fresh water, and fiber cultural and recreational benefits; and critical supporting functions such as nutrient cycling and pollination. However, the country's total biocapacity in 2024 stands at 1.8 million global hectares (gha), which is drastically outstripped by an ecological footprint of 18.6 million gha for the same year, indicating an unsustainable use of natural resources.

Agriculture remains a key source of livelihood for approximately 30% of the population; however, soil degradation, water scarcity, and a shift toward high-value but less food-secured crops are eroding productivity.

The last recorded percentage of forest cover stands at 13% of Lebanon's total surface area. However, in recent years, forests and wooded lands in Lebanon have faced intense human pressures that threaten their long-term survival. This degradation is largely driven by illegal logging, which has been compounded by the economic crisis, including severe fuel shortages and electricity blackouts that have forced households to rely on wood. These challenges are further compounded by urban sprawl, forest fires, and, more recently, conflict-related destruction.

Lebanon's biodiversity is threatened by multiple interacting pressures, primarily the unsustainable exploitation of natural resources through unplanned urbanization, quarrying, recreational developments, hunting, illegal logging, and the overharvesting of medicinal and aromatic plants, as well as the

exploitation of water resources, rangeland mismanagement, and the exploitation of marine biodiversity and resources.

These pressures are compounded by forest fires; pollution from untreated wastewater, solid waste, agro-chemicals, rubble, and air emissions; the spread of invasive alien species via trade, ballast water, weak border controls, and climate change; the introduction of new improved varieties that erode local agrobiodiversity; and wide-ranging climate change impacts on marine, coastal, terrestrial, and freshwater systems, including warming, reduced rainfall, sea-level rise, land degradation, water scarcity and more frequent extreme weather events.

Collectively, these threats endanger biodiversity on multiple levels through direct pressures on species and ecosystems, causing indirect consequences for human well-being, including health risks, food insecurity, economic losses, and natural hazards.

Chapter 3: Methodology for the NBSAP Update

Chapter 3 outlines the comprehensive methodology used to update Lebanon's NBSAP, including stakeholder engagement, alignment with the GBF, institutional and policy reviews, and the development of a national biodiversity monitoring plan.

The core of Lebanon's updated NBSAP is a thorough revision of the 2016 NBSAP, conducted through a review of its key thematic areas to assess alignment with the Kunming-Montreal GBF. This process compared Lebanon's existing 18 national targets and actions under the 2016 NBSAP with the GBF's 4 long-term goals for 2050 and 23 action-oriented targets for urgent implementation by 2030. The update aims to balance global priorities with Lebanon's specific context, while actively mobilizing stakeholders and fostering their ownership of the plan.

Two workshops were organized in 2024 for the purpose of completing the rapid review of NBSAP



Tyre Coast Nature Reserve

thematic areas, aligning its targets with the post-2020 GBF targets and actions, and updating the NBSAP. Oversight and coordination were ensured by a National Steering Committee composed of representatives from public institutions, academia, and research centers, meeting regularly to guide the update process and ensure rigorous alignment with GBF goals.

Lessons learned from the 2016 NBSAP highlighted the need to establish an implementation mechanism, strengthen biodiversity mainstreaming across sectors, create a national coordination entity (recommended), develop a structured program management approach for initiatives, form an Operational Unit (recommended), and build partnerships while enhancing institutional and technical capacities.

A review of national biodiversity-related legislation and policies was conducted to identify gaps and assess alignment with GBF objectives. This was complemented by institutional capacity analysis and gap assessments related to each GBF Target, and proposing recommendations to align national policies and legislation with the GBF.

The update also includes the development of a national biodiversity monitoring action plan to track progress toward the set targets through assessing current monitoring systems, identifying deficiencies, and developing a comprehensive set of indicators. Stakeholder input was integral throughout the indicator development and plan finalization phases to ensure relevance and applicability to Lebanon's biodiversity context.

Chapter 4: Legislative Foundations and Policy Action for Biodiversity in Lebanon

Lebanon's biodiversity conservation is supported by a range of legal instruments, from national framework

laws to municipal decisions, complemented by commitment to international biodiversity conventions. This chapter presents a detailed list of biodiversity-relevant legislation, signed conventions, and national strategies and action plans that form the foundation for biodiversity governance in the country.

A comprehensive national policy coherence review against all 23 GBF targets identified specific national legal and institutional gaps, guiding the formulation of focused policy recommendations for Lebanon's full compliance with global biodiversity commitments. Key priorities include improving public compliance with existing environmental laws and regulations, strengthening enforcement mechanisms, enhancing coordination among ministries and institutions, revising and updating strategic plans, and strengthening the Environmental Impact Assessment (EIA) system.

Chapter 5: Biodiversity Vision, National Action Plan and Monitoring System

This chapter presents Lebanon's biodiversity vision for 2030, outlines the national targets and action plan aligned with global frameworks, and details the development and management of a biodiversity monitoring system to track progress and inform policy decisions.

Lebanon's biodiversity vision, as adopted in the NBSAP, is as follows:

“By 2030, Lebanon's biodiversity is valued, conserved, and sustainably managed at ecosystems, habitats, and species level, in order to adequately respond to anthropogenic and natural pressures, and to ensure Lebanese citizens' equal access to ecosystem goods and services.”

The National Action Plan supports this vision through 26 national targets and their respective national actions, developed based on the review of Lebanon's previous NBSAP and aligned with the Kunming-Montreal GBF. These targets address the threats, gaps, and opportunities identified during stakeholder consultations, combining existing initiatives with new actions responsive to evolving scientific knowledge and socio-political contexts.

The development of Lebanon's National Biodiversity Monitoring System and Action Plan is grounded in the Global Biodiversity Monitoring Framework adopted at COP15, which provides standardized indicators for tracking progress toward the Kunming-Montreal GBF. Establishing a robust national monitoring system is essential for assessing biodiversity status and trends, evaluating the effectiveness of NBSAP implementation, supporting policymaking, strengthening resource mobilization, and meeting CBD reporting obligations.

Lebanon's developed monitoring plan serves as a practical roadmap, outlining the steps, responsibilities, resources, and timelines needed to operationalize monitoring for the NBSAP. The framework distinguishes between headline, component, complementary, and national indicators, noting that many global indicators are not yet applicable due to data gaps.

Significant gaps persist in Lebanon's current monitoring system, including the limited use of long-term, indicator-based methodologies and the need for consistent data collection for key targets such as ecosystems (Target 1), species and genetic diversity (Target 4), pollution (Target 7), ecosystem services (Target 11), and harmful incentives (Target 18). To address these challenges, Lebanon must establish clear institutional arrangements, secure budgets, create data clearance mechanisms, form consultative groups, identify baselines, enhance communication, and build national capacities. Once operational, the



Tannourine Cedar Forest Nature Reserve

system must be continuously maintained by reviewing indicators, tracking global developments, fulfilling reporting requirements, convening stakeholders, communicating results, identifying capacity needs, and exploring opportunities for additional support and funding.

Chapter 6: Operationalization Plan

This chapter outlines how Lebanon's updated NBSAP should be operationalized, detailing the institutional, financial, and technical arrangements needed to translate the Strategy into effective action.

The legal adoption of the NBSAP through a CoM Decision will serve as a foundation for implementation, reinforcing institutional accountability and encouraging integration of biodiversity priorities into planning processes. It is recommended to establish a National Coordination Entity to coordinate and monitor the implementation of the NBSAP. If conditions are allowed, an Operational Unit may be established to act as a Secretariat to the National Coordination Entity, fully dedicated to monitoring implementation progress and reporting to the entity.

To effectively advance NBSAP implementation, it is essential to establish partnerships with development agencies, develop a comprehensive implementation program, strengthen human and technological capacities, and mobilize financial resources from national, international, and innovative sources.

The implementation of the strategy will require dedicated financial resources, assessed to be in the range of \$60.2 million total, or approximately \$10 million per year between 2025 and 2030. The financing strategy centers on three primary sources: national sources, international sources, and new funding opportunities such as the Polluter Pays Principle, government revenue allocation, new environmental fiscal revenues, debt-for-nature swaps, innovative mechanisms, etc.

Lebanon is grappling with severe challenges affecting biodiversity initiatives due to prolonged economic hardship, political instability, and escalating regional tensions. Addressing these challenges demands a strategic and resilient conservation approach. The NBSAP timeline spans 2025–2030, with specific deadlines for each action, requiring sustained efforts, flexibility, and adaptive planning.

01

INTRODUCTION AND OVERVIEW



Having ratified the Convention on Biological Diversity (CBD) in 1994, the Government of Lebanon (GOL) prepared its National Biodiversity Strategy and Action Plan (NBSAP) and the first National Biodiversity Report in 1998, in line with Article 6 of the Convention. The NBSAP was subsequently updated in 2016 following the adoption of the Strategic Plan for Biodiversity 2011-2020 and the Aichi Biodiversity Targets (ABTs) at the 10th Conference of the Parties (COP10). This upgrade integrated the new ABTs while accounting for global and local needs, Lebanon's specific context, and existing professional capacities and awareness levels.

According to CBD reports, "despite ongoing efforts, biodiversity is deteriorating worldwide, and this decline is projected to continue or worsen under business-as-usual scenarios". In response to this existential need to step up biodiversity conservation efforts, Parties to the Convention adopted the Kunming-Montreal post-2020 Global Biodiversity Framework (GBF) at COP15 in December 2025. They committed to its effective implementation in order to put biodiversity on a path to recovery by 2030 at the latest, toward the full realization of the 2050 Vision of "Living in Harmony with Nature."

This report provides an update to Lebanon's National Biodiversity Strategy and Action Plan (NBSAP), aligning it with the Kunming-Montreal Global Biodiversity Framework (GBF). It forms part of a global initiative funded by the Global Environment Facility (GEF) to fast-track readiness and enable early actions for the post-2020 GBF implementation. Through this project, Lebanon received technical and financial support to update its NBSAP, including the integration of national biodiversity targets, monitoring systems, and relevant policies. The project was implemented by the United Nations Development Programme (UNDP) in partnership with the Lebanese Ministry of Environment (MoE).



The 2050 GBF Goals

Goal A - Protect and Restore:

The integrity, connectivity, and resilience of all ecosystems are maintained, enhanced, or restored, substantially increasing the area of natural ecosystems by 2050. Human-induced extinction of known threatened species is halted, and, by 2050, the extinction rate and risk of all species are reduced tenfold, and the abundance of native wild species is increased to healthy and resilient levels. The genetic diversity within populations of wild and domesticated species is maintained, safeguarding their adaptive potential.

Goal B - Prosper with Nature:

Biodiversity is sustainably used and managed, and nature's contributions to people, including ecosystem functions and services, are valued, maintained, and enhanced, with those currently in decline being restored, supporting the achievement of sustainable development for the benefit of present and future generations by 2050.

Goal C - Share Benefits Fairly:

The monetary and non-monetary benefits from the utilization of genetic resources, digital sequence information on genetic resources, and traditional knowledge associated with genetic resources, as applicable, are shared fairly and equitably, including, where appropriate, with indigenous peoples and local communities. These benefits are substantially increased by 2050, while ensuring that traditional knowledge associated with genetic resources is appropriately protected, thereby contributing to the conservation and sustainable use of biodiversity, in accordance with internationally agreed access and benefit-sharing instruments.

Goal D - Invest and Collaborate:

Adequate means of implementation, including financial

resources, capacity-building, technical and scientific cooperation, and access to and transfer of technology, to fully implement the Kunming-Montreal GBF, are secured and equitably accessible to all Parties, especially developing country Parties, in particular the least developed countries and small island developing States, as well as countries with economies in transition. These efforts aim to progressively close the biodiversity finance gap of \$700 billion per year and align financial flows with the Kunming-Montreal GBF and the 2050 Vision for biodiversity.



The 2030 GBF Targets

Target 1: Plan and Manage all Areas to Reduce Biodiversity Loss

Ensure that all areas are under participatory, integrated, and biodiversity-inclusive spatial planning and/or effective management processes that address land- and sea-use change, to bring the loss of areas of high biodiversity importance, including ecosystems of high ecological integrity, close to zero by 2030, while respecting the rights of indigenous peoples and local communities.

Target 2: Restore 30% of all Degraded Ecosystems

Ensure that by 2030 at least 30 per cent of areas of degraded terrestrial, inland water, and marine and coastal ecosystems are under effective restoration, in order to enhance biodiversity and ecosystem functions and services, ecological integrity and connectivity.

Target 3: Conserve 30% of Land, Waters and Seas

Ensure that by 2030 at least 30 per cent of terrestrial and inland water areas, and of marine and coastal areas—especially areas of particular importance for biodiversity and ecosystem functions and services—are effectively conserved and managed through ecologically representative, well-connected, and equitably governed systems of protected areas and other effective area-based conservation measures. These areas are to be integrated into wider

landscapes, seascapes, and the ocean, recognizing indigenous and traditional territories where applicable, and ensuring that any sustainable use, where appropriate in such areas, is fully consistent with conservation outcomes, while recognizing and respecting the rights of indigenous peoples and local communities, including over their traditional territories.

Target 4: Halt Species Extinction, Protect Genetic Diversity, and Manage Human-Wildlife Conflicts

Ensure urgent management actions to halt human-induced extinction of known threatened species and to support the recovery and conservation of species, particularly threatened species, in order to significantly reduce extinction risk, as well as to maintain and restore the genetic diversity within and between populations of native, wild, and domesticated species to safeguard their adaptive potential, including through in situ and ex situ conservation and sustainable management practices, and effectively manage human-wildlife interactions to minimize human-wildlife conflict for coexistence.

Target 5: Ensure Sustainable, Safe and Legal Harvesting and Trade of Wild Species

Ensure that the use, harvesting, and trade of wild species are sustainable, safe, and legal, preventing overexploitation, minimizing impacts on non-target species and ecosystems, and reducing the risk of pathogen spillover, while applying the ecosystem approach and respecting and protecting customary sustainable use by indigenous peoples and local communities.

Target 6: Reduce the Introduction of Invasive Alien Species by 50% and Minimize Their Impact

Eliminate, minimize, reduce, and/or mitigate the impacts of invasive alien species on biodiversity and ecosystem services by identifying and managing pathways for the introduction of alien species, preventing the introduction and establishment of priority invasive alien species, reducing the rates of introduction and establishment of other known or

potential invasive alien species by at least 50 per cent by 2030, and eradicating or controlling invasive alien species, especially in priority sites such as islands.

Target 7: Reduce Pollution to Levels That Are Not Harmful to Biodiversity

Reduce pollution risks and the negative impact of pollution from all sources by 2030 to levels that are not harmful to biodiversity and ecosystem functions and services, considering cumulative effects, including:

- a. reducing excess nutrients lost to the environment by at least half, including through more efficient nutrient cycling and use;
- b. reducing the overall risk from pesticides and highly hazardous chemicals by at least half, including through integrated pest management based on science, while taking into account food security and livelihoods; and
- c. preventing, reducing, and working towards eliminating plastic pollution.

Target 8: Minimize the Impacts of Climate Change on Biodiversity and Build Resilience

Minimize the impacts of climate change and ocean acidification on biodiversity and increase its resilience through mitigation, adaptation, and disaster risk reduction actions, including through nature-based solutions and/or ecosystem-based approaches, while minimizing negative and fostering positive impacts of climate action on biodiversity.

Target 9: Manage Wild Species Sustainably to Benefit People

Ensure that the management and use of wild species are sustainable, thereby providing social, economic, and environmental benefits for people, especially those in vulnerable situations and those most dependent on biodiversity, including through sustainable biodiversity-based activities, products, and services that enhance biodiversity, while protecting and encouraging customary sustainable use by indigenous peoples and local communities.



Mount Hermon Nature Reserve

Target 10: Enhance Biodiversity and Sustainability in Agriculture, Aquaculture, Fisheries, and Forestry

Ensure that areas under agriculture, aquaculture, fisheries, and forestry are managed sustainably, in particular through the sustainable use of biodiversity. This includes a substantial increase in the application of biodiversity-friendly practices, such as sustainable intensification, agroecological, and other innovative approaches, contributing to the resilience, long-term efficiency, and productivity of these production systems, as well as to food security, while conserving and restoring biodiversity and maintaining nature's contributions to people, including ecosystem functions and services.

Target 11: Restore, Maintain, and Enhance Nature's Contributions to People

Restore, maintain, and enhance nature's contributions to people, including ecosystem functions and services such as the regulation of air, water and climate, soil health, pollination, and the reduction of disease risk, as well as protection from natural hazards and disasters, through nature-based solutions and/or ecosystem-based approaches, for the benefit of all people and nature.



Mount Hermon Nature Reserve

Target 12: Enhance Green Spaces and Urban Planning for Human Well-Being and Biodiversity

Significantly increase the area, quality, connectivity, and accessibility of—and benefits from—green and blue spaces in urban and densely populated areas sustainably, by mainstreaming the conservation and sustainable use of biodiversity, and ensuring biodiversity-inclusive urban planning that enhances native biodiversity, ecological connectivity and integrity; improves human health, well-being, and connection to nature; and contributes to inclusive and sustainable urbanization and the provision of ecosystem functions and services.

Target 13: Increase the Sharing of Benefits from Genetic Resources, Digital Sequence Information, and Traditional Knowledge

Take effective legal, policy, administrative, and capacity-building measures at all levels, as appropriate, to ensure the fair and equitable sharing of benefits that arise from the utilization of genetic resources, digital sequence information on genetic resources, and traditional knowledge associated with genetic resources, while facilitating appropriate access to genetic resources. By 2030, this includes facilitating a significant increase in the benefits shared, in accordance with applicable international access and benefit-sharing instruments.

Target 14: Integrate Biodiversity in Decision-Making at Every Level

Ensure the full integration of biodiversity and its multiple values into policies, regulations, planning and development processes, poverty eradication strategies, strategic environmental assessments, environmental impact assessments, and, as appropriate, national accounting, within and across all levels of government and across all sectors, in particular those with significant impacts on biodiversity, progressively aligning all relevant public and private activities, as well as fiscal and financial flows, with the goals and targets of this framework.

Target 15: Businesses Assess, Disclose and Reduce Biodiversity-Related Risks and Negative Impacts

Take legal, administrative, or policy measures to encourage and enable business, and in particular to ensure that large and transnational companies and financial institutions:

- a. Regularly monitor, assess, and transparently disclose their risks, dependencies, and impacts on biodiversity, including through requirements covering their operations, supply and value chains, and portfolios;
- b. Provide information needed to consumers to promote sustainable consumption patterns;
- c. Report on compliance with access and benefit-sharing regulations and measures, as applicable.

In order to progressively reduce negative impacts on biodiversity, increase positive impacts, reduce biodiversity-related risks to business and financial institutions, and promote actions to ensure sustainable patterns of production.

Target 16: Enable Sustainable Consumption Choices to Reduce Waste and Overconsumption

Ensure that people are encouraged and enabled to make sustainable consumption choices, including by establishing supportive policy, legislative, or regulatory frameworks, and by improving education and access to relevant and accurate information and alternatives. By 2030, reduce the global footprint of consumption in an equitable manner, including through halving global food waste, significantly reducing overconsumption, and substantially reducing waste generation, enabling all people to live well in harmony with Mother Earth.

Target 17: Strengthen Biosafety and Distribute the Benefits of Biotechnology

Establish, strengthen capacity for, and implement biosafety measures in all countries, as set out in Article 8(g) of the Convention on Biological Diversity, as well as measures for the handling of biotechnology

and distribution of its benefits, as set out in Article 19 of the Convention.

Target 18: Reduce Harmful Incentives by at Least \$500 Billion per Year, and Scale Up Positive Incentives for Biodiversity

Identify by 2025, and eliminate, phase out, or reform incentives, including subsidies, that are harmful for biodiversity, in a proportionate, just, fair, effective, and equitable way, while substantially and progressively reducing such incentives by at least \$500 billion per year by 2030, starting with the most harmful incentives, while scaling up positive incentives for the conservation and sustainable use of biodiversity.

Target 19: Mobilize \$200 Billion per Year for Biodiversity From all Sources, Including \$30 Billion Through International Finance

Substantially and progressively increase the level of financial resources from all sources in an effective, timely, and easily accessible manner—including domestic, international, public, and private resources—in accordance with Article 20 of the Convention, to implement national biodiversity strategies and action plans, mobilizing at least \$200 billion per year by 2030 through the following actions:

- a. Increasing total biodiversity-related international financial resources from developed countries, including official development assistance, and from countries that voluntarily assume obligations of developed country Parties, to developing countries—particularly the least developed countries and small island developing States, as well as countries with economies in transition—to at least \$20 billion per year by 2025 and to at least \$30 billion per year by 2030;
- b. Significantly increasing domestic resource mobilization, facilitated by the preparation and implementation of national biodiversity finance plans or similar instruments, according to

- national needs, priorities, and circumstances;
- c. Leveraging private finance, promoting blended finance, implementing strategies to raise new and additional resources, and encouraging the private sector to invest in biodiversity, including through impact funds and other instruments;
 - d. Stimulating innovative schemes such as payment for ecosystem services, green bonds, biodiversity offsets and credits, and benefit-sharing mechanisms, with environmental and social safeguards;
 - e. Optimizing co-benefits and synergies of finance targeting the biodiversity and climate crises;
 - f. Enhancing the role of collective actions, including by indigenous peoples and local communities, Mother Earth centric actions [1], and non-market-based approaches including community based natural resource management and civil society cooperation and solidarity aimed at the conservation of biodiversity;
 - g. Enhancing the effectiveness, efficiency, and transparency of resource provision and use.

Target 20: Strengthen Capacity-Building, Technology Transfer, and Scientific and Technical Cooperation for Biodiversity

Strengthen capacity-building and development, facilitate access to and transfer of technology, and promote development of and access to innovation and technical and scientific cooperation, including through South-South, North-South, and triangular cooperation to meet effective implementation needs, particularly in developing countries, fostering joint technology development and joint scientific research programmes for the conservation and sustainable use of biodiversity, and strengthening scientific research and monitoring capacities, commensurate with the ambition of the goals and targets of the Framework.

Target 21: Ensure That Knowledge Is Available and Accessible to Guide Biodiversity Action

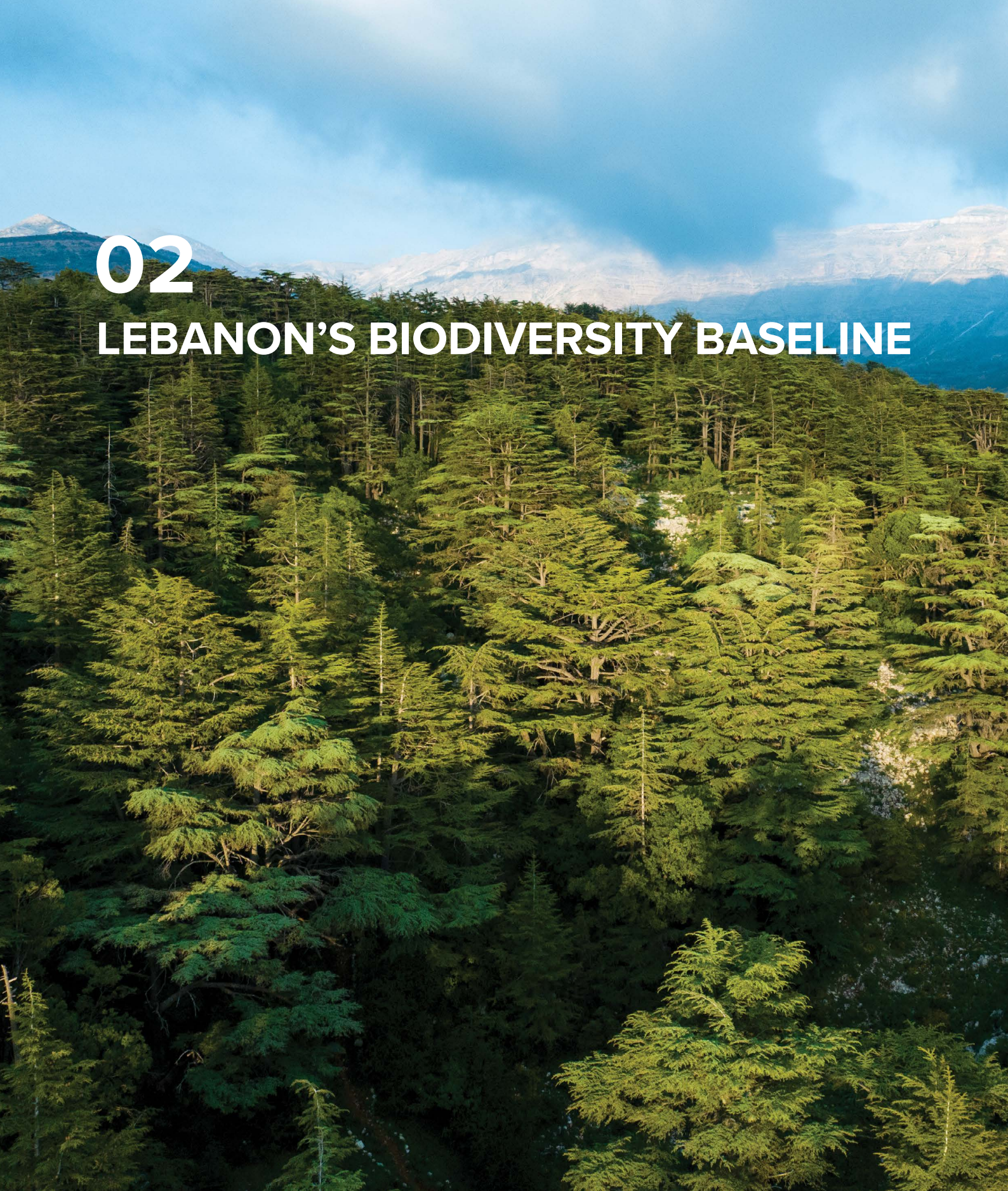
Ensure that the best available data, information, and knowledge are accessible to decision-makers, practitioners, and the public to guide effective and equitable governance, as well as integrated and participatory biodiversity management, and to strengthen communication, awareness-raising, education, monitoring, research, and knowledge management. In this context, traditional knowledge, innovations, practices, and technologies of indigenous peoples and local communities should only be accessed with their free, prior, and informed consent, [2] in accordance with national legislation.

Target 22: Ensure Participation in Decision-Making and Access to Justice and Information Related to Biodiversity for all

Ensure the full, equitable, inclusive, effective, and gender-responsive representation and participation in decision-making, and access to justice and information related to biodiversity, by indigenous peoples and local communities—respecting their cultures and their rights over lands, territories, resources, and traditional knowledge—as well as by women and girls, children and youth, and persons with disabilities, while ensuring the full protection of environmental human rights defenders.

Target 23: Ensure Gender Equality and a Gender-Responsive Approach for Biodiversity Action

Ensure gender equality in the implementation of the Framework through a gender-responsive approach, whereby all women and girls have equal opportunity and capacity to contribute to the three objectives of the Convention, including by recognizing their equal rights and access to land and natural resources and their full, equitable, meaningful, and informed participation and leadership at all levels of action, engagement, policy, and decision-making related to biodiversity.



02

LEBANON'S BIODIVERSITY BASELINE

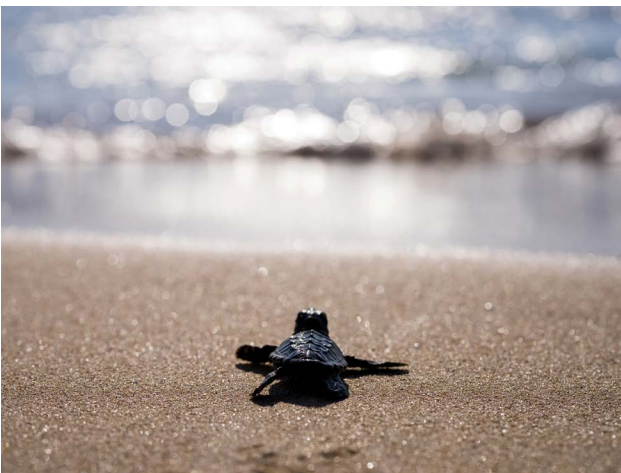
2.1 Status of Biodiversity in Lebanon: an Overview

2.1.1 An Important Diversity

As per the United Nations CBD, biological diversity, generally shortened to ‘biodiversity’, is defined as “the variability among living organisms from all sources including, inter alia, terrestrial, marine and other aquatic ecosystems and the ecological complexes of which they are part; this includes diversity within species, between species and of ecosystems”.

According to the Critical Ecosystem Partnership Fund (CEPF), the Mediterranean area is considered a true biodiversity “hotspot” and ranks third globally among hotspots in plant diversity and endemism, following the Tropical Andes and Sundaland.

Lebanon boasts a rich and unique biodiversity, mainly due to its biogeography, geology, ecology, and historic human settlements within the Mediterranean Basin. The country is home to a total of 9,119 known taxa, comprising 4,633 floral taxa and 4,486 faunal taxa (MoA/UNEP/GEF, 1996; MoE/UNEP/GEF, 2016). This biodiversity is distributed across five geomorphological regions: the Coastal Zone, the Mount Lebanon Range, the Beqaa Plain, the Anti-Lebanon Range, and South Lebanon.



Tyre Coast Nature Reserve

One of the most remarkable features of Lebanon is the presence of rich biodiversity within a relatively limited area of land. Although Lebanon accounts for only 0.007% of the world’s land surface area, it hosts about 1.11% of the world’s plant species and 2.63% of global reptile, bird, and mammal species (Tohme & Tohme, 2014). Table 2-1 presents the updated recorded number of species in Lebanon for major taxa.

Table 2-1: Species Richness in Lebanon

Taxon	Number of described species in Lebanon
Reptiles	63
Birds	405
Mammals	59
Terrestrial Plants	3,111

Source: MOE/ UNDP/ UNICEF/ UNHCR, 2021

Terrestrial Biodiversity

Reports indicate that 81% of Lebanon’s floral species are terrestrial; of which 8.5% (221 species) are endemic , 1.3% (34 species) are rare (MoE/ UNDP/ ECODIT, 2011), and 4.6% (121 species) are threatened (IUCN, 2024). Analysis reveals that most endemic species are located on the high summits of the two Lebanese mountain ranges, specifically in Mount Makmel, Mount Sannine, Qammouha, Ehden, and Mount Hermon (El Zein, H., & Kahale, R., 2022).

Lebanon encompasses important components of the Mediterranean vegetation, including Madrone, St. John’s Bread; Palestine Pistachio; Brutia, Aleppo and Stone Pine; Black and Palestine Oak; and Laurel, which are relicts of the ancient forests that dominated the Mediterranean Basin two million years ago. The most notable keystone and flagship plant species in the country is the iconic Lebanon Cedar (*Cedrus libani*), which has been exploited for its wood since the rise of civilization in the Fertile Crescent and afterwards put under protection.

Accordingly, Lebanon is known for its forested landscape, with forests covering 13% of the territory, and Other Wooded Land (OWL) covers 16.28%. Approximately 79,200 ha of forests are considered dense, with the highest concentrations found in Mount Lebanon (37%) and North Lebanon (30%), followed by South Lebanon (9%) and Nabatieh (6%). It is important to note that 57% of the forest cover is consists of broadleaved species, while coniferous species account for 32%, and the remainder comprises mixed conifer-broadleaf forests (MOE/ UNDP/ UNICEF/ UNHCR, 2021). The relic Cedar and Fir forests host several endemic, threatened, and economically valuable plant species.

Table 2-2: Red List Status of Terrestrial Plant Species in Lebanon

Terrestrial Plants	
Status	Number of Species
CR (Critically Endangered)	18
EN (Endangered)	62
VU (Vulnerable)	23
NT (Near Threatened)	18

Source: IUCN Red List Website, 2025

The species diversity of the Lebanese fauna is estimated to exceed 4,486 species (MoE, 2011), among which 46% thrive in terrestrial habitats (Khater, C., & El-Hajj, R., 2012). Of these, 78 terrestrial species are threatened (IUCN, 2025).

In 2019, an updated study recorded a total of 404 bird species in Lebanon; 284 species (70.3%) are passage migrants, winter visitors, or both; 69 species (17.10%) are vagrants, 73 species (17.8%) are summer breeders, and 65 species (16.1%) are breeding residents. It should be noted that some species fall into more than one category (Ramadan-Jaradi et al., 2020).

The International Union for Conservation of Nature (IUCN) Red List status of threat indicates that one bird species in Lebanon is Critically Endangered, four are Endangered, 13 are Vulnerable, and 24 are Near Threatened (MOE/ UNDP/ UNICEF/ UNHCR, 2021).

The status of mammals remains consistent with previous assessments, with 36.54% of existing mammals classified as Rare, 1.92% Near Threatened, 7.7% Vulnerable, and 1.92% Close to Extinction (MoE/ UNDP/ECODIT, 2011).

Table 2-3: Red List Status of Terrestrial Animal Species in Lebanon

Terrestrial Animals	
Status	Number of Species
CR	1
EN	15
VU	30
NT	32

Source: IUCN Red List Website 2025

Marine and Coastal Biodiversity

Lebanese waters represent less than 1% of the world's ocean surface, however, almost 6% of global marine species are found within those waters (MoE/ UNDP/ ECODIT, 2011; MoE/UNEP/GEF 2016; MOE/ UNDP/ UNICEF/ UNHCR, 2021). The Lebanese coastal and marine flora is predominantly Mediterranean in character, while exhibiting some subtropical features.

According to the National Monitoring Programme for Marine Biodiversity in Lebanon, there is no official list of marine biodiversity for Lebanon; nonetheless, successive studies (Lakkis, 2013; RAC/SPA - UNEP/ MAP, 2014; SPA/RAC-UN Environment/MAP, 2018; Bitar et al., 2018; Bariche & Fricke, 2020; SPA/ RAC-UN Environment / MAP, 2020) have identified around 3,265 species, divided among 243 Macrophytes, 783 Zooplankton, 385 Phytoplankton, and 367 Ichthyofauna species. Additionally, there are:

- Marine Mammals, seven species, namely (SPA/RAC-UN Environment/MAP, 2016; Badreddine et al., 2020; Bariche & Fricke, 2020):
 - o Short-beaked common dolphin (*Delphinus delphis*)
 - o Common bottlenose dolphin (*Tursiops truncatus*)
 - o Fin whale (*Balaenoptera physalus*)
 - o Cuvier's beaked whale (*Ziphius cavirostris*)
 - o Risso's dolphin (*Grampus griseus*)
 - o Striped dolphin (*Stenella coeruleoalba*)
 - o Mediterranean monk seal (*Monachus monachus*)
- Marine Herpetofauna, five species, namely (SPA/RAC-UN Environment/MAP, 2020):
 - o Loggerhead turtle (*Caretta caretta*)
 - o Green sea turtle (*Chelonia mydas*)
 - o Leatherback turtle (*Dermochelys coriacea*)
 - o Olive ridley sea turtle (*Lepidochelys olivacea*)
 - o Nile Soft-shelled Turtle (*Trionyx triunguis*)
- Marine Ornithofauna (foreshore, coastal, and maritime), four hundred and four (404) species (Ramadan-Jaradi et al., 2020).
- Zoobenthic species (invertebrates), one thousand and seventy-two (1,072), identified species that include:
 - o Foraminifera
 - o Sponges
 - o Cnidarians
 - o Turbellarians
 - o Nemertean
 - o Nematodes
 - o Entoprocts
 - o Bryozoa
 - o Phoronidians
 - o Brachiopods
 - o Sipunculans
 - o Polychaetes
 - o Mollusks
 - o Crustaceans
 - o Pycnogonids
 - o Echinoderms
 - o Enteropneusts
 - o Pterobranchs
 - o Ascidians

Freshwater Biodiversity

The total freshwater flora and fauna biodiversity in Lebanon is estimated around 987 species (Al Zein, 2001), which include a wide variety of organisms, among them 41 species of molluscs (such as *Pseudobithynia hamicensis*, *P. kathrini*, and *P. levantica*) (Glöer, Dia, & Falkner, 2012; Bößneck, 2011), 61 species of worms, 60 species of crustaceans, 494 species of insects, and 25 species of fish.

Faunal species in freshwater represent 16% of the country's total fauna biodiversity, and the floral species—such as *Platanus orientalis*, *Salix* species, *Juncus*, and *Cyperus* species—represent 6% of the total flora species in Lebanon. Notably, 5% of the country's freshwater fauna are classified as threatened, and 1.3% are endemic (MoA, UNEP, GEF, 1996).



Tyre Coast Nature Reserve

2.1.2 National Protected Areas

The MoE has been establishing and managing Nature Reserves (NR) since its establishment and declaring Nature Sites and Monuments under its Protection since 1998. In order to enhance the management of Protected Areas (PAs), the MoE has recently prepared a Protected Areas Framework Law, which was officially enacted on April 30, 2019, under Law No. 130/2019, and published in Official Gazette No. 23 on the same date.

The Framework law defines a categorization system for PAs that introduces two new categories, in addition to the two existing categories under the MoE (Nature Reserves and Nature Sites/Monuments). This Law outlines criteria for the establishment of each category, as well as their management objectives and modalities. The aforementioned categories with their related management objectives include:

- Nature Reserve, defined as a terrestrial or marine zone in which ecosystems, habitats, and species of specific importance must be protected due to being endemic, rare, or endangered. The conservation of such species and ecosystems may require maintenance or rehabilitation activities, where needed which should be detailed in the management plan of each related nature reserve to ensure the conservation of the habitats and the species they harbour.
- Natural Park, defined as a vast rural territory, partially inhabited, with exceptional natural and cultural heritage recognized nationally and deserving of long-term protection. A Natural Park may include one or more PAs or potential PAs.
- Natural Site and Monument under the Protection of the MoE, corresponding to an area containing one or more natural features of exceptional importance which deserve protection due to their rarity, representativeness, or beauty.
- Hima, defined as a protected site that includes a natural ecosystem and may also contain a sustainably modified area (i.e., through the sustainable use of natural resources). It holds significant biological diversity, ecological services, and cultural values. In such sites, ecosystems, natural habitats, and associated cultural values are voluntarily protected through a traditional system of natural resource

management by local communities, based on their traditional knowledge and skills. A Hima is under the supervision of the municipality, the union of municipalities, or the Qaimaqam¹ in the case of villages where there are no municipalities.

The current existing PAs in Lebanon are under the following categories:

- Nature Reserves, each established by a specific law since 1992 (refer to Table 2-5 and Figure 2-1 below), and re-organized through the Protected Areas Framework Law #130/2019.
- Nature Sites under the protection of the MoE, established by MoE decisions or decrees by CoM based on MoE proposals, initially under the Law on the Protection of Natural Sites (08/07/1939) (refer to Table 2-6 below); and currently governed the Protected Areas Framework Law No. 130/2019.
- Himas (refer to Table 2-9), established by Municipal Council Decisions, as defined by the Protected Areas Framework Law No. 130/2019.



Tannourine Cedar Forest Nature Reserve

¹ Lebanon is divided into Governorates, each sub-divided into administrative units called Cazas. The Qaimaqam is the person appointed by the Government as the head of the Caza and works in collaboration with the Governor.

In addition to the Protected Forests established by MoA decisions prior to 1996, based on the Law of Protection of Forests Wealth (Law No. 85, dated 1991); forests have been protected since 1996 directly under the Law of Protection of Forests (Law No. 558, dated 24/07/1996) and through MoA ministerial decisions issued under this Law. These sites are listed in Table 2-7.

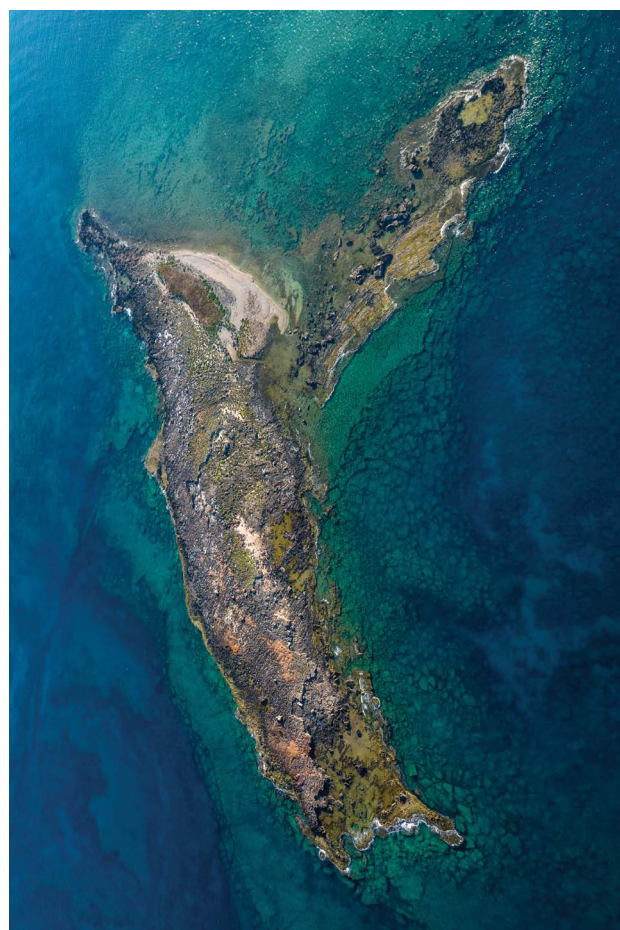
In addition to the existing declared PAs, there are many candidate natural areas in need of national protection; as listed in Table 2-8.

Moreover, some sites are recognized by international entities and conventions; i.e., World Heritage Sites and Man and Biosphere Reserves by UNESCO, Ramsar sites under the Ramsar Convention, Important Bird Areas (IBAs) by BirdLife International, Key Biodiversity Areas (KBAs) by the KBA Partnership, and Specially Protected Areas of Mediterranean Importance (SPAMI) under the SPA and Biodiversity Protocol.

Recent field surveys (UNDP, 2024) conducted in the 18 Nature Reserves identified the following:

- A total of 38 mammal species, including two Near Threatened species at the national level—the Blasius's horseshoe bat (*Rhinolophus blasii*) and the greater horseshoe bat (*Rhinolophus ferrumequinum*)—and one Vulnerable species at the national level—the Mediterranean horseshoe bat (*Rhinolophus euryale*). Apex predators, namely the grey wolf (*Canis lupus*) and striped hyena (*Hyaena hyaena*) were recorded in low numbers, primarily due to habitat fragmentation and anthropogenic pressures. A noteworthy discovery includes a previously undocumented mammal species from the *Talpidae* family near Karm Chbat Nature Reserve in 2024.
- Avifaunal assessments documented 209 bird species, with high diversity recorded in Mount Hermon and Tyre Coast Nature Reserves.

- Herpetofaunal diversity encompassed 41 reptile and amphibian species.
- Entomological assessments recorded 993 insect species, including several new national records and the first documentation of the globally vulnerable great capricorn beetle (*Cerambyx cerdo*) in two reserves.
- As part of the mushroom study, a total of 457 sporocarp samples were taken from 17 Nature Reserves, representing over 193 species identified at specie level.
- The flora study identified approximately 794 plant species, representing 27.8% of the country's total flora, including 90 endemic taxa—more than half of Lebanon's known endemics—and 46 rare species out of an estimated national total of 300.



Palm Islands Nature Reserve

Table 2-4: Species Count Recorded in Each Nature Reserve (NR)

Terrestrial Plants																		
Group	HENR	KCNR	PINR	TCFNR	SCNR	BNR	MCNR	JCNR	YNR	MHNR	TCNR	ACNR	NNR	KNR	WHNR	RNR	DNR	BLNR
Fauna																		
Terrestrial Mammals	19	9	2	16	19	12	11	14	14	12	3	1	-	5	9	5	10	8
Bats	9	5	1	8	14	4	6	8	4	8	2	4	-	-	2	-	-	-
Birds	97	59	50	88	99	49	44	38	57	106	103	42	53	28	40	39	36	31
Amphibians	3	1	-	2	2	-	1	3	-	-	3	1	-	-	-	-	1	1
Reptiles	14	9	4	13	15	11	6	12	5	7	13	7		3	5	5	3	4
Insects	204	167	20	305	397	106	26	78	24	156	44	24	-	15	28	5	7	7
Mushrooms																		
-	25	23	0	44	36	37	50	17	15	0	2	0	-	2	3	0	0	2
Flora																		
-	86	102	155	319	96	65	58	210	120	88	153	-	-	108	104	36	141	64

HENR = Horsh Ehden; KCNR = Karm Chbat; PINR = Palm Islands; TCNR = Tyre Coast; SCNR = Al Shouf Cedars; BNR = Bentaël; MCNR = Mashaa Chnaniir; JCNR = Jaj Cedars; YNR = Yammouni

MHNR: Mount Hermon; TCFNR = Tannourine Cedar Forest; ACNR = Abbasiyeh Coast Nature Reserve; NNR = Nmayrieh; KNR = Kafra; WHNR = Wadi Al Houjeir;

RNR = Ramya; DNR = Debl; BLNR = Beit Leef

Source: UNDP, 2024

Figure 2-1: Protected Areas in Lebanon



Source: UNDP, 2024

<https://www.undp.org/sites/g/files/zskgke326/files/2024-06/LBN%20Protected%20Area%20A1%20Poster%20r19-RGB-noQR.pdf>

Table 2-5: Nature Reserves in Lebanon

#	Nature Reserve	Legal Instrument	Date of Creation	Approximate Surface Area (hectares)	Elevation Zone (meters)	International Designations	Management Plan
1	Horsh Ehden	Law No. 121	March 09, 1992	1,410	1,200 - 1,900	Important Bird Area	Yes
2	Palm Islands	Law No. 121	March 09, 1992	417.73 (The three islands with 500m. of surrounding water)	Sea Level	Ramsar Site, Specially Protected Area, Specially Protected Area of Mediterranean Importance (SPAMI), Important Bird Area	Yes
3	Karm Chbat	MOE Decision 14/1	October 06, 1995	328	1,400 - 1,900	None	No
4	Al Shouf Cedars	Law No. 532 and its amendment Law No. 119	July 24, 1996; and July 29, 2010	9,978.2	900 - 2,000	Biosphere Reserve, Important Bird Area	Yes
5	Tyre Coast	Law No. 708 and Decree No. 8044	November 05, 1998	12,194.5	Sea Level	Ramsar Site, Specially Protected Area of Mediterranean Importance (SPAMI)	Yes
6	Bentael	Law No. 11	February 20, 1999	75.31	250 – 800	Important Bird Area	Yes
7	Yammouni	Law No. 10	February 20, 1999	1,984	1,400 - 2,000	None	Yes
8	Tannourine Cedar Forest	Law No. 9	February 20, 1999	195.48	1,300 - 1,800	Important Bird Area	Yes
9	Wadi Al Houjeir	Law No. 121	July 23, 2010	3,595	250 – 400	None	Yes
10	Mashaa Chnaniir	Law No 122	July 29, 2010	27	500 – 530	None	Yes
11	Kafra	Law No 198	November 18, 2011	33.95	~650	None	Yes
12	Ramya	Law No 199	November 18, 2011	11	~650	None	Yes
13	Debl	Law No 200	November 18, 2011	25	~600	None	No

#	Nature Reserve	Legal Instrument	Date of Creation	Approximate Surface Area (hectares)	Elevation Zone (meters)	International Designations	Management Plan
14	Beit Leef	Law No 201	November 18, 2011	17	~550	None	Yes
15	Jaj Cedars	Law No 257	April 15, 2014	20	~1,650	None	Yes
16	Nmayrieh	Law No 169	May 8, 2020	10.2	~300	None	No
17	Abbasiyeh Coast	Law No 170	May 8, 2020	293.54	Sea level	None	Yes
18	Mount Hermon	Law No 202	December 30, 2020	1260	1700	None	Yes

Sources: MoE, 2025

Table 2-6: Nature Sites under the Protection of the MoE

#	Decision / Decree number	Date	Description	Location	Surface (ha)	Surface Buffer (ha)* of zone
1	Decision 15/1	1995	Prevent any action or any changes in the vicinity of Faqra Natural Bridge in the district of Kesrouan	Kesrouan	0.4	10.62
2	Decision 151	1997	Kadisha Valley	Bcharre	1049	634.2
3	Decision 34	1997	Ibrahim River to sea outfall	Jbail	3243	N/A
4	Decision 22	1998	Al Jawz River to sea outfall	Batroun	1887	N/A
5	Decision 29	1998	Al Damour River to sea outfall	Shouf	7533	N/A
6	Decision 97	1998	Al Kalb River to sea outfall	Kesrouan	5727	N/A
7	Decision 130	1998	Beirut River to sea outfall	Beirut and Mount Lebanon	8170	N/A
8	Decision 131	1998	Al Awali River to sea outfall	Saida	8124	N/A
9	Decision 132	1998	Forests between Ain El Hour-Daraya- Debiyé- Bérjin	Shouf	47.3	147.3
10	Decision 132	1998	Sheikh Osman Forest	Shouf	1.9	45.8
11	Decision 132	1998	Deir al Mokhalis surrounding	Shouf	120	152.5
12	Decision 132	1998	Ain w Zein Hospital surrounding	Shouf	8.9	81.4

#	Decision / Decree number	Date	Description	Location	Surface (ha)	Surface Buffer (ha)*	of zone
13	Decision 132	1998	Dalboun forest	Shouf	34.6	120.1	
14	Decision 132	1998	Al Mal valley	Shouf	105	236.5	
15	Decision 132	1998	Kafra wells	Shouf	1.92	43	
16	Decision 132	1998	Eghmid valley	Shouf	95.1	174.8	
17	Decision 132	1998	Ainbal valley	Shouf	19.3	125.9	
18	Decision 187	1998	Al Makmel Mountain - Qornet Al Sawda	North Lebanon	12729	N/A	
19	Decision 188	1998	Arka River to sea outfall	Aakkar	2494	N/A	
20	Decision 189	1998	Al Assi River	Hermel	2186	N/A	
21	Decision 19	2002	Al Kammoua Area	Aakkar	4959	1511	
22	Decision 21	2002	Al Qaraqeer Valley	Zgharta	511	N/A	
23	Decision 22	2002	Dalhoun Forest	Shouf	5.9	N/A	
24	Decision 8	2004	Baatara Sinkhole	Tannourine	0.3	78.6	
25	Decree No. 7494	2012	Jabal Moussa	Kesrouan	406	N/A	
26	Decree No. 11949	2014	Kassarab Grotto	Metn	3.8	8.7	
27	Decree No. 2878 amended by Decree No. 657	2016 amended I 2017	Ehmej	Jbeil	63	N/A	
29	Decree No. 7834	2021	Ejdhebrine	Koura	27.3	N/A	
30	Decree No. 9373	2022	Kfarhata forest	Koura	29.6	45.5	

*The buffer zone of each terrestrial nature site is defined according to the decision of classification of each site.

Sources: MoE, 2025

Table 2-7: List of Protected Forests by the MoA

#	Decision	Date	Location	Predominant Species					Surface Area (ha)
				Cedar	Fir	Juniper	Oak	Pine	
Protected Forests:									
1	21/1	12/2/1992	Kherbit Selim						19
2	71/1	13/5/1992	Kfarzabad						-
3	152/1	15/10/1992	Hbaine	Mixed Forests and Fruit Trees					7
							x	x	

#	Decision	Date	Location	Predominant Species					Surface Area (ha)
				Cedar	Fir	Juniper	Oak	Pine	
4	499/1	14/10/1996	Arz El Rab	x			x		10
			Hadath El Jebbeh	x			x		307
5	588/1	30/12/1996	Al Qammoua	x	X	x			832
6	591/1	30/12/1996	Bazbina	x	X	x	x	x	336
7	592/1	30/12/1996	Qnat	x	X	x	x	x	471
8	587/1	30/12/1996	Soueyse	x	X	x			253
9	8/1	17/1/1997	Ain El Houkaylat / Karm El Mohr	x	X	x	x		683
10	9/1	17/1/1997	Jord El Njass / Jabal El Arbain	x		x			1,850
11	10/1	17/01/1997	Safinet El Kayteh	x			x		-
12	174/1	25/3/1997	Hbaine	Mixed Forests and Fruit Trees					-
							x	x	-
13	3/1	8/12/1997	Bkessine					x	184
14	11/1	17/1/1997	Mrebine Forest	x	x	x			1,725
15	217/1	7/6/2005	Marjhin – Akabet Al Hoson – Hemel			x			-
16	218/1	7/6/2005	Kherbet Hrabshit – Wadi Al Arishe – Hermel			x			-
17	219/1	7/6/2005	Jbab El Homor Shaab Hassan – Donieh			x			-
18	399/1	26/9/2008	Jabal Moussa			x	x	x	82
19	456/1	8/6/2018	Mtein						43
20	152/1	4/3/2020	Kfarzabad						1,247
Protected Forests that were Reclassified by Law as Nature Reserves:									
21	127/1	23/10/1991	Ain Dara	x					3,758
			Ain Zhalta	X					
			Barouk	X					
			Maaser El Chouf	X					
22	499/1	14/10/1996	Jaj Cedars	X			x		19
			Tannourine Cedars						190
23	589/1	30/12/1996	Karm Chbat	X	X	x	x		3.33

Source: MoA, 2025; UNDP, 2025; and WDPA, 2025

Table 2-8: Sites in Need of National Protection

Sites of Natural and/or Ecological Importance in Need of Protection	
Wetlands:	Natural Bridges and Rocks:
1. Ammiq wetland 2. Cheikh Zennad	1. Al Laqlouq Natural Bridge 2. Sites with Calcerous - Karstic rocks ex. Faytroun and Rayfoun in Kesrouan; Douma in Batroun
Grottos:	Trees, Forests, and Valleys:
1. Al Rwaess grotto 2. Afqa grotto 3. Ain Labne grotto 4. Salem grotto 5. Al Tarash grotto 6. Kfarhim grotto 7. Dahr El Ain grotto 8. Al Rahwa Spring grotto 9. Zoud grotto 10. Al Motran grotto 13. Al Hawa grotto 12. AlShatawi spring grotto 13. Al Rihan grotto 14. Deir Amess grotto 15. Haris grotto 16. Debl grotto 17. Jeita grotto	1. Al Qellé Forest (Akkar) 2. Al Azer Forest (Fneidek) 3. Bshaalé Olives 4. Sir Doniyeh Valley
	Rivers, Coastal and Marine Areas:
	1. Al Baqbouq beach, Abbassieh 2. Litani Stream and estuary 3. Nakoura 4. Sidon Rocks 5. Raoucheh cliffs and caves 6. Byblos 7. Medfoun rocky area 8. Batroun Phoenician wall 9. Ras El Chekaa cliffs 10. Enfeh Peninsula 13. Awally estuary 12. Damour estuary 13. Nahr Ibrahim estuary 14. Arida estuary 15. Beirut Escarpment 16. Saint Georges Canyon 17. Junieh Canyon 18. Sayniq Canyon
Mountain Tops:	Holes:
1. Al Rihan Mountain 2. Al Kneisse Mountain (Sinkholes and dollines) Sanine Mountain	1. Kateen Azar Hole (Tarshish) 2. Fawar Dara Hole (Tarshish) 3. Meshemshiyit Hole (Tarshish) 4. Al Badwiyi Hole 5. Katmeen Sinkhole (Rmeich) 6. Al Abed Hole (Tannourine) 7. Al Kadaha Hole (Tannourine) 8. Osman AlRamhi Hole 9. Smokhaya Sinkhole (Rmeich)

Source: MoE, 2015; MoE/ IUCN, 2012

There are 36 Himas that have been officially established on municipal land through municipal decisions declared in collaboration with municipalities and local authorities, following initiatives by SPNL (SPNL, 2025).

Table 2-9: List of Himas

Governorate (Mohafazat)	#	Decision Number	Year	Hima Site	Surface (ha)
Akkar	1	-	2009	Rouaime-Al-Maabour Al-Abyad	33
	2	Decision 21	2012	Andket	52
	3	Decision 1/B/2014	2014	Mengez	49
Bekaa	4	Decision 16	2023	Rashaya	-
	5	Decision 15	2024	Ain Horshe	-
Central Bekaa	6	Decision 24	2004	Kfar Zabad	2
	7	Decision 21	2008	Anjar	554
Northern Bekaa	8	Decision 25	2013	Fakiha	5,914
	9	Decision 24	2014	Charbine	364
	10	Decision 171	2018	West Baalback	5,960
West Bekaa	11	Decision 2	2014	Kherbet Anafar	328
	12	Decision 24	2014	Qaroun	306
	13	Decision 1/M/B	2014	Ain Zebdeh	45
	14	Decision 59	2017	Aitanit	-
	15	Decision 54/2021	2021	Mansoura	21
	16	Decision 62	2025	Kefraya	-
North Lebanon	17	Decision 1200	2017	Anfeh	728
Mount Lebanon	18	Decision 15	2015	Tarchish	50
	19	Decision 24	2017	Akoura	8
	20	Decision 71	2017	Kayfoun	5
	21	Decision 158	2018	Hammana	50
	22	Decision 41	2018	Ras Al Maten	400
	23	Decision 19/2019	2019	Kfar Matta	10
	24	Decision 33	2022	Baakleen	-
	25	Decision 84	2022	Jdeidet Chouf	-
	26	Decision 51	2023	Baysour	-
	27	Decision 37	2023	Souk Charb	-
	28	Decision 22	2024	Aabadieh	-
	29	Decision 3	2025	Btecknieh	-
	30	Decision 451	2025	Qornayel	-
South Lebanon	31	Decision 12	2004	Ebel es-Saqi	1
	32	Decision 46	2006	Qoleileh	1
	33	DeciKherbet Anafarsion 7	2008	Mansouri	1
	34	Decision 43	2013	Qaytouli	75
	35	Decision 113	2014	Roum	100
	36	Decision 16	2018	Arnoun	0.30

Source: MoE, 2015; MoE/ IUCN, 2012

2.1.3 Internationally Designated Areas

On a global scale, UNESCO-MAB has identified three sites as Biosphere Reserves:

- The Shouf Biosphere Reserve (2005), which includes Al-Shouf Cedar Nature Reserve & Ammiq Wetland, as well as 22 surrounding villages
- The Jabal Al Rihane Biosphere Reserve (2007)
- The Jabal Moussa Biosphere Reserve (2008)

Two natural sites were listed as one site on the World Heritage List by UNESCO as “Cultural Landscape”:

- The Valley of Qannoubine
- Arz El Rab Cedar Forests

Four Ramsar sites are recognized in Lebanon under the Ramsar Convention on Wetlands of International Importance, covering a total surface area of 1,075 hectares:

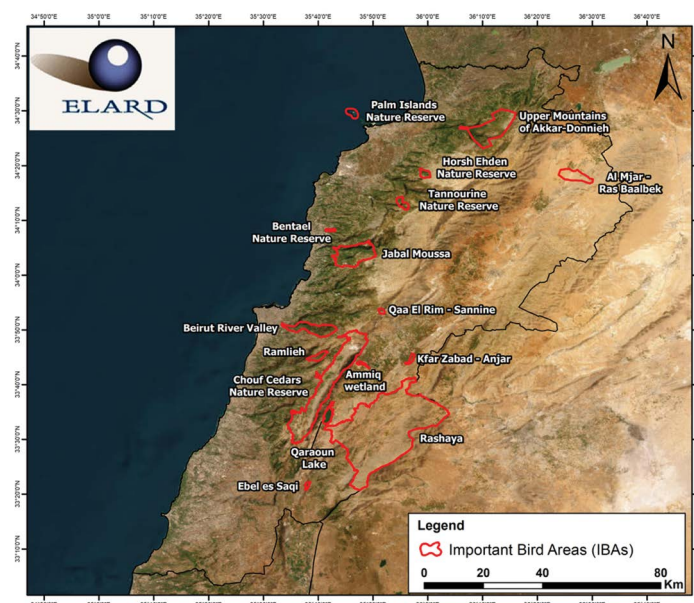
- Ammiq Wetland: Ramsar Site No. 978 (16/4/1999)
- Raas Al-Chaqaa: Ramsar Site No. 979 (16/4/1999)
- Tyre Coast Nature Reserve: Ramsar Site No. 980 (16/4/1999)

- Palm Islands Nature Reserve: Ramsar Site No. 1079 (3/8/2001)

Moreover, the sixteen sites listed below are defined as IBAs by Birdlife International and are illustrated in Figure 2.2:

- Horsh Ehden Nature Reserve
- Palm Islands Nature Reserve
- Aamqi Wetland
- Al Shouf Cedar Nature Reserve
- Hima Anjar / Kfar Zabad
- Lake Qaraoun
- Riim / Sannine Mountain
- Bentaël Nature Reserve
- Tannourine Cedars Nature Reserve
- Hima Ebel es-Saqi
- Semi Deserts of Ras Baalbek
- Beirut River Valley
- Upper Mountains of Akkar-Donnieh
- Jabal Moussa Mountain
- Ramlieh Valley
- Rashaya

Figure 2-2: Important Bird Areas in Lebanon



Source: Map prepared by ELARD using a KMZ file provided by SPNL on 20/05/2025

Two sites are listed as “Specially Protected Areas of Mediterranean Importance” (SPAMI) by the Specially Protected Areas (SPA) and Biodiversity Protocol:

- Tyre Coast Nature Reserve
- Palm Islands Nature Reserve

Furthermore, the below KBAs were identified by CEPF.

Table 2-10 List of Key Biodiversity Areas

#	KBA Name	ID#	Status	Area	KBA Coverage (%)
1	Nahr Al Kabeer	20616	Confirmed	84.65937	0.44
2	Qammouaa-Dinnyeh-Jurd Hermel	46600	Confirmed	663.37674	5.04
3	Palm Islands Nature Reserve	8211	Confirmed	16.50132	25.29
4	Semi-arid north-western Anti-Lebanon	31734	Confirmed	796.79966	6.49
5	Ehden- Bcharre- Tannourine / Makmal- Ainata	46658	Confirmed	465.32591	4.16
6	Enfeh-Medfoun	46597	Confirmed	55.18	25.90
7	Jbail Coast	46598	Confirmed	2.08271	-
8	Bentael Foresy Area	20608	Confirmed	21.16949	3.56
9	Jabal Moussa Mountain	24245	Confirmed	219.53109	0.12
10	Nahr Ibrahim Estuary	46641	Confirmed	0.5375	-
11	Rihane- Chouf- Ammiq- Sannine	46642	Confirmed	513.97141	25.79
12	Beirut Coast	31769	Confirmed	32.7852	-
13	Beirut River Valley	20703	Confirmed	101.51079	1.64
14	Nahr Ed-Damour	46674	Confirmed	62.6632	-
15	Awally to Litani estuary	46596	Confirmed	46.51991	-
16	Upper Litani River	31729	Confirmed	116.73141	27.48
17	Mount Hermon	46659	Confirmed	320.95162	3.92
18	Nakoura-Tyre	46599	Confirmed	43.86924	7.39
19	Sarada	46601	Confirmed	3.17005	-

Source: KBA Website, 2025

2.2 Importance of Biodiversity Conservation and Sustainable Use

2.2.1 Lebanon’s Ecological Footprint and Biocapacity: Indicators of Unsustainability

Both ecological footprint and biocapacity are expressed in a globally comparable, standardized unit called a ‘global hectare’ (gha), which corresponds to a hectare of biologically productive land or sea area with world-average bioproductivity in a given year. If the ecological footprint of a human population exceeds the biocapacity of its environment, the situation is unsustainable.



Abbassiyeh Coast Nature Reserve



Jaj Cedars Nature Reserve

The two indicators show a clear trend over the past 50 years: more and more countries are becoming ecological debtors. As of 2023, over 85% of the global population lives in countries where the ecological footprint exceeds the nation’s biocapacity, meaning these countries consume more natural resources than their ecosystems can generate (World Population Review, 2025).

Based on variations between average regional yields for cropland, grazing land, forest, and fisheries compared with corresponding global yields; Lebanon’s total biocapacity reached 1.8 million gha in 2024. This figure is considerably lower than the country’s total ecological footprint of 18.6 million gha for the same year, indicating an unsustainable use of natural resources, as shown in Table 2-13.

Table 2-11: Lebanon’s Ecological Footprint, Biocapacity, and Deficit in 2024

Country	Total Ecological Footprint	Ecological Footprint Per Person 2024 HA/capita	Total Biocapacity GHA 2024	Biocapacity Per Person 2024 HA/capita	Ecological Deficit
Lebanon	18.6M	3.2	1.8M	0.3	-950%

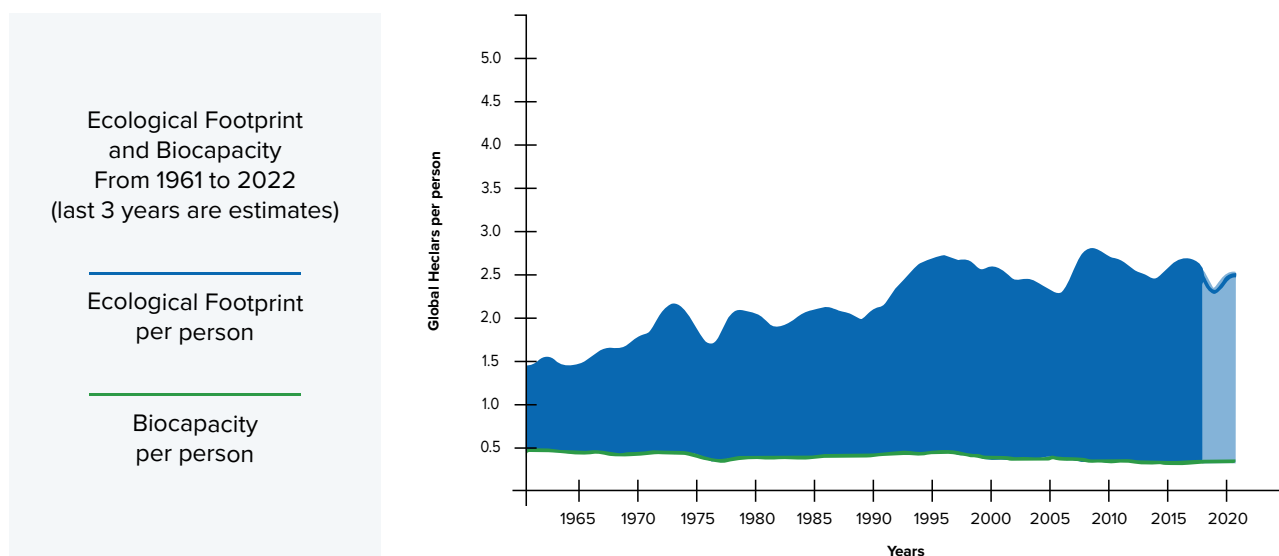
World Population Review, Ecological Footprint by Country, 2025

Figure 2-3 displays Lebanon's ecological footprint and biocapacity per capita between 1961 and 2020. The red area indicates biocapacity deficit, in gha per capita, where the demand for resources, in aggregate, exceeds Lebanon's ecological capacity to meet this demand. Nevertheless, inequalities in consumption patterns reveals that a large proportion of the population's basic needs— such as food, shelter,

health, and sanitation—remain unmet.

For the purpose of achieving livelihood improvements, a larger number of Lebanon's population must gain greater access to natural resources through significant optimization of resource efficiency and the expansion of biocapacity without resource-intensive production.

Figure 2-3: Lebanon's Ecological Footprint and Biocapacity (per capita, 1961-2020)



Source: Global Footprint Network, 2023 Accounts; GDP, International Financial Statistics (IFS); Population, U.N. Food and Agriculture Organization²

2.2.1.1 Agricultural Lands

Agricultural lands provide resources for both agricultural and industrial crops and are also used for grazing. About 36% of Lebanon's lands are cultivated of which 50% is irrigated. These agricultural lands are located mainly in the narrow coastal plains in Akkar, the in-land Bekaa Valley, the Marjayoun Plain in the South, and the terraces along the mountain sides (Chalak, L. 2015). More than 50% of cultivated land is dedicated to olives, wheat, potatoes and barley, whereas only 1.7% is used to grow tomatoes (Dal et al, 2021). Agriculture constitutes the main source of

income for an average of 30% of the Lebanese population (UN Women Lebanon, 2022).

However, the productivity of agricultural lands is declining due to soil degradation and water scarcity. According to the Food and Agriculture Organization (FAO, 2022), 30% of arable land is degraded and 70% of farmers report reduced access to irrigation. Moreover, a study by UNDP in 2023 shows that high-value crops such as cannabis—now accounting for 40% of Bekaa Valley farmland—are increasingly displacing food crops, a trend driven by the economic crisis.

² This graph has been prepared by the Global Footprint Network based on UN statistical results with a data quality index of 5, indicating "reasonably reliable" results.

Large areas of the Lebanese High Mountains contribute to the country's food security as more than 25,000 ha (11% of the high mountain surface area) are used as grazing lands for flocks. Additionally, 11,000 ha (5% of the high mountain surface area) are dedicated to the growing of fruit orchards and to the summer production of vegetables and pulses (AUB NCC, 2020).

Owing to the significant aesthetic and cultural value of agricultural lands in Lebanon, agro-tourism has emerged as a new use of these areas. It provides income, supports the utilization of existing facilities, contributes to natural conservation efforts, and offers recreational and educational opportunities for populations in both urban and rural areas.

Although still a relatively new and limited tourism sector in Lebanon, agro-tourism mainly consists of winery tours (primarily in Bekaa and recently in Batroun), seasonal fruit-picking activities (mainly apple and cherry), and olive oil production tours (from harvesting to pressing), organized by ecotourism agents.

In September 2014, the Rural Tourism Strategy for Lebanon³ was developed. The strategy suggests key directions and practical actions to be implemented over the subsequent five years to improve the competitiveness of rural tourism in Lebanon, including agro-tourism. The MoA's 2020–2025 National Agriculture Strategy (NAS) explicitly recognizes agro-tourism and “responsible rural/eco-tourism” as emerging opportunities to add value to farm products and heritage (Lebanon National Agriculture Strategy - NAS 2020-2025).

However, Lebanon's ongoing political and economic crises (financial collapse, regional security tensions) have hampered tourism recovery. The EU notes that

Lebanon's economy “has already started to feel the impact... in terms of hostilities” and tourism declines (European Commission, 2024), and observers report that foreign visitor arrivals remain far below pre-crisis levels (Bou Khzam, 2024).

Since 2014, multiple donor-funded projects targeted rural and agro-tourism. CIFA reports that such projects have generated new employment opportunities, helped young people stay in their villages, and promoted environmental stewardship (Lebanon's hospitality sector, 2024). In addition, several national projects and local initiatives have promoted rural and agro-tourism; however, challenges such as poor infrastructure (roads, internet, reliable utilities) and weak marketing continue to limit the potential of village destinations, while ongoing instability may further reduce tourist demand.

2.2.1.2 Wooded Lands

Wooded lands are considered forests that have energy, cultural, intrinsic, spiritual, and aesthetic values. Although the last recorded percentage of forest cover is 13% of the total surface area of Lebanon (FAO, 2020), forests and wooded lands in Lebanon have faced intense human pressures in recent years that threaten their long-term survival.

Between 2001 and 2021, Akkar experienced the highest rate of tree cover loss due to fires, averaging 32 hectares lost per year (Global Forest Watch, Lebanon, 2023). The vulnerability of Lebanon's forests was dramatically highlighted during the outbreak of forest fires in October 2019, when more than 120 fires were recorded over just two days. These fires consumed hundreds of hectares of forest, marking what has been described as the country's most severe wildfire event in decades (Al Jazeera, 2019; World Bank, 2025).

³ Prepared by the MoT in cooperation with DAI and Beyond Beirut, in consultation with rural tourism actors, under the Lebanon Industry Value Chain (LIVCD) Project funded by the United States Agency for International Development (USAID).

Lebanon's economic collapse (since 2019) has led to severe fuel shortages and electricity blackouts, forcing households to revert to using wood. A 2022 study by the American University of Beirut (AUB) found that over 50% of households used wood for heating during winter 2021–2022, a figure significantly higher than the pre-crisis level of 15%. The World Bank (2021) reported a 30–40% increase in wood fuel demand since 2019, placing additional strain on forests and driving illegal logging.

Reforestation initiatives have been undertaken, and 500,000 trees have been planted since 2020; however, survival rates remain low (below 50%) due to droughts and fires.

2.2.1.3 Scrubland and Grassland

Scrublands and grasslands are primarily used for grazing, agriculture, and forage production.

Unfortunately, 60% of scrublands are degraded by unregulated livestock grazing (MoA, 2021).

2.2.1.4 Bare Lands and Rocky Areas

These high-altitude areas, mostly covered by sparse, shrubby, and spiny vegetation, are impacted by overgrazing and used for various purposes, including quarrying, ecotourism, and recreational activities such as hiking, mountain biking, and rock climbing. Some ecosystem sub-types also provide resources for medicinal and cosmetic uses.

2.2.1.5 Inland Water Bodies and Wetlands

Despite their biological importance, there is no comprehensive inventory of wetlands in Lebanon; nonetheless, eight have been identified (Table 2 12), four of which were designated under the RAMSAR List of 2014. According to the National Physical Master Plan for the Lebanese Territory (NPMPLT, 2008), swamps and wetlands cover 0.1% of Lebanon's surface area (approximately 16 Km²).

Table 2-12: Identified Wetlands of Lebanon

No.	Name	Area (ha)	Description	Location	RAMSAR Designation
1	Palm Islands	410	Three islands almost completely covered by saline water, notably among karstic ponds.	Coastal	+
2	Cliffs of Ras El-Chekkaa	85	Jointed cliffs (~200 m) of carbonate rocks adjacent to the sea.	Coastal	+
3	Tyre Coast	380	An elongated watercourse from a number of artesian springs running to the coast.	Coastal	+
4	Abbassiyeh Coast	54	Found in the Abbassiyeh Coast Nature Reserve (ACNR) (Tyre Caza; South Lebanon)	Coastal	-
5	Ayoun Orghosh	47	Surface water occurring in a land depression seeping from adjacent mountains and fed mainly by snowmelt.	Inland	-

No.	Name	Area (ha)	Description	Location	RAMSAR Designation
6	Aamiq	280	Several natural freshwater ponds within carbonate rocks.	Inland	+
7	Chamsine/Anjar	85	Watercourses of running water originating from Chamssine and Anjar springs that feed the Litani River.	Inland	-
8	Aaiha	320	Lowlands where water seeps from neighboring mountain chains.	Inland	-

Source: Adapted from Shaban, A., Faour, G., Stephan, R., Khater, C., Darwich, T., & Hamze, M. (2016). Assessment of coastal wetlands in Lebanon. Coastal Zones: Management, Assessment, and Current Challenges. Nova Science Publishers, Inc, New York, 27-97.

2.2.1.6 Water Courses

Water courses provide food through fishing activities, potable and irrigation water, and are an important source of renewable energy (e.g., hydroelectricity). As of the latest available data from 2024, the total installed capacity of hydropower plants in Lebanon is approximately 192 megawatts (MW). This capacity is primarily attributed to the Litani River hydropower plants, which are owned and operated by the Litani River Authority (LRA) under the Ministry of Energy and Water (LRA, 2024).

Moreover, a new hydropower project, the Janneh Hydropower Plant, is under construction on the Nahr Ibrahim River in Mount Lebanon and is expected to contribute and additional 100 MW to national capacity upon its planned commissioning in 2027 (Power Technology, 2024).

Another important service provided by water courses is the provision of water for irrigation, domestic, and industrial uses. According to the World Bank's Lebanon Water Sector reports and assessments, agriculture remains the largest consumer of water in Lebanon, accounting for approximately 60-70% of total water withdrawals. This high percentage is due to:

- Predominantly traditional irrigation methods (like surface irrigation)
- Limited adoption of water-saving technologies
- Seasonal crops requiring intensive watering

The Litani river Basin, which supports a significant portion of Lebanon's agricultural activity, is particularly affected by over-extraction and pollution, further stressing water availability (World Bank, n.d.; FAO, 2021).

Moreover, rivers that flow toward the Lebanese coastal zone and empty into the sea play an important role in supporting coastal ecosystems by providing the sediment needed for natural beach reconstruction and the nutrients necessary for coastal ecosystems, including those that support the health of commercially significant species.

2.2.1.7 Marine Water Bodies and Coastal Area

More than one-third of the world's population lives in coastal areas, depending intimately on oceans, coasts, and their resources for survival and well-being (Duffy, 2006). The Lebanese shoreline extends approximately 240 km, and as of 2020, 78.4% of the Lebanese population resides in urban areas along the coastal plain (Wojtowicz-Jankowska & Bou

Kalfouni, 2022). Lebanon's economic activity—including tourism, fisheries, industrial production, agricultural activities, and oil and gas excavation and production, among others—is concentrated in its coastal zone, which contributes about three quarters of the national income (MoE, 2015)⁴.

2.3 Main Threats to Biodiversity – Causes and Consequences

2.3.1 Threats and Causes

2.3.1.1 Unsustainable Exploitation of Natural Resources

Unplanned Urbanization

In Lebanon, unplanned and uncontrolled urbanization is the main cause for the loss, fragmentation, and destruction of terrestrial ecosystems and their habitats (MOE/ UNDP/ UNICEF/ UNHCR, 2021).

Various factors continue to contribute to haphazard urbanization namely:

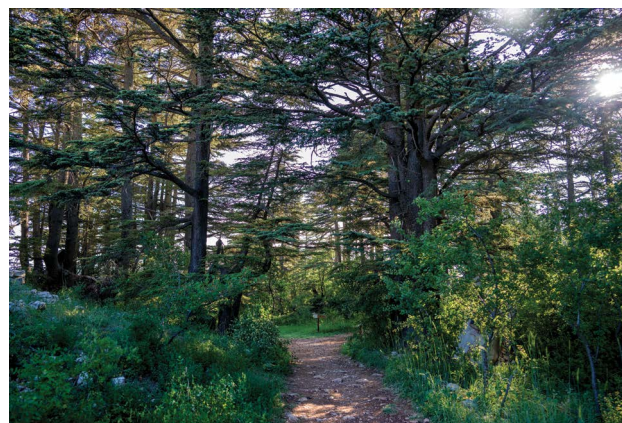
- Increasing demographic pressure. In the absence of adequate urban planning, the pressure on biodiversity has become a major concern; habitats are being lost, fragmented, or destroyed, sometimes with no possibility of regeneration.
- Rapid, unplanned urban expansion has converted large areas of natural habitats into urban zones, roads, and industrial districts. These developments, coupled with the country's increasing population density, have led to an unprecedented level of habitat degradation and fragmentation, threatening biodiversity hotspots across the nation (M. Bou Dagher-Kharrat et al., 2018).

- Inappropriate inheritance laws and lack of proper enforcement of construction regulations.
- Real estate speculation.
- Lack of awareness.

Rangelands are primarily affected by urbanization followed by overgrazing. Some of these lands were fragmented from maquis⁵ to garrigue⁶ and then to batha⁷ ; such progressive degradation makes these areas unable to support the biodiversity they initially sustained (MOE/ UNDP/ ECODIT, 2011).

Forest Fires

Forest fires in Lebanon are often attributed to inadequate forest management, insufficient civil defense resources in terms of equipment and facilities—especially after the economic crisis that began in 2019—limited public awareness, insufficient fire prevention initiatives, and insufficient law enforcement. These fires have been the main reason behind forest fragmentation and the loss of related ecosystem services. Figure 2 4 illustrates the land types affected by fires in Lebanon between 2015 and 2023.



Tannourine Cedar Forest Nature Reserve

⁵ Maquis is a shrubland biome in the Mediterranean region, typically consisting of densely growing evergreen shrubs such as holm oak, kermes oak, tree heath, strawberry tree, sage, juniper, buckthorn, spurge olive and myrtle.

⁶ Garrigue is a type of low, soft-leaved scrubland ecoregion and plant community in the Mediterranean forests, woodlands, and scrub biome. It is found on limestone soils where the climate is moderated. Garrigues are degraded maquis.

⁷ Batha is a degraded garrigue.

Figure 2-4: Land Type Affected by Fires in Lebanon Between 2015-2023



Source: State of Lebanon’s Wildfires Reports (2015-2023). Department of Ecosystems, Ministry of Environment, and the Land and Natural Resources Program, Institute of the Environment, University of Balamand.
Retrieved from <http://ioe-firelab.balamand.edu.lb/pages/ProfileCountryAnnex5.aspx>

The 2024 war in Lebanon triggered considerable ecological degradation, with longer-term impacts on biodiversity and ecosystem functionality expected to unfold gradually over the coming years. Satellite-based assessments (SPNL/ FAO, 2024) have documented the loss of approximately 4,957 ha of forest cover, with the most affected areas being Mount Lebanon (1,315 ha), South Lebanon (887 ha), Akkar (810 ha), and North Lebanon (540 ha). The majority of this loss (92%) occurred in evergreen forests, particularly pine (*Pinus brutia*, *P. pinea*) and oak (*Quercus calliprinos*) woodlands, which are ecologically significant for maintaining biodiversity corridors that link coastal and inland ecosystems and support species migration, gene flow, and seasonal movement.

Additionally, the war degraded 13% of forests, 16% of pastures, and 17% of riverine ecosystems (Mahdi, 2025). In parallel, wildfires have emerged as a major indirect impact of the war. Data from sensors (Jaafar, 2024) estimate that over 10,800 ha of land were burned, primarily in southern Lebanon. A key driver of these fires was the use of white phosphorus (WP) munitions (CEOBS, 2024), which not only ignite fires but also leave toxic residues, including but not limited to phosphoric acid, that alter soil chemistry and hinder vegetation recovery in the long run. The inaccessibility of active conflict zones and restricted airspace further delayed fire suppression efforts, allowing fires to spread unchecked and cause prolonged ecological damage.

Quarrying

Quarrying is also an important factor leading to habitat loss, fragmentation, and destruction. Currently, there are around 1,500 quarries in Lebanon (including around 1,200 formally registered and around 300 informal ones) scattered all over the country, ranging from small- to large scale quarries feeding the cement and construction industries (MoE/UNDP, 2022).

The quarrying industry in Lebanon has become one of the most significant drivers of habitat destruction and fragmentation. With a volume of 196.87 million m³, a total of slightly over 1,500 ha of land surface area was exploited, nearly equivalent to 75% of Beirut's area for comparison (MoE/UNDP 2022). Often poorly regulated, these quarries lead to accelerated soil erosion and disrupt natural ecosystems. The expansion of quarrying activities, particularly in agriculturally productive regions such as the Bekaa Valley, has devastated vast expanses of land, altered local ecosystems and lead to the displacement of wildlife. Abandoned quarries further compound these issues, leaving behind barren landscapes that can no longer support native biodiversity (Papazian et al., 2024).

A study on the spatial distribution and landscape impact of quarries, which utilized very high-resolution satellite imagery from 2008, 2014 and 2017, revealed that quarry expansion in Lebanon affected approximately 2,378 ha of grassland, 735 ha of agricultural land, and 1,099 ha of forest area (Mitri et al., 2021). The main causes of extensive and unsustainable quarrying in Lebanon include a lack of awareness among quarry operators, weak law enforcement, growing urbanization that increases demand for construction materials, and socio-economic factors such as income generation from rock sales.



Machaa Chnaniir Nature Reserve

Recreational Pressure

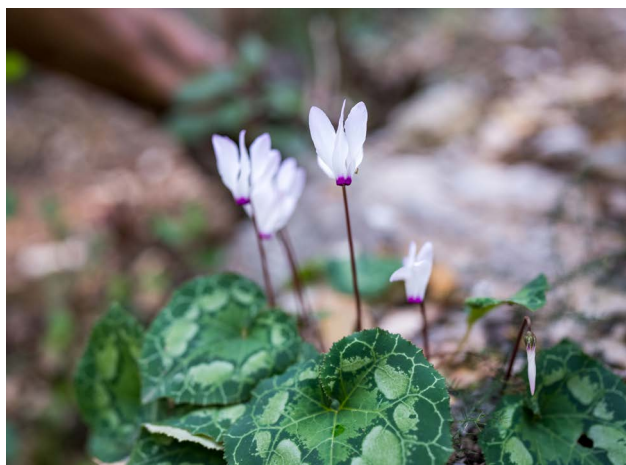
Recreational pressure is an additional cause for habitat loss, destruction, or fragmentation. Examples of such recreational activities include:

- Construction of beach resorts and hotels in coastal areas.
- Sea filling for the tourism sector, private ports and marinas, as well as the establishment of restaurants and outdoor activity areas.
- Expansion of ski resorts.
- Construction of mountain resorts and country clubs.
- Camping and outdoor activities resulting in forest fires and littering.

Their causes are mainly attributed to the absence of adequate strategies to manage resort development, lax enforcement of construction regulations and EIA studies recommendations, and limited awareness.

Hunting

Hunting is prevalent in Lebanon, particularly due to the country's position along a major migratory bird corridor. Despite regulations prohibiting hunting outside designated seasons, violations are rampant. Unsustainable practices are primarily driven by economic motivations, the perception of hunting as a



Machaa Chnaniir Nature Reserve

traditional hobby, and the absence of public awareness regarding the ecological consequences of hunting activities. Many hunters target protected species, leading to significant declines in migratory bird populations (Papazian et al., 2024).

In order to organize hunting in Lebanon and promote sustainable and responsible hunting practices, the MoE, in consultation with the Higher Council for Hunting (HCH), issued in 2012 all necessary implementation decisions of the Hunting Law (Law No. 580, dated 2004). Based on these decisions, the hunting season was subsequently opened in 2018, 2019, and 2020, after defining the following:

- The hunting season, ranging from 15 September until the end of January.
- The species of birds and mammals and the number of individuals allowed to be hunted during the hunting season. The list is subject to change every season.

However, in order to strengthen bird and mammal species preservation and recovery, the MoE categorically banned the hunting of all avian species year-round starting 2020, although some violations continue to be observed.

Illegal Logging and Exploitation of Medicinal and Aromatic Plants

Poverty, prevalent at a high rate in Lebanon, is a major factor contributing to unsustainable and improper management of resources. The proportion of people living below the national poverty line increased from 12% in 2012 to 44% in 2022, with the depth of poverty (average shortfall from the poverty line) rose from 3% in 2012 to 9.4% in 2022 (World Bank, 2024). These changes are attributed to the severe economic crisis that emerged in Lebanon at the end of 2019. These elevated figures result in the

unsustainable and illegal cutting of trees in mountainous rural areas for heating purposes and for income generation through the sale of wood.

Beyond the depletion caused by tree cutting, the unsubstantial harvesting of medicinal plants—used in rural areas to treat diseases such as burns and gastrointestinal diseases—and aromatic plants extensively used in Lebanese cuisine are also being observed. These issues are exacerbated by generally poor harvesting practices. The assessed market value of medicinal and aromatic plants produced by forests in Lebanon is estimated at \$18.6 million per year (MoA, 2021). According to the Ministry of Agriculture (MoA), more than 212 plant species in Lebanon hold economic value for medicinal or consumption purposes (MoA, 2021). Other economic uses include local consumption (staple foods and wild edible plants), honey production (melliferous plants), landscaping (ornamental plants), and environmental uses (erosion control, agroforestry, soil remediation, and biotic indicators of pollution).

Exploitation of Water Resources

Rising population pressure is intensifying water use, threatening freshwater ecosystems and depleting groundwater reservoirs. The overuse of groundwater for irrigation is catalyzed by factors such as low awareness, limited government support, poor climate change adaptation, and the absence of Integrated Water Resource Management (IWRM) (MoE/UNDP/ECODIT, 2011). Furthermore, around 50% of water used in the agricultural sector originates from underground wells and boreholes, exerting immense pressure on seasonal and perennial springs in the country (MoEW, 2020). Beyond that, excessive extraction is considered the main reason of groundwater salinization along the Lebanese coastal zone.

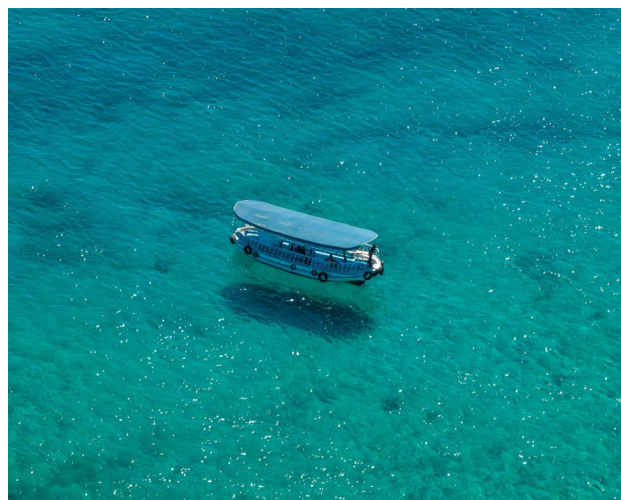
Rangeland Management

Other contributing factors to the unsustainable use of natural resources include inadequate rangeland management, largely resulting from limited agricultural awareness and uncontrolled grazing. This uncontrolled grazing stems mainly from inadequate land-use planning and the absence of designated grazing zones.

Exploitation of Marine Biodiversity and Resources

The unsustainable use of natural resources is also evident in the overexploitation of marine species and coastal habitats. In this regard, a new fisheries and aquaculture law is currently under review in Parliament and is expected to address many of the existing issues in the sector. At the same time, growing pressure from recreational activities—such as unregulated fishing, frequent diving, jet skis, and boats—is compounding the degradation of coastal ecosystems. Illegal practices such as sand extraction and sea-filling, largely due to insufficient law enforcement, also play a major role in damaging these environments.

Habitat fragmentation in coastal areas is also driven by urban expansion (residential, touristic, and commercial) and the concentration of services along the coast. In addition, gaps in the legal framework, coupled with the lack of proper enforcement of existing laws and regulations, have resulted in the illegal occupation of the maritime public domain. Moreover, various landfills are located along the coastal zone, contributing to both the fragmentation of natural habitats and pollution. Political pressure, high profit from gravel, sand, and stones, and weak law enforcement are the primary factors enabling these activities to persist.



Palm Islands Nature Reserve

2.3.1.2 Pollution

Multiple pollution sources are adversely affecting natural systems and biodiversity. To name a few, the discharge of untreated municipal and industrial wastewater, uncontrolled dumping of solid waste from households and livestock, the use of agrochemicals such as pesticides and fertilizers, improper disposal of rubble, and air pollution (MOE/ UNDP/ UNICEF/ UNHCR, 2021). In addition, intensive farming and industrial activities generate high levels of organic and heavy metal contamination in soils and ecosystems (Chalak, 2016). Lebanon's freshwater and marine environments are also being subjected to escalating pollution levels, posing serious threats to native plant and animal life (MOE/ UNDP/ UNICEF/ UNHCR, 2021).

2.3.1.3 Invasive Alien Species

According to the Global Register of Introduced and Invasive Species, as of March 2020, Lebanon hosts 272 species identified as introduced and invasive in both terrestrial and marine environments (Samaha et al., 2020). The introduction of invasive flora and fauna happens primarily through the import of ornamental and donated forestry plants along with their associated insects, the legal and illegal trade of wildlife, the escape of exotic bird species from captivity, agricultural run offs, the discharge of untreated sewage waste into water bodies, shipping, fouling, the discharge of ballast water, and the introduction of non-native marine species following the opening of the Suez Canal in 1869 and its subsequent enlargement. Noteworthy, Lebanon is a signatory of the Ballast Water Convention which aims at controlling the disposal of ballast water to avoid the introduction of invasive species.

Based on The National Monitoring Program for Marine Biodiversity in Lebanon, developed in 2018 by the Specially Protected Areas Regional Activity Centre (SPA/RAC) in close collaboration with the MoE, the total

number of NISs recorded among marine Macrophytes, Invertebrates, and Fishes was approximately 237 species (SPA/RAC–UN Environment/MAP, 2018). Subsequent studies have since identified additional introductions to the marine and coastal environments.

Furthermore, a National Action Plan addressing marine species introduction and invasive species in Lebanon was also developed in 2019 by SPA/RAC in close collaboration with the MoE (SPA/RAC–UN Environment/MAP, 2019).

Limited work is currently being conducted to identify, control, or track the introduction of Invasive Alien Species (IAS), and no significant measures have been taken in this direction except in PAs, notably the terrestrial ones, where the introduction of alien species is forbidden by law. In contrast, preventing and controlling the accidental introduction of IAS in Marine Protected Areas (MPAs) is very difficult, even though their legislation also forbids the introduction of alien species.

In addition, the following causes also contribute to the appearance of IAS:

- The insufficient enforcement of regulations and inadequate control over the introduction of invasive alien species (IAS), coupled with the absence of proper border controls (such as genetic barcoding), and the need for enhanced technical expertise, additional researchers, and more laboratories capable of delivering accurate and timely results. IAS regulation and control is currently limited to:
 - o MoA Decision 108/1, issued in September 1995, banning the import and introduction of any Cedar seeds, seedlings, and plants. This decision was issued in response to the uncontrolled introduction of trees from the *Cedrus* genus through the ornamental industry.

- o MoA's regulation on the import and export of species listed under CITES implemented through the issuance of CITES permits, noting that Lebanon has ratified the Convention on International Trade in Endangered Species of Wild Fauna and Flora (CITES)⁸ through Law No. 223, dated 22/10/2012.
- The need to equip staff in concerned administrations (including the border) with the proper skills to identify IAS and apply the existing regulations.
- The deficiency in technical expertise and the limited number of researchers working in the field of IAS, resulting in a limited volume of research on the subject. Only a few IAS of major concern have been studied, and existing studies remain limited to the identification of species with no scientific publications on risk assessments for these species in Lebanon, despite their recognition as a significant threat.
- The absence of national monitoring of species of interest, mainly due to insufficient coordination between universities and ministries, along with limited research funding.
- Shifting climatic conditions and the lack of emergency planning, which facilitate the movement of invasive species.
- The high economic value of some IAS, which creates an incentive for their import and release.

IAS exert significant pressure on biodiversity and ecosystems, primarily through the loss or replacement of native species and the alteration of natural habitats; these impacts are frequently accompanied by broader socio-economic repercussions.

2.3.1.4 Introduction of New Improved Varieties (Agro-Biodiversity)

As per the FAO, agro-biodiversity is “the variety and variability of animals, plants, and micro-organisms that are used directly or indirectly for food and agriculture, including crops, livestock, forestry, and fisheries. It comprises the diversity of genetic resources (varieties and breeds) and species used for food, fodder, fiber, fuel, and pharmaceuticals. It also includes the diversity of non-harvested species that support production (soil micro-organisms, predators, and pollinators), and those in the wider environment that support agro-ecosystems (agricultural, pastoral, forest, and aquatic), as well as the diversity of the agro-ecosystems”.

Lebanon has an Agrobiodiversity Index status score of 54.8, reflecting a moderate integration of agrobiodiversity into the food system.

Food species diversity is high; however, the shift toward more high-sugar, high-fat dietary patterns contributes to dietary risks and moderates functional diversity (ABD index report, 2021).

New Improved Varieties are introduced for three main reasons:

- Higher productivity, leading to increased income, with economic profit as the primary driver.
- Improved tolerance to biotic and abiotic stress, thereby supporting food security.
- Absence of incentives to conserve local varieties of fauna and flora, primarily due to a lack of awareness.

New Improved Varieties replace local trade varieties and can be difficult to control. The new species may hinder the propagation of native agro-biodiversity; and the native gene pool may eventually be affected and reduced.

⁸ CITES regulates the trade of wild endangered species listed under the Convention and restricts the exchange of specific ones.

While the importance of agrobiodiversity in national policies and reporting is recognized, there remains potential for more explicit policies and actions to support agrobiodiversity across the entire food system (Jones et al., 2022).

2.3.1.5 Climate Change

Climate change in Lebanon is causing widespread disruptions across marine, coastal, terrestrial, and freshwater ecosystems, as well as socioeconomic sectors.

Marine and coastal ecosystems in Lebanon and the broader Mediterranean region are undergoing profound transformations as a result of climate-induced stressors. Rising air and sea temperatures (estimated at +0.29 to +0.44°C per decade in the

Mediterranean Sea), combined with declining precipitation levels, have triggered a cascade of environmental changes. Notably, sea-level rise is accelerating saltwater intrusion into coastal aquifers, compromising freshwater resources. Warmer waters have facilitated the spread of Non-Indigenous Species (NIS), often allowing them to outcompete native marine life and disrupt food webs. Simultaneously, ocean acidification and declining oxygen levels (deoxygenation) are altering water chemistry and reducing the habitability of marine environments. Collectively, these factors are leading to the degradation of sensitive habitats such as seagrass meadows and coral-like communities, while impairing essential ecosystem services, including fisheries productivity, shoreline protection, and nutrient cycling (Nader et al., 2021; MoE, 2021).



Palm Islands Nature Reserve

Beyond coastal and marine zones, terrestrial ecosystems are also undergoing significant climate-driven changes. Shifts in vegetation cover are becoming increasingly evident, particularly in forested and agricultural areas, where prolonged droughts, declining rainfall, and rising temperatures are accelerating land degradation and desertification. These conditions weaken plant resilience, reduce soil moisture retention, and increase vulnerability to wildfires and pest outbreaks. As a result, the structure and composition of natural habitats are changing, leading to declines in native biodiversity and the disruption of ecological balances. Furthermore, the deterioration of soil quality through erosion and nutrient depletion undermines agricultural productivity, threatening food security and the livelihoods of rural communities dependent on land-based resources. (MoE/UNDP/GEF, 2022).

Freshwater resources are under mounting pressure as well due to a combination of climatic and anthropogenic stressors. Declining precipitation, coupled with rising temperatures and evaporation rates, has significantly reduced surface water flows and limited the natural recharge of aquifers. At the same time, over-extraction driven by rising demand for drinking water, irrigation, and industrial use is compounding the strain. As a result, the availability and reliability of freshwater are increasingly compromised not only for human consumption and agricultural production, but also for the health of freshwater ecosystems that depend on stable flow regimes (MoE/UNDP/GEF, 2022).

Climate change is also amplifying the frequency and intensity of extreme weather events across Lebanon, including prolonged droughts, heatwaves, and episodes of intense rainfall, increasing the likelihood and severity of natural hazards such as flash floods and landslides, particularly in vulnerable mountainous and urban areas with poor drainage infrastructure. The socio-economic repercussions are substantial,

ranging from damage to roads, housing, and public utilities to disruptions in agriculture and livelihoods, especially for low-income and rural communities. Additionally, these events pose growing risks to public health by exacerbating waterborne diseases, heat-related illnesses, and the spread of vectors linked to changing climatic conditions (MoE/UNDP/GEF, 2022).

2.3.1.6 Lack of Data

The lack of adequate data poses a significant risk to biodiversity by obstructing a clear understanding of the current state of ecosystems and biodiversity. This, in turn, hampers the identification of emerging problems and the development of effective solutions.

2.3.2 Consequences

Threats outlined in the previous section endanger biodiversity on multiple levels, exerting both direct pressures on species and ecosystems—such as extinction, reduced genetic diversity, and weakened ecosystem resilience—and causing indirect consequences for human well-being, including health risks, food insecurity, economic losses, and an increased likelihood of natural hazards. Leading ramifications include disrupted ecosystem functions, overgrazing, altered food chains, invasive species and pest outbreaks, monoculture practices, herbicide and pesticide resistance, potential gene pollution from GMOs, and damage caused by floods, salinization, and acid rain.

03

METHODOLOGY FOR THE NBSAP UPDATE

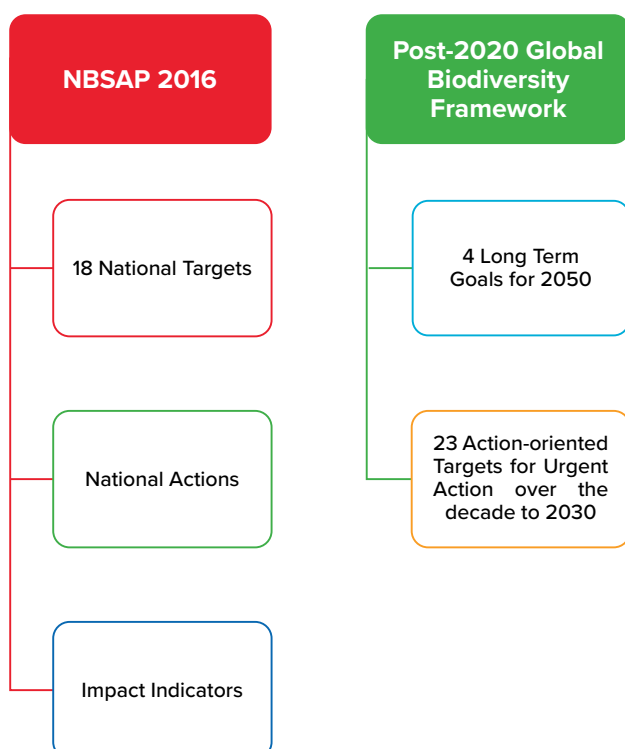


3.1 Methodology for the Update of the NBSAP

3.1.1 Review and Update of the NBSAP for Alignment with the Post-2020 GBF

The core element of the Strategy is the revision and update of Lebanon's 2016 NBSAP. A rapid review of the key thematic areas was initially conducted to assess the coherence between the national targets and actions of the 2016 NBSAP and the new goals and action targets of the GBF. This review covered the priority areas, targets, and actions of the 2016 NBSAP, comparing them to the post-2020 GBF's four long-term goals for 2050 and its 23 action-oriented targets (Figure 3-1). The revised NBSAP was updated to reflect these new strategic goals and targets, balancing global and local priorities while considering Lebanon's unique context, existing professional capacities, and awareness levels.

Figure 3-1: Structure of the NBSAP 2016 Report and the Post-2020 Global Biodiversity Framework



3.2 Stakeholder Engagement

The main added value of the process was the mobilization of stakeholders and the fostering of an increased sense of ownership of the NBSAP. Building partnerships among diverse stakeholders is essential for achieving biodiversity goals at the national level.

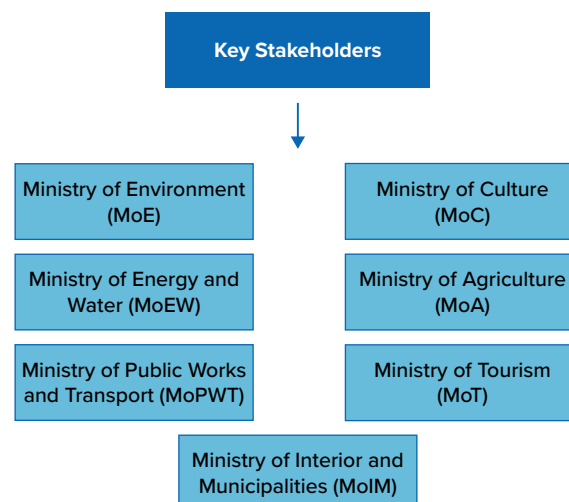
3.2.1 Stakeholder Engagement Plan (SEP)

A SEP has been developed to guide the planning and implementation of stakeholder interactions throughout the project lifecycle. It serves as a strategic tool to ensure effective communication and collaboration with relevant stakeholders.

The SEP outlines the legal and procedural frameworks governing stakeholder engagement and includes a review of past engagement efforts and their outcomes. It categorizes stakeholders into two main groups:

1. Key Stakeholders

These stakeholders are vital to the success of the project, as their roles encompass environmental protection, resource management, cultural preservation, and sustainable development in Lebanon. Engaging the following ministries therefore effectively ensures that the project aligns with national policies and addresses the broad-based challenges of biodiversity conservation.



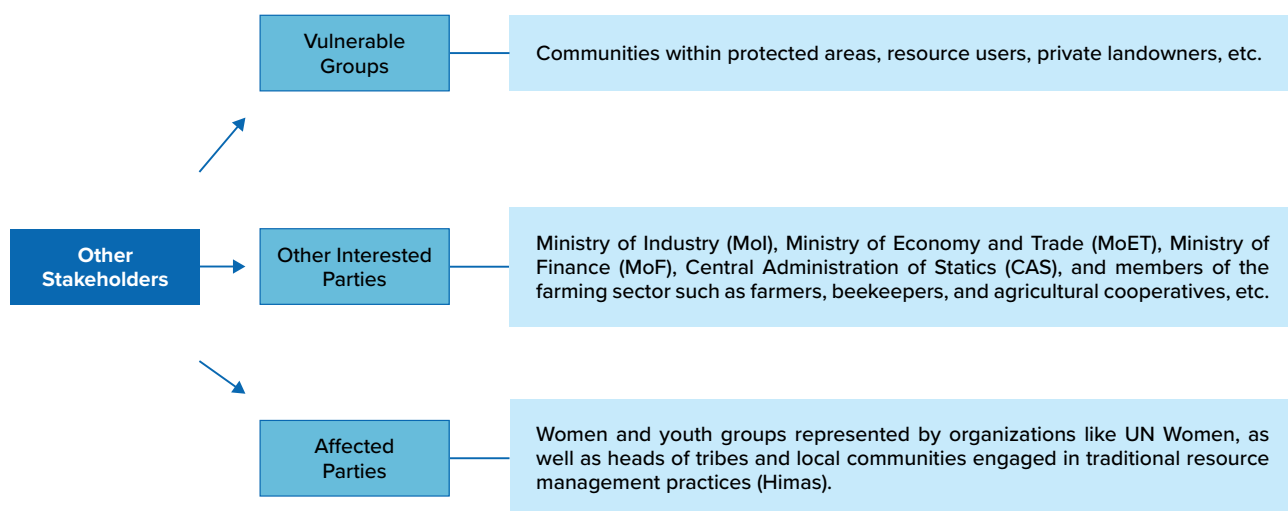
2. Other Stakeholders

Several other stakeholders that play important roles in implementing the NBSAP are categorized as follows:

- **Affected Parties:** Individuals or groups directly or indirectly impacted by the NBSAP.
- **Other Interested Parties:** Entities that may not face direct impacts but perceive their interests as affected.
- **Vulnerable Groups:** Individuals or groups disproportionately affected by the project due to their status.



Jaj Cedars Nature Reserve



The SEP also detailed the types of information that will be disclosed, the formats for disclosure, and the designated communication methods to engage each stakeholder group. It also outlined strategies to ensure that stakeholder voices are heard throughout the project, processes for raising concerns or grievances, and methods for monitoring and reporting on stakeholder engagement activities. A structured engagement process was then established, including the organization of workshops to facilitate discussions and gather stakeholder feedback.

The SEP played a vital role in fostering effective stakeholder engagement, ensuring the contribution of relevant voices to the successful update of the NBSAP.

3.2.2 Consultation Workshops

Two major workshops were organized in 2024 to complete a rapid review of NBSAP thematic areas, align its targets with the post-2020 GBF targets and actions, and support its actual update. The workshops were designed to facilitate and maximize the participation of the aforementioned key stakeholders.

The lists of workshop participants are presented in Appendix B, and the objectives of the different workshops are listed below. Workshop 1 hosted a total of 68 participants, with women representing 53% of the attendees, and Workshop 2 hosted a total of 63 participants, with women representing 59% of the attendees.

Workshop 1:

- Present a summary of the NBSAP 2016 priority areas, national targets and national actions.
- Present the project objectives and Kunming-Montreal GBF's 4 Long-Term Goals and Targets.
- Outline the approach to target and policy alignment for the update of the 2016 NBSAP.
- Conduct a working group exercise to:
 - Validate the alignment of the 2016 National Targets with the GBF Targets, based on the rapid review conducted.
 - Validate the progress of implementation of the National Actions proposed in the 2016 NBSAP.
 - Propose new National Targets and National Actions.

Workshop 2:

- Present the project objectives and Kunming-Montreal GBF's 4 Long-Term Goals and Targets.
- Present the newly proposed aligned National Targets and National Actions.
- Present the approach used to develop the proposed monitoring system and indicators.
- Conduct a working group exercise to:
 - Validate the new proposed National Targets.
 - Validate the new proposed National Actions.
 - Discuss and validate the proposed monitoring system.

For the two workshops, three working groups were formed:

1. Group I: Biodiversity Conservation – a) Terrestrial Biodiversity Group, and b) Marine Biodiversity Group, covering the GBF targets 1 through 8 and target 10.
2. Group II: Sustainable Use and Benefit Sharing to Meet People's Needs, covering the GBF targets 9 through 13.



Jaj Cedars Nature Reserve

3. Group III: Tools and Solutions for Implementation and Mainstreaming, covering the GBF targets 14 through 23; divided across eight working tables.

The results were used to finalize the national targets, national actions, and the indicators.

3.2.3 National Steering Committee

A National Steering Committee was established to oversee the updating of the NBSAP. Stakeholders deemed to have high influence and high interest were identified by the MoE and invited to be part of the Steering Committee, formed by representatives of the concerned public institutions, research centers, and academia. The list of Steering Committee members and their affiliations is provided in Appendix A.

Steering Committee meetings were held regularly to follow up on progress, review the workshops' results, and prepare the way forward.

Stakeholder consultations conducted during the development of the NBSAP consisted of seven Steering Committee meetings and two workshops; the details and outcomes of these meetings are described in Table 3-1.

The existing NBSAP hence underwent a thorough review to ensure alignment with the post-2020 GBF with guidance from COP 15. The monitoring system was evaluated and updated, with a new monitoring action plan integrated into the revised NBSAP. Necessary revisions were made as required, following appropriate consultations and processes.

Table 3-1: Summary of Stakeholder Engagement Activities for the Update of the NBSAP

Stakeholder Engagement	Date	Summary
Steering Committee Meeting 1	April 5, 2024	The National Steering Committee's first meeting for the update of the NBSAP was held on April 5, 2024. The meeting focused on project objectives, the Kunming-Montreal GBF targets, and the Stakeholder Engagement Plan. Key discussions included Lebanon's NBSAP alignment with GBF targets, the inclusion of vulnerable groups, and the structure of upcoming workshops. The Committee agreed to revise the stakeholder list and finalize materials for Workshop 1. The meeting was attended by representatives from various organizations, including ministries, universities, and research centers.
Workshop 1	April 23, 2024	The objectives of Workshop 1 were to update the 2016 NBSAP by aligning its national targets with the GBF and proposing new targets where necessary. The workshop also aimed to validate the progress of existing national actions and suggest adjustments or new actions. It was structured into presentations and participatory sessions, where 68 attendees, including 36 women, worked in groups to review and propose updates to national targets and actions. Held on April 23, 2024, the workshop facilitated broad stakeholder engagement and ensured that the revised NBSAP reflects collective expertise and current global biodiversity goals.
Steering Committee Meeting 2	June 11, 2024	The National Steering Committee's second meeting for the update of the NBSAP was held on June 11, 2024. The meeting focused on reviewing the results of the first stakeholder consultation workshop and discussing the approach for the second workshop. Discussions included extending the second workshop to a full day and reshuffling working groups to gather fresh perspectives. Key points of discussion included the need to assess the feasibility of proposed indicators, with a focus on practical implementation rather than theoretical suitability. It was agreed to focus on indicators that are achievable given Lebanon's current resources and capacities.
Workshop 2	June 27, 2021	Workshop 2 aimed at validating the proposed national targets and actions and discussing indicators for alignment with the GBF. The workshop, held on June 27, 2024, was structured into presentations and participatory sessions. Attendees, grouped by expertise, reviewed and validated targets, actions, and indicators, with a focus on specificity, measurability, and data availability. The workshop was attended by 63 participants, including 37 women. Their insights guided the final revisions of the NBSAP to ensure alignment with global biodiversity goals.

Stakeholder Engagement	Date	Summary
Steering Committee Meeting 3	December 5, 2024	The National Steering Committee's third meeting for the update of the NBSAP was held on December 5, 2024. The meeting focused on validating the National Target Alignment Document, which included national targets, corresponding actions, and indicators. Key discussions revolved around aligning Lebanon's national targets with the Kunming-Montreal GBF while ensuring feasibility within the country's context. The Committee reviewed and refined national targets 1 and 2 with their relevant actions, making necessary adjustments to improve clarity and alignment with national priorities. Emphasis was placed on addressing post-war rehabilitation, biodiversity monitoring, and stakeholder engagement. The meeting was attended by representatives from various ministries and experts, who provided valuable feedback to ensure the targets are both ambitious and achievable.
Steering Committee Meeting 4	December 11, 2024	The National Steering Committee's fourth meeting for the update of the NBSAP was held on December 11, 2024. The meeting focused on validating the National Target Alignment Document, with discussions centered around refining national targets and corresponding actions. Key revisions were made to the actions under the proposed new national targets 3, 4, 5, 6, and 7 to ensure alignment with the Kunming-Montreal GBF while maintaining feasibility within Lebanon's context. The Committee reviewed and adjusted terminology and percentages and added new actions to address gaps in biodiversity conservation, sustainable use, and invasive species management. Emphasis was placed on ensuring consistency in terminology and integrating marine ecosystems into planning.
Steering Committee Meeting 5	December 16, 2024	The National Steering Committee's fifth meeting for the update of the NBSAP was held on December 16, 2024. The meeting focused on validating the National Target Alignment Document, with discussions centered on refining national targets and corresponding actions under Targets 8, 9, and 10. Key revisions were made to align the targets with the Kunming-Montreal GBF while ensuring feasibility within Lebanon's context. The Committee reviewed and adjusted terminology and percentages and added new actions to address gaps in pollution reduction, climate change adaptation, and the sustainable use of wild species. Emphasis was placed on integrating coastal ecosystems, improving pollution monitoring, and enhancing biodiversity resilience.

Stakeholder Engagement	Date	Summary
Steering Committee Meeting 6	January 8, 2025	The National Steering Committee's sixth meeting for the update of the NBSAP was held on January 8, 2025. The meeting focused on validating the National Target Alignment Document, with discussions centered on refining national targets and corresponding actions under Targets 11 through 16. Key revisions were made to align the targets with the Kunming-Montreal GBF while ensuring feasibility within Lebanon's context. The Committee reviewed and adjusted terminology and streamlined actions. Emphasis was placed on mainstreaming sustainable agriculture, fisheries, and forestry into national strategies, enhancing urban green spaces, and reviving the Clearing-House Mechanism (CHM) for knowledge sharing.
Steering Committee Meeting 7	January 15, 2025	The National Steering Committee's seventh meeting for the update of the NBSAP was held on January 15, 2025. The meeting focused on validating the National Target Alignment Document, with discussions centered on refining national targets and corresponding actions under Targets 17 through 26. Key revisions were made to align the targets with the Kunming-Montreal GBF while ensuring feasibility within Lebanon's context. The Committee reviewed and adjusted terminology, streamlined actions, and integrated feedback from experts and relevant ministries. Emphasis was placed on corporate biodiversity impact assessments, sustainable tourism, gender-responsive policies, and financial mechanisms for biodiversity conservation. This concluded the validation process for all national targets and actions.
Steering Committee Meeting 8	June 10, 2025	The National Steering Committee's eighth meeting for the update of the NBSAP was held on June 10, 2025. The meeting focused on reviewing and validating key components of the draft NBSAP, including the Policy Coherence Action Plan, Lebanon's Vision for Biodiversity, and elements of the Operationalization Plan. Key discussions included revising legislative gaps and related recommendations, refining biodiversity vision language, and proposing updates to coordination mechanisms and stakeholder engagement. The Committee emphasized clarity, feasibility, and alignment with national priorities.

3.3 Lessons Learned from the Previous NBSAP

Lebanon's first NBSAP was developed by the MoE in 1998 with the support of UNDP/GEF to address Lebanon's obligations under Article 6a of the CBD. This represented a highly significant step for the country, as it was the first time such a comprehensive, wide-ranging planning initiative—using a wide participatory approach—

had been undertaken with respect to management of natural resources at the national level.

The 1998 NBSAP was then updated in 2016 in response to CBD COP Decision X/2 which urged Parties to review, and as appropriate update and revise, their national biodiversity strategies and action plans in line with the Strategic Plan (2011-2020) and its Aichi Targets.

An important lesson learned from the 2016 NBSAP is the need to establish an implementation mechanism. The experiences and outcomes of the previous plan demonstrated that merely having a strategy is insufficient; structured processes and systems must be in place to ensure that the actions outlined in the NBSAP are carried out successfully. This requires involving specific roles, allocating resources, and establishing execution protocols that facilitate the execution of the plan, ultimately leading to improved biodiversity management and the achievement of the set targets. Beyond the establishment of implementation processes, other key lessons include the need to:

- 1. Integrate Biodiversity Across Sectors:** Addressing institutional gaps requires proposing measures that emphasize opportunities to integrate biodiversity considerations across relevant sectors, along with recommendations for new policies or amendments to existing ones.
- 2. Recommend the Creation of a National Coordination Entity:** Establishing a National Coordination Entity, such as an expanded Steering Committee, is recommended and would be vital for effectively coordinating and monitoring the implementation of the NBSAP.
- 3. Develop an Organized Program for Initiatives:** There is a need to develop a structured program to manage biodiversity initiatives and projects, including a clear procedure for grant requests and resource mobilization.
- 4. Recommend the formation of an Operational Unit:** If conditions in Lebanon permit—at the political, institutional, administrative, and economic levels—it is recommended to establish an Operational Unit to serve as the Secretariat for the National Coordination Entity, fully dedicated to monitor the implementation progress of the NBSAP and report to the entity.
- 5. Build Partnerships and Enhance Capacities:** Establishing partnerships with leading development agencies and creating a

comprehensive implementation program are crucial for the success of the strategy. Additionally, enhancing human and technological capacities and mobilizing financial resources from various sources are necessary steps for successful implementation.

The update of the NBSAP took these lessons into account, and relevant national actions were proposed to address them (see Chapter 5). In addition, recommendations were included in the Operationalization Plan of the NBSAP in Chapter 6.

3.4 Methodology for Policy and Institutional Alignment with GBF

Given the issues brought forth by the Kunming-Montreal GBF, and the absence of specific framework policies and laws for the sustainable use of biodiversity in Lebanon, there is a need to enact new laws, amend existing ones, and update strategies where necessary to fully integrate the provisions of the GBF. A set of recommendations has hence been prepared to address existing institutional gaps.

To lay the groundwork for aligning Lebanon's legal and institutional frameworks with the GBF, a comprehensive methodology was employed, consisting of several key steps aimed at facilitating improved biodiversity management and sustainable development:

- 1. Rapid Review of National Legislations, Policies, and Biodiversity Related Conventions in Lebanon:** The first step involved conducting a rapid review of existing national legislation and policies related to biodiversity, as well as biodiversity-related conventions ratified by Lebanon, to identify gaps, overlaps, and areas of misalignment with the objectives outlined in the GBF.
- 2. Stakeholder Engagement:** Stakeholders were engaged during workshops to gather insights and ensure that diverse perspectives were considered in the alignment process.

3. **Institutional Analysis:** An evaluation of institutional capacities and structures was carried out to determine how effectively current institutions can support the implementation of GBF objectives. This analysis helped identify strengths, weaknesses, and opportunities for improvement in governance frameworks.
4. **Gap Analysis:** A gap analysis was conducted to pinpoint specific discrepancies between national policies and the GBF, highlighting areas where policy adjustments or new initiatives were required to meet the GBF targets.
5. **Development of Proposed Actions and Recommendations for Alignment:** Based on the findings of the reviews and analyses, a set of recommendations was proposed to outline specific actions required to align national policies and legislation with the GBF.

A summary of the recommendations for alignment is presented in Section 4.



Ammiq Wetlands

3.5 Methodology for the Development of the Biodiversity Monitoring Action Plan

The development of a national biodiversity monitoring action plan is essential for Lebanon to effectively implement the Kunming-Montreal GBF and enhance its biodiversity management.

The following methodology was employed to establish a robust monitoring system that aligns with the national and global biodiversity goals:

1. **Assessment of Current Monitoring Systems:** Existing biodiversity monitoring systems in Lebanon, including previous national reports and data collection practices, were evaluated to understand the current state of monitoring.
2. **Gap Analysis:** A comprehensive gap analysis was performed to identify deficiencies in monitoring capabilities, data availability, and institutional coordination.
3. **Indicator Development:** A set of indicators was developed based on the Global Biodiversity Monitoring Framework for each proposed National Action, including.
 - **Headline Indicators:** Mandatory indicators capturing the overall goals of the KMGBF.
 - **Component Indicators:** Optional indicators providing insights into specific goals.
 - **Complementary Indicators:** Additional indicators for thematic analysis.
 - **National and Subnational Indicators:** Indicators based on corresponding global indicators or are developed for national monitoring purposes.
4. **Stakeholder Engagement:** Stakeholders were engaged during workshops to gather input, validate proposed indicators, and draft new ones where needed.
5. **Finalization and Review:** The draft monitoring plan was reviewed to refine the list of indicators and ensure relevance to Lebanon's biodiversity context.



04

LEGISLATIVE FOUNDATIONS AND POLICY ACTION FOR BIODIVERSITY IN LEBANON

4.1 Legislations and Policies Related to Biodiversity in Lebanon

This section provides an overview of the key legislations and policies that govern biodiversity in Lebanon. Understanding these frameworks is essential for recognizing the legal and regulatory context within which biodiversity conservation efforts are implemented. The following table outlines

specific Lebanese legislation related to biodiversity, which constitutes the critical legal instruments supporting conservation and sustainable use in the country.

Decisions declaring nature reserves, nature sites under the protection of the MoE, protected forests, and Himas are provided in Table 2-6, Table 2-7, and Table 2-9 in Chapter 2.

Table 4-1: Lebanese Legislation Related to Biodiversity

Legislation	Year	Title	Description
Laws			
Law 1104	1921	The Determination of the Coastal Zone Scope and Penalties Related to the Infringement of Fishing Rules	Determines coastal zone scope and penalties related to the infringement of fishing rules.
Law 372	1926	Regulations Related to Navigation, Fishermen, and Fishing Boats	Establishes the basic rules for the maritime sector.
Law-Decision 2775	1929	Regulation of Coastal Fishing	Defines the legal framework for coastal marine fishing in Lebanon. Specifies permitted fishing methods, seasons, and protected species. Establishes enforcement measures to ensure sustainable fishing practices.
Law	1949	Forest Code	Addresses and regulates all issues related to forest management, including protection and activities such as grazing, pruning, coppicing, thinning, and charcoal production. Defines forests primarily as sources of industrial wood and fuel and classifies them into four categories based on ownership. Includes provisions for penalties for illegal activities.
Law	1952	Fishing Law	Defines the legal framework for fishing activities across Lebanon, including licensing, permitted fishing methods, and seasonal restrictions. Sets enforcement measures to protect fish populations and aquatic habitats.
Law 64	1988	Protection of the Environment Against Pollution from Hazardous Waste Disposal and Substances	Addresses environmental protection from hazardous waste affecting air, water, biodiversity, soil, and public health. Specifies fines and penalties for activities causing pollution and environmental hazards.

Legislation	Year	Title	Description
Laws			
Law 558	1996	Forest Protection Law	Classifies all coniferous forests as “Protected Forests” and prohibits activities such as logging, grazing, and harvesting of forest products within these areas. Implements penalties, including fines and imprisonment, for violations. Provides a legal basis for designating protected forests and establishing forest reserves.
Law 326	2001	Reforestation and Land Rehabilitation	Addresses reforestation and land rehabilitation by setting guidelines for restoring degraded lands. Includes provisions for sustainable land use, soil conservation, and afforestation efforts.
Law 444	2002	Environmental Protection Law	Provides the overarching legal framework for environmental protection in Lebanon. Establishes general provisions and principles to safeguard the environment across sectors.
Law 580	2004	Wild Hunting Law	Regulates hunting by protecting all wild birds except for approved game species, prohibiting illegal methods and specifying permitted game species, hunting seasons, and hunter licensing. Includes penalties for violations.
Law 778	2008	Plant Quarantine and Phytosanitary Measures	Sets regulations for plant quarantine to prevent the introduction and spread of pests and diseases. Establishes procedures for inspection, certification, and control of plants and plant products entering Lebanon.
Law 132	2010	Offshore Petroleum Resources Law	Stipulates the rules and provisions related to petroleum activities. One of the most important rules set by the law is the production sharing regime combined with royalties, the collection of petroleum revenues in a sovereign wealth fund, competitive bidding, granting petroleum license through Exploration and Production Agreements, and provisions related to Health, Safety and Environment.
Law 251	2014	Environmental Public Prosecution Unit	Establishes the Environmental Public Prosecution Unit within the Lebanese judiciary grants it jurisdiction over environmental violations and empowers it to initiate legal proceedings against offenders. Aims to enhance accountability and support environmental protection through specialized legal mechanisms.

Legislation	Year	Title	Description
Laws			
Law 288 extended by Accelerated Law No. 54	2014 and 2015	Regulation of the Electricity Sector	Regulates the electricity sector in Lebanon.
Law 28	2017	Right of Access to Information	Stipulates the right of any natural or legal person to access public information in Lebanon from any governmental institution. Obligates governmental administrations to publish and make available financial and administrative data to citizens.
Law 47	2017	Animal Protection and Welfare Law	Ensures the protection and welfare of live animals and regulates establishments that handle such animals, in compliance with relevant international conventions and regulations.
Law 77 (amended by law 192 in 2020)	2018	Water Resources Law	Addresses water-related principles, water beneficiaries, sustainable management of water resources, the right of access to water, the institutional framework for water management, water monitoring system, financial management, reporting, emergency and disaster prevention and planning, as well as penalties and fees.
Law 78	2018	Air Quality Protection Law	Defines pollutants as substances that directly or indirectly harm the environment, natural resources, ecosystems, or human health, including those contributing to climate change or emitting harmful odors. Aims to reduce air pollution through air quality management and regulation of both stationary and mobile emission sources. Establishes threshold values for ambient air quality to guide pollution control efforts.
Law 80	2018	Integrated Solid Waste Management	Establishes an integrated legal framework for solid waste management based on sustainability, transparency, and public awareness. Emphasizes key principles including reduction, reuse, recycling, precaution, proximity, decentralization, and the polluter pay principle. Mandates environmentally sound management from source to disposal to prevent pollution and risks on biodiversity, with provisions for administrative sanctions and polluter-funded remediation in line with Environmental Protection Law 444/2002.

Legislation	Year	Title	Description
Laws			
Law 130	2019	Protected Areas Framework Law	Establishes a legal framework for the “Protected Areas” in Lebanon. Defines four categories of “Protected Areas”: Nature Reserves, Natural Sites, Natural Parks, and Himas, with the possibility of creating additional categories by decree. Provides classification mechanism for each category and outlines management provisions specifically for Nature Reserves.
Law 131	2019	Protecting Horsh Beirut Forest	Designates Horsh Beirut Forest as a public green space. Prohibits harmful activities within the Forest, particularly those threatening its plant life and natural ecosystems. Assigns the Municipality of Beirut full responsibility for developing, rehabilitating, maintaining, and planting the forest to preserve its traditional ecological character, particularly its pine trees.
Law 132/2019 - Amending Article 11 of Law 64	2019	Illegal Occupation of the Maritime Public Domain	Aims to remove illegal occupation of the maritime public domain.
Law 158	2020	Organization of the Organic Farming Sector	Establishes a legal framework for organic production in Lebanon aimed at enhancing food safety, supporting local production, and ensuring consumer protection through clear standards and monitoring systems. Promotes biodiversity, soil fertility, and the use of renewable resources, while encouraging environmentally responsible practices across all production and marketing stages. Introduces a transitional phase for converting conventional farms to organic, based on site-specific conditions.
Law 233 (Amending law 28/2017)	2021	Right to Access to Information	Amends the Access to Information Law by removing the requirement for requesters to declare their capacity, official title, interest, or intended use of the information. Aims to simplify and accelerate the process of accessing public information.
Decree			
Decree 11882	1948	Enforcing the Law Organizing Fishing in Rivers.	Establishes rules governing fishing in rivers

Legislation	Year	Title	Description
Decree			
Decree 4809	1966	Regulating the Lebanese Coastal Zone.	Regulates Lebanon's coastal zone by defining how public maritime property can be used, distinguishing between occupancy licenses and construction permits, and requiring that any construction preserve shoreline continuity and public beach access.
Decree 8327	1974	Regulation of Fishing in Lebanese Rivers and Freshwater Streams	Specifies permissible fishing methods, seasons, and protected species. Establishes penalties for violations to ensure sustainable aquatic resource management.
Decree 3899	1993	Regulation of the Extraction of Sand and Other Materials from the Public Maritime Domain and Seabed	Regulates the extraction of sand and other materials from the public maritime domain and seabed. Allows such activities only under specific conditions and prohibits extraction activities that could harm the public maritime domain's integrity or obstruct public access. Implements penalties for unauthorized extraction and non-compliance with established guidelines.
Decree 4809	1996	Regulating Construction on the Maritime Public Domain	Regulates the Lebanese Coastal Zone.
Decree 59/1	2005	Regulation on the Importation, Registration, and Use of Agricultural Pesticides	Sets standards for the import, registration, and use of agricultural pesticides to protect human health and the environment. Includes procedures for approval, control measures, and compliance monitoring to ensure safe pesticide practices.
Decree 387	2009	Regulation on the Collection, Exchange, and Export of Plant Genetic Resources for Food and Agriculture	Covers the collection, exchange, and export of plant genetic resources for food and agriculture, establishing conditions for sustainable use and conservation. Ensures alignment with relevant international treaties and safeguards biodiversity.
Decree 8213	2012	Strategic Environmental Assessment (SEA)	Determines mandatory requirements for assessing the potential environmental effects of any proposed policy, plan, program, studies, investment, or activities affecting a Lebanese area or sector, i to ensure that these projects align with public health and safety priorities, environmental protection, and sustainability of natural resources.
Decree 8633	2012	Environmental Impact Assessment (EIA)	Serves as a framework for predicting and mitigating negative environmental impacts of projects. Outlines necessary measures to be considered during the preliminary Environmental Evaluation phase.

Legislation	Year	Title	Description
Decree			
Decree 10289	2013	Petroleum Activities Regulations	Comprises 27 implementation decrees of the Offshore Petroleum Resources Law (Law No. 132/2010), covering legal, technical, quality, health, safety, environmental, and financial provisions.
Decree 3989	2016	Environmental Police	Designates officers for monitoring to persecute environmental crimes.
Decree 167	2017	Application of Article 20 of Environmental Protection Law No. 444/2002	Defines environmentally related industrial activities and sustainable protection expenditures. Allows tax deductions for individuals or industrial entities engaged in environmental activities aimed at protecting and preserving the environment in a sustainable manner.
Decree 657	2017	Amending Decree No. 2878 (10/2/2016) Determining and Classifying a Site in Ehmej as a Natural Site under the Protection of the MoE	Introduces a minor amendment to Decree No. 2878 of 2016, which designates Ehmej as natural site under the protection of the MoE. The amended decree prohibits the establishment, investment, or occupation of classified industrial institutions within the boundaries of the classified nature site. Regarding the operation of quarries and crushers, existing legal conditions and regulations governing the surroundings of protected classified sites apply.
Decree 6212	2020	Approval of the National Strategy for Managing Ambient Air Quality	Addresses air pollution issues, establish standards for air quality standards, and set up mechanisms for monitoring and managing air pollutants.
Decisions			
MoA Decision 83/1	1983	Regulation of Fishing in the Lebanese Territorial Waters	Sets rules for fishing and hunting in Lebanese territorial waters, lists protected species, and establishes penalties for violations.
MoA Decision 108/1	1995	Prohibition on the Import and Introduction of Cedar Seeds, Seedlings, and Plants	Prohibits the import and introduction of cedar seeds, seedlings, and plants. Specifies measures to protect native cedar forests from potential pests and diseases.
MoA Decision 1/340	1996	Regulating the Exploitation and Export of Sage and Origanum	Regulates the harvesting and export of wild sage (<i>Salvia triloba</i> and <i>Salvia fruticosa</i>) and oregano (<i>Origanum syriacum</i>). Strictly prohibits the uprooting of both species.
MoA Decision 19/1	1996	Prohibition on the Export of All Medicinal and Aromatic Plants of Lebanese Origin	Prohibits the export of all medicinal and aromatic plants of Lebanese origin, including thyme, sage, myrtle, and chamomile. Sets legal restrictions to control exploitation and protect native plant species.

Legislation	Year	Title	Description
Decisions			
MoA Decision 385/1	1997	Prohibition of Fishing in River Estuaries	Prohibits fishing activities in all river estuaries along the Lebanese coast year-round. Designates a protected zone extending 500 meters inland from the river mouth and 2 kilometers seawards. Allows only scientific research and Coast Guard operations within this area.
MoA Decision 125/1	1999	Prohibition of the Capture, Sale, and Use of Marine Turtles, Monk Seals, and Whales	Prohibits the capture, sale, and trade of whales, seals, and marine turtles in Lebanese waters. Mandates the immediate release of any individual from these species caught unintentionally. Aims to protect endangered marine species and support biodiversity conservation efforts.
MoA Decision 280/1	2004	Regulation on the Importation, Registration, and Use of Agricultural Pesticides	Outlines the procedures for the importation, registration, and use of pesticides in Lebanon. Includes provisions for certification, labeling, and monitoring to ensure compliance with health and environmental standards.
MoA Decision 15/1	2004	Legal Sizes Relating to Fishing, Transporting, Buying, and Importing Fish, Shellfish and Crustaceans in Lebanon	Prohibits catching, selling, transporting, importing, or using any fish, crustaceans, or shellfish that do not meet the legally required minimum sizes. Requires fishermen to immediately return any undersized or immature specimens to the sea.
MoA Decision 93/1	2008	Regulating Scuba Diving	Regulates scuba diving activities by prohibiting solo diving; approaching too close to fishing boats, marked nets, or licensed swimming areas; collecting marine organisms; keeping loaded spearguns outside water; sponge harvesting; and night diving or fishing. Permits recreational diving only for certified divers with safe equipment and proper site markings. Divers must apply to the fisheries authority and annual permits are granted only to those aged 18 or older.
MoA Decision 229/1	2009	Prohibiting Slaughterhouse Remains as Feed for Fish	Prohibits manufacturing or importing fish feed containing animal proteins or slaughterhouse waste, except fishmeal. Strictly bans the use of slaughterhouse waste for feeding farmed fish or dumping such waste in rivers and natural or artificial lakes.

Legislation	Year	Title	Description
Decisions			
MoA Decision 346/1	2010	Regulation of Fishing Gear Types and Equipment	Regulates permitted fishing gear types and equipment specifications to support sustainable fishing practices and protect marine biodiversity. Includes conditions on the use and enforcement of fishing tools within Lebanese waters.
MoA Decision 781/1	2011	Regulation of Seed Imports for Planting Purposes (Excluding Potatoes)	Sets requirements for importing seeds intended for planting, excluding potatoes, including licensing, documentation, and labeling standards. Aims to ensure seed quality and prevent the introduction of quarantine pests.
MoA Decision 783/1	2011	Regulation of the Import of Propagating Material for Fruit Trees	Regulates the import of propagating material for fruit trees, including requirements for certification, origin, and phytosanitary conditions. Aims to ensure plant health and prevent the introduction of harmful pests or diseases.
MoA Decision 676/1	2011	Prohibiting Fishing, Transporting, and Selling Certain Species	Prohibits catching, transporting, selling, or consuming pufferfish (<i>Torquigener</i> spp. and <i>Lagocephalus</i> spp.) in any form, under penalty of liability. Exempts universities and research centers, with a special permit from the MoA.
MoA Decision 952/1	2011	Hygienic Regulations for Fish Transport Vehicles	Requires vehicles transporting fresh, chilled, or frozen fish to obtain prior approval from the MoA. Ensure vehicles are clearly marked, properly refrigerated, equipped with temperature monitoring systems, and cleaned and disinfected after each transport. Personnel must maintain strict personal hygiene and hold a valid health certificate.
MoA Decision 8/1	2012	Regulating Fyke Nets	Permits the use of fish traps under the conditions specified in the relevant articles. Requires applicants to submit an annual licensing request with all required valid documents. Nets are subject to inspection by the MoA before and during deployment, and whenever necessary.
MoA Decision 294/1	2014	Establishment of the National Plant Genetic Resources Committee for Food and Agriculture	Establishes a national committee responsible for overseeing matters related to planting genetic resources for food and agriculture. Specifies its role in coordinating and supporting activities tied to conservation, access, and exchange.

Legislation	Year	Title	Description
Decisions			
MoA Decision 1044/1	2014	General Conditions to Protect Cetaceans and Marine Mammals	Outlines conditions for the protection of cetaceans and other marine mammals in Lebanese waters. Bans their capture, disturbance, and trade, and requires the release of any species caught unintentionally.
MoA Decision 1045/1	2014	General Conditions to Protect Sharks and Dogfish	Defines protective measures for sharks and dogfish in Lebanese waters, including a ban on their capture, sale, and trade. Requires the immediate release of unintentionally caught species and supports broader efforts to conserve marine biodiversity.
MoA Decision 396/1	2014	Ban on Catching Seabirds	Prohibits the hunting, capturing, transporting, or selling of seabirds. Requires fishermen who accidentally catch live or dead seabirds to safely release live individuals and report the species type and number to the Fisheries Department or regional MoA offices.
MoA Decision 1234/1	2015	Amending Hygienic Transport Regulation 952/1	Subjects vehicles transporting fresh, chilled, or frozen fish to prior approval, using a specified form to obtain both approval and health registration for their transport.
MoE Decisions 449/1 723/1 275/1 135/1	2017 2018 2019 2020	Opening the Hunting Season	Opens the hunting season from 15 September until the end of January and defines the bird and wild animal species allowed for hunting only during the specified hunting season, as well as the number allowed for each species. Strictly prohibits hunting outside the designated hunting season, and the hunting of all types of birds and wild animals year-round except those specified in the decision.
MoE Decision 1281/1	2017	Determination of the Procedure for Benefiting from the Tax Reduction for Ecofriendly Activities	Specifies the mechanism, in application of Article 20 of Law 444/2002 and Decree 167/2017, to benefit from tax reduction for environmental industry activities that protect and preserve the environment in a sustainable manner.
CoM Decision 203	2017	Establishment of the Sustainable Development Goals (SDGs) Committee	Establishes the National Committee responsible for leading and coordinating Lebanon's efforts to implement the Sustainable Development Goals (SDGs). Defines the Committee's role in overseeing progress, ensuring cross-sectoral collaboration, and aligning national policies with the SDGs framework.

Legislation	Year	Title	Description
Decisions			
CoM Decision 62	2018	Endorsement of Lebanon 2016 NBSAP	Endorses Lebanon's "National Biodiversity Strategy and Action Plan", developed by the MoE in 2016, following the Ministry's request.
MoE Decision 190/1	2018	Conditions for Small Quarries	Establishes conditions for small quarries that help avoid eradication of biodiversity, noise and air pollution.
MoE Decision 798/1	2018	Preventing the Hunting of Wolves, Hyenas and Foxes Year-Round	Prohibits the hunting of all animals throughout the year and in all Lebanese regions that are not included in the list of permitted hunting, especially wolves, hyenas and foxes, as these species are local wild animals and have become rare. Violations are subject to applicable penalties, particularly those stipulated under the Wild Hunting Law 580/2004.
COM Decision 37	2019	Approval of The Draft Law on the Management, Access, Collection, and Exchange of Plant Genetic Resources for Food and Agriculture, in Accordance with the ITPGRFA, and Its Transmission to the Parliament.	Approves the draft law regulating the management, access, collection, and exchange of plant genetic resources for food and agriculture, in line with the International Treaty on Plant Genetic Resources for Food and Agriculture (ITPGRFA). Establishes a legal basis for the conservation and sustainable use of these resources while ensuring fair and equitable benefit-sharing.
CoM Decision 45	2019	Approval of the Policy for the Integrated Management of the Quarrying Sector Developed by the MoE	Authorizes the temporary operation of certain rock quarries outside the scope of Decree No. 8809/2002 under specific conditions for a 90-day period. Allocates LBP 1 billion to the MoE's 2019 budget for implementing quarry policy through tendering. Establishes a multi-ministerial committee, headed by the Prime Minister, to oversee quarry survey activities.
MoE Decision 16/1	2022	Emission Limit Values for Air Pollutants	Sets the National Standards for Ambient Air Quality and provides emission limit values for air pollutants from various sources.
MoA Decision 448/1	2022	Regulation of Marine Fishing for Vessels with a Total Length Exceeding 15 Meters	Requires vessels to carry an operational GPS tracking device at all times. Mandates clear identification markings on all equipment, including nets, barrels, floats, and the boat itself. Vessels are subject to regular monitoring to ensure compliance with fishing regulations, and fishing activity logs must be maintained and submitted monthly to the MoA.

Legislation	Year	Title	Description
Decisions			
MoE Decision 26	2023	Guidelines for Studying the Environmental Impact Assessment (EIA) of Oil and Gas Exploration and Survey Operations in Lebanese Maritime Waters	Establishes the guidelines for conducting the EIA of oil and gas exploration and survey operations in Lebanese maritime waters.
CoM Decision 45	2023	Endorsing the Updated National Strategy for Forest Fire Prevention and Control in Lebanon (MoE).	Aims to reduce the frequency and intensity of forest fires by involving various public and private stakeholders in a comprehensive management framework
MoA Decision 269/1	2025	Requirement of Prior Approval from the Lebanese Agricultural Research Institute (LARI) for the Collection or Exchange of Plant Genetic Resources for Food and Agriculture	Designates LARI as the official authority responsible for managing plant genetic resources for food and agriculture in Lebanon. Requires prior approval from LARI for any activity involving the collection or exchange of such resources. This obligation applies to public administrations, institutions, associations, universities, and individuals engaged in these activities.
MoA Decision 281/1	2025	Concerning the amendment to Article 6 of Decision No. 346/1 on the Regulation of Fishing Gear Types and Equipment	Authorizes fishermen to use diving equipment for attaching, securing, and managing fishing gear. Requires that all equipment meet safety standards and that operators hold an official diving certificate.

Table 4-2 Biodiversity-Related International Conventions Ratified by Lebanon

Legislations	Year	Title of the Convention	Description
Laws			
Law 360	1994	United Nations Convention on Biological Diversity (CBD)	The convention is a legally binding international agreement that sets out a comprehensive framework for the protection of biodiversity. It supports the effective implementation of its three main objectives: the conservation of biological diversity, the sustainable use of its components, and the fair and equitable sharing of benefits arising from the utilization of genetic resources.
Law 359	1994	United Nations Framework Convention on Climate Change (UNFCCC)	The convention aims to achieve stabilization of greenhouse gas concentrations in the atmosphere in order to prevent dangerous anthropogenic interference with the climate system.

Legislations	Year	Title of the Convention	Description
Laws			
Law 97	1996	United Nations Convention to Combat Desertification (UNCCD)	The convention establishes an international framework to combat desertification and mitigate drought effects, promoting sustainable land management to protect biodiversity and ecosystem functions, especially in vulnerable drylands.
Law 23	1999	Ramsar Convention on Wetlands of International Importance, Especially as Waterfowl Habitat	The convention provides a global framework for the conservation and sustainable use of wetlands, recognizing their critical role in supporting biodiversity and ecosystem services, especially waterfowl habitats. It guides national efforts to designate and manage wetlands of international importance, promoting wise use and cross-border cooperation.
Law 412	2002	Agreement on the conservation of African-Eurasian Migratory Water Birds (AEWA)	The agreement aims to conserve migratory waterbirds and their habitats across Africa, Europe, Asia, and Canada. It covers 255 species and coordinates conservation efforts through an Action Plan that includes habitat protection, legal protection, and the management of human activities across 118 countries.
Law 559	2004	International Treaty on Plant Genetic Resources for Food and Agriculture (ITPGRFA)	The treaty aims to conserve and sustainably use plant genetic resources for food and agriculture, ensure the fair and equitable sharing of benefits from their use, facilitate the exchange of these resources, recognize farmers' contributions, protect farmers' and communities' rights, and build capacity, particularly in developing countries.
Law 571	2004	The conservation of Cetaceans of the Black Sea, Mediterranean Sea, and Contiguous Atlantic (ACCOBAMS)	The agreement aims to reduce threats to cetaceans and improve scientific knowledge about them. As the first binding Agreement covering both subregions, ACCOBAMS enables countries to work jointly on shared conservation goals. Parties must conduct impact assessments for activities that may affect cetaceans or their habitats (e.g., fisheries, offshore exploration, nautical sports, tourism), regulate pollutant discharges, and establish conditions to ensure these activities do not harm cetaceans.

Legislations	Year	Title of the Convention	Description
Laws			
Law 31	2008	Cartagena Protocol on Biosafety	The protocol is a supplementary agreement to the Convention on Biological Diversity, it contributes to ensuring an adequate level of protection in the field of the safe transfer, handling, and use of "living modified organisms" resulting from modern biotechnology' that may have adverse effects on the conservation and sustainable use of biological diversity, taking also into account risks to human health, with a particular focus on trans-boundary movements.
Law 233	2012	Convention on International Trade in Endangered Species of Wild Fauna and Flora (CITES)	The convention regulates the cross-border trade of wildlife species to ensure that such trade does not threaten species' survival, by listing species in appendices according to their level of threat and establishing a permit-based system that helps countries monitor, limit, or prohibit trade in endangered species.
Law 3	2017	Nagoya Protocol on Access and Benefit Sharing	The protocol is a supplementary agreement to the Convention on Biological Diversity. It provides a transparent legal framework for the effective implementation of one of the three objectives of the CBD: the fair and equitable sharing of benefits arising from the utilization of genetic resources.
Law 119	2019	Kigali Amendment to the Montreal Protocol	The Kigali Amendment calls for a gradual reduction in the consumption and production of hydrofluorocarbons ("HFCs"), which are potent greenhouse gases. Its global implementation is expected to avoid up to half a degree Celsius of global warming by the end of the century.
Decrees (and Associated Laws / Decree-Laws)			
Decree 5599 and Law 115	2019	Paris Agreement for Climate Change	The Paris Agreement aims to strengthen the global response to climate change by limiting global warming and enhancing adaptation and resilience efforts worldwide.

Legislations	Year	Title of the Convention	Description
Laws			
Decree-Law 126	1977	Convention for the Protection of the Mediterranean Sea against Pollution - Barcelona Convention	This regional convention aims to prevent and reduce pollution from ships, aircraft, and land-based sources in the Mediterranean Sea. Under this convention, Lebanon has ratified the following protocols: - Barcelona Convention Amendments. - Protocol for the Prevention and Elimination of Pollution of the Mediterranean Sea by Dumping from Ships and Aircraft. - Protocol Concerning Co-operation in Combating Pollution of the Mediterranean Sea by Oil and Other Harmful Substances in Cases of Emergency. - Protocol Concerning Cooperation in Preventing Pollution from Ships and, in Cases of Emergency, Combating Pollution of the Mediterranean Sea. - Land-Based Pollution (LBS) Protocol. - Specially Protected Areas and Biological Diversity (SPA/BD) Protocol. - Integrated Coastal Zone Management (ICZM) Protocol.
Decree 3320	2018	Convention on the Conservation of Migratory Species of Wild Animals (CMS)	The convention promotes international cooperation for the conservation of migratory species across their migratory routes. Appendix I lists migratory species that are endangered throughout their range, while Appendix II includes species with an unfavorable conservation status that would benefit from coordinated international conservation and management efforts.

Table 4-3: Lebanese Policies, Strategies and Action Plans Relevant to Biodiversity

Title	Year	Description
National Physical Master Plan for the Lebanese Territory (NPMPLT)	2009	A long-range territorial planning instrument formulated by the Council for Development & Reconstruction (CDR) in 2005 that outlines land use principles, regional spatial strategies, and infrastructure planning to guide development through 2030.

Title	Year	Description
Lebanon Marine Protected Areas (MPA) Strategy	2012	A Strategy developed by the MoE and IUCN that defines the goal of establishing of a national network of MPAs in Lebanon, established and managed within an integrated marine management framework, that contributes to the health of Lebanon's sea and marine environment. The strategy proposed 18 marine and coastal sites for protection.
Lebanon Rural Tourism Strategy	2014	A strategy developed within the USAID funded Lebanon Industry Value Chain (LIVCD) Project that aims to upgrade and increase the competitiveness of the rural tourism value chain in Lebanon. It identifies priority intervention areas, to improve the sector's attractiveness and capacity, defined key actions with recommended actors and linkages across the value chain, and promoted cooperation, shared understanding, ownership, and joint advocacy among rural tourism stakeholders.
National Afforestation and Reforestation Program (NARP) 2014-2028	2014	A program Launched by the Lebanese Government to increase Lebanon's forest cover to 20%, restore ecological integrity, and reinforce the country's green identity through afforestation and reforestation efforts.
Lebanon National Forest Plan, 2015-2025	2015	A project implemented by the MoA, to promote sustainable forest management through updated resource assessments and collaboration with universities and research centers to support relevant scientific research.
The National Strategy for Air Quality Management 2015-2030	2015	A strategy that provides a vision and long-term goals for the management of air quality in Lebanon by 2030. It outlines implementation, monitoring, evaluation, and information sharing. This strategy is aligned with the NDC targets.
National Strategy for Conservation and Management of Plant Genetic Resources for Food and Agriculture (PGRFA) In Lebanon 2015-2035	2015	A strategy prepared through a participatory approach that involves concerned stakeholders under the coordination of the MoA. It aims to promote and ensure rationalized conservation and management of genetic resources in the country.
Lebanon's National Biodiversity Strategy and Action Plan (NBSAP)	2016	A Strategy prepared through a participatory approach that involves concerned stakeholders under the coordination of the MoE and submitted to the CBD in 2016. The NBSAP identifies 13 priority areas and sets 18 national targets supported by 91 actions. It integrates the CBD strategic goals 2010-2020 and the 2020 ABTs.

Title	Year	Description
Updated Master Plan for the Closure and Rehabilitation of Uncontrolled Dumps in Lebanon (2016-2017)	2017	A plan prepared by the MoE and UNDP, classified surveyed dumpsites into Municipal Solid Waste (MSW) and Construction and Demolition Waste (CDW) dumpsites, further categorized as operational and non-operational. It proposed the rehabilitation plans and cost estimates for the 20 highest ranked MSW and CDW dumpsites.
Voluntary National Review on the implementation of the Sustainable Development Goals	2018	As part of Lebanon's commitment to the UN Sustainable Development Goals (SDGs) of Agenda 2030, a national committee was established in 2017 and chaired by the Prime Minister to oversee SDG progress. The 2018 Voluntary National Review highlighted achievements, particularly regarding SDG 14 "Life below water," while NBSAP directly connected national actions to the SDG.
National Monitoring Program for Marine Biodiversity in Lebanon	2018	A program developed by the MoE in partnership with SPA/RAC, in collaboration with national stakeholders, scientists, organizations, and civil society, to establish an effective monitoring and reporting system to assess the marine ecosystem's environmental status and support informed policymaking.
National Action Plan on marine species introductions and invasive species in Lebanon	2018	Issued by SPA/RAC in coordination with the MoE, this National Plan provides a strategic framework for managing the introduction and control of marine and invasive species in Lebanon to protect native biodiversity and ecosystems.
6th National Report of Lebanon to the Convention on Biological Diversity	2019	Prepared by the MoE and UNDP, this report presents a final review of progress toward implementing the Strategic Plan for Biodiversity 2011-2020 and achieving the ABTs, including relevant national targets, based on information concerning the implementation of national biodiversity strategies, action plans, and other actions taken.
National Action plan for the Conservation of Marine Turtles in Lebanon (2020-2025)	2019	Issued by RAC/SPA in coordination with the MoE, this plan outlines actions to reduce marine turtle mortality in Lebanon, and conserve and restore their habitats and nesting sites

Title	Year	Description
National Action Plan for the Conservation of the Coralligenous assemblages in Lebanon	2020	Issued by RAC/SPA in coordination with the MoE, this plan outlines actions related to data collection and updating, awareness-raising and education, and the protection and conservation of coralligenous assemblages in Lebanon.
Lebanon's National Agriculture Strategy (2020 – 2025)	2020	A strategy developed by the MoA that aims to improve the living standards of the Lebanese population through short-term recovery and long-term development, by transforming the agri-food system into a resilient, inclusive, competitive, and sustainable sector.
Lebanon's Nationally Determined Contribution - Updated 2020 Version	2021	Lebanon submitted an updated Nationally Determined Contribution (NDC), prepared by the MoE and UNDP, to enhance its climate commitments under Article 4.9 of the Paris Agreement and Law No. 115/2019, aiming to meet the Agreement's goals.
Mainstreaming biodiversity conservation in Lebanon Guidelines for environmental impact assessment for projects affecting marine and coastal areas	2021	The report, led by the MoE, presents guidelines that specifically address biodiversity inclusion in EIA studies. For each phase of the EIA process (screening, scoping, and impact assessment), it outlines current procedures and recommends new steps to be integrated, where biodiversity-inclusive EIA are required.
National Disaster Risk Reduction Strategy (2021-2030)	2021	A strategy that outlines Lebanon's alignment with the global Sendai Framework for Disaster Risk Reduction, emphasizing risk understanding, strengthened governance, investment in resilience, and improved preparedness and recovery for all hazard types.
4th National Communication on Climate Change	2022	A communication led by the MoE and supported by the UNDP, provides a comprehensive overview of Lebanon's national circumstances, including economic, governance, sectoral, private sector, youth, and gender aspects. It details institutional arrangements for climate change, greenhouse gas inventories, and climate projections for mid- and end-century. It also includes vulnerability assessments for key sectors, potential mitigation measures—focused on transport and wastewater—and an overview of climate action support needs and progress.

Title	Year	Description
National Forest Fire Strategy	2023	A targeted framework led by the MoE to prevent, manage, and respond to forest fires across Lebanon through risk assessment, community engagement, technical capacity-building, and ecosystem rehabilitation.
Lebanon National Health Strategy: Vision 2030	2024	A comprehensive health sector reform framework launched in January 2023 by the Ministry of Public Health, addressing governance, universal health coverage, service delivery, public health, workforce, financing, and digital health. Tailored to respond to Lebanon's ongoing socioeconomic and refugee crises, it sets priorities for systemic improvement and resilience.
Lebanon High Mountains Master Plans (draft)	2024	Master Plans and local development action plans for the High Mountains (+1,500m and above) and two pilot districts—Jbeil and Akkar (800 m and above)—as well as detailed urban plans for villages within the two pilot study areas. These studies were developed through the UNDP LDN project and implemented in partnership with MoE.
Lebanon's National Water Strategy (2024-2035)	2024	A strategic plan issued by the Ministry of Energy & Water, extending previous efforts, aligned with Water Code 77/2018. It aims to establish integrated water management, inclusive governance, financial sustainability, institutional coordination, and access equity across river basins.
Lebanon National Health Strategy: 2-year review	2025	A mid-term evaluation conducted in February 2025 with WHO Lebanon assessing progress on emergency preparedness, universal health coverage, digital health, and workforce development, providing a recalibration roadmap for the next implementation phase.
Ministry of Agriculture Strategic Directions (2025 - 2026)	2025	A short-term roadmap setting immediate priorities to sustain momentum from the 2021- 2025 strategy, emphasizing recovery, climate adaptation, rural development, and institutional reform. This plan ensures continuity and early implementation of critical interventions.



Horsh Ehden Nature Reserve

4.2 Recommendations for Policy Coherence & Institutional Alignment with Global Biodiversity Framework

To effectively integrate the provisions of the Kunming-Montreal GBF, Lebanon must address current legal and policy gaps by updating outdated laws and revising existing strategies alongside enacting new legislation that explicitly supports the sustainable use of biodiversity. Although Lebanon's current strategies, laws, and regulations are partially aligned with the GBF, specific gaps have been identified, and a set of recommendations has been developed to ensure full compliance with the CBD. The proposed actions focus on addressing institutional shortcomings and promoting biodiversity integration across relevant sectors. Recommendations for new policies or legal

amendments were derived from a quick assessment of national policies, laws, and regulations, with the goal of aligning Lebanon's efforts with global biodiversity targets.

A summary of the gaps in the national legal framework along with corresponding recommendations for alignment with each GBF Target, is presented in Table 4-4 below.

Strengthening biodiversity management in Lebanon hinges on several critical factors, notably enhanced coordination among relevant ministries and institutions, the revision and updating of strategic plans, increased public awareness and engagement, improvements to the EIA system, and the effective enforcement of environmental legislation.

Table 4-4: Gaps in National Legal Framework Related to Each GBF Target, and Recommendations for Alignment

GBF Target 1 - Plan and manage all areas to reduce biodiversity loss		
Global Target	Existing Key National / Local Policies and Laws	
Ensure that all areas are under participatory, integrated and biodiversity inclusive spatial planning and/or effective management processes addressing land- and sea-use changes, to bring the loss of areas of high biodiversity importance, including ecosystems of high ecological integrity, close to zero by 2030, while respecting the rights of indigenous peoples and local communities.	Terrestrial - Forest protection Law No. 558/1996. - Forest Law of 1949, and its draft updated under preparation (final stage/MoA). - Protected Areas Framework Law No. 130/2019 (MoE). - Decree No. 2366/2009: National Physical Master Plan for the Lebanese Territory (NPMPLT). - Decrees endorsing Master Plans in cities. - CoM Decision No. 45/2023 endorsing the Updated National Strategy for Forest Fire Prevention and Control in Lebanon (MoE). - National Afforestation and Reforestation Plan (NARP), also known as the 40 million trees program, 2014 (MoA/FAO endorsed by the CoM). - The National Forest Program 2015-2025 (MoA) with an updated version is currently being developed. - Draft Master Plans for High Mountain Areas in Lebanon, preparations ongoing as of 2023 (MoE). - Existing guidelines on forest and rangeland management. Marine - Fishing Law of 1952, and its draft updated under preparation (final stage/MoA). - Specific laws establishing each Terrestrial and Marine Protected Areas in Lebanon (MoE). - Draft Updated ICZM law and strategy. - Decree No. 4809/1966 regulating the Lebanese coastal zone. - Lebanon Marine Protected Areas Strategy, 2012 (MoE/IUCN). - Master Plans for specific coastal areas.	

	Gaps/Challenges	Recommendations
	- National Physical Master Plan for the Lebanese Territory (NPMPLT) has not been updated and fully implemented. - The Master Plan for High Mountain Areas has not been formally adopted, which limits enforcement and tangible actions to protect and restore fragile mountain ecosystems. - The previous National Strategy for Forest Fire Prevention and Control in Lebanon endorsed in 2009 through CoM Decision No. 52 has not been fully implemented. - Bureaucracy and lengthy processes characterize the endorsement process of the updated draft laws. - Existing guidelines on forest and rangeland management are not officially adopted and implemented. - Not all forests managed by the MoA have management plans in place to guide the sustainable use and exploitation of their resources. - Conservation and sustainable management of biodiversity outside nature reserves are not effective. - Master Plans for cities and coastal areas have not been updated and fully implemented.	- Update and implement the National Physical Master Plan for the Lebanese Territory (NPMPLT), in order to integrate biodiversity in spatial planning and effective management processes addressing land- and sea-use changes. - Update, endorse, and implement Master Plans as needed, in order to integrate biodiversity considerations and reduce its loss. - Strengthen coordination among all relevant institutions to effectively implement the Updated National Strategy for Forest Fire Prevention and Control in Lebanon endorsed through CoM Decision No. 45/2023, in order to reduce the loss of forest and areas of high biodiversity importance due to wildfires. - Accelerate the finalization and adoption of the updated forest and fishing draft laws under MoA mandate, since they are related to sustainable use of biodiversity resources outside Nature Reserves (forests, grasslands, fisheries, etc.). - Develop and implement, through the MoA, sustainable forests and rangeland management plans in the areas under its mandate, based on the existing guidelines on forest and rangeland management. - Disseminate the existing guidelines on forest and rangeland management to relevant municipalities to implement sustainable management plans for their forests and range resources. - Adopt and endorse the Draft updated ICZM law and strategy.

GBF Target 2 - Restore 30% of all degraded ecosystems

Global Target	Existing Key National / Local Policies and Laws
Ensure that by 2030 at least 30 per cent of areas of degraded terrestrial, inland water, and marine and coastal ecosystems are under effective restoration, in order to enhance biodiversity and ecosystem functions and services, ecological integrity and connectivity.	- Forest Law of 1949, and its draft updated under preparation (final stage/MoA), which covers the regulation of forest resources exploitation. - Framework Law No. 326/2001 (MoE): Reforestation and land rehabilitation. - Decree No. 8803/2012 defines the procedure for quarries licensing and their progressive rehabilitation. - Decree No. 6569/2020 enacts the mechanism for collecting financial dues from quarries operators. It forms the first major financial regulation for the sector to recover unpaid revenues. - Decision No. 13335/1963 (MoA) establishes the Green Plan as a semi-autonomous public institution, which supports land reclamation and agricultural development through demand-driven matching grant programs that co-finance agricultural investments made by private actors. - Decisions No. 46/1 and 47/1 of 2009 specify the procedures for quarries rehabilitation. - CoM Decision No. 45/2019: It is a policy brief on the Integrated Management of the Quarries and Crushers Sector. It delegates a survey of existing and abandoned quarries, and estimation of areas to be rehabilitated, as well as associated fees to the Lebanese Armed Forces. - CoM Decision No. 45/2023 endorses the Updated National Strategy for Forest Fire Prevention and Control in Lebanon (MoE). - National Afforestation and Reforestation Plan (NARP), also known as the 40 million trees program, 2014 (MoA/FAO endorsed by the CoM). - The National Forest Program 2015-2025 (MoA) with an updated version is currently being developed. - Draft Master Plans for High Mountain Areas in Lebanon, preparations ongoing as of 2023 (MoE).

	Gaps/Challenges	Recommendations
	- Undefined land ownership and unsurveyed lands hinder restoration projects on both public and private lands. - Reforestation efforts have sometimes favored monocultures or non-native species. - Current forest cover restoration is slow and inconsistent, especially in highly degraded or conflict-affected areas. - There is no effective system in place to ensure that quarry sites are properly rehabilitated, that operators fulfill their financial and environmental obligations, and that legal and administrative mechanisms result in the actual restoration of degraded quarry landscapes. - The Master Plan for High Mountain Areas has not been formally adopted, which limits enforcement and tangible actions to protect and restore fragile mountain ecosystems. - Challenges remain in streamlining the roles among ministries, civil defense, army, and municipalities during fire emergencies and restoration phases. - There is no specific legislation or policy dedicated to coastal and marine restoration or the prevention of degradation in Lebanon. Existing framework instruments provide only general environmental coverage without clear provisions, responsibilities, or mechanisms for restoration planning, implementation, and monitoring.	- Clarify land tenure issues and facilitate restoration on both public and private lands through incentives and legal frameworks. - Prioritize planting of native, diverse tree species and mixed-species forests, in order to enhance ecosystem resilience, biodiversity, and ecosystem services. - Enhance monitoring and reporting systems to effectively track restoration progress and outcomes. - Ensure effective implementation of the updated forest fire strategy, which includes a full section on post-fires restoration and rehabilitation. - Establish and operationalize a national quarry rehabilitation and compliance mechanism that integrates environmental, financial, and legal enforcement tools, in order to ensure that operators fulfill their obligations and that degraded sites are effectively restored. - Endorse and implement the High Mountain Areas Master Plans. - Establish formal mechanisms for joint planning, data sharing, and resource mobilization among key institutions. - Develop and enact legislation for coastal and marine restoration and protection with clear provisions, responsibilities, and mechanisms for restoration planning, implementation, and monitoring.

GBF Target 3 - Conserve 30% of land, waters and seas

Global Target	Existing Key National / Local Policies and Laws
Ensure and enable that by 2030 at least 30 per cent of terrestrial and inland water areas, and of marine and coastal areas, especially areas of particular importance for biodiversity and ecosystem functions and services, are effectively conserved and managed through ecologically representative, well-connected and equitably governed systems of protected areas and other effective area-based conservation measures, recognizing indigenous and traditional territories, where applicable, and integrated into wider landscapes, seascapes and the ocean, while ensuring that any sustainable use, where appropriate in such areas, is fully consistent with conservation outcomes, recognizing and respecting the rights of indigenous peoples and local communities, including over their traditional territories.	- Forest Protection Law No. 558/1996 (MoA). - Framework Protected Areas Law No. 130/2019 (MoE). - Specific laws establishing each Nature Reserve in Lebanon (MoE). - Specific Decrees classifying each Nature Site under the Protection of MoE in Lebanon. - Specific municipal decisions classifying Himas in Lebanon. - Specific decisions classifying Protected Forests in Lebanon (MoA). - Lebanon Marine Protected Areas Strategy, 2012 (MoE/IUCN). - Management Plans for specific Nature Reserves (MoE).

	Gaps/Challenges	Recommendations
	- Bureaucracy and lengthy processes characterize the law endorsement process. - Establishment of an additional Nature Reserve is sometimes hindered by opposition from municipalities and local communities. - Unsurveyed lands in some rural areas prevent the establishment of Nature Reserves. - Lands with undefined ownership in some rural areas prevent the establishment of Nature Reserves. - Certain proposed PAs fall within private properties, and landowners sometimes oppose their designation, despite being allowed under the National Framework Protected Areas Law. - Nature reserves are the most effectively conserved category, unlike nature sites, where the relevant legislation is not effectively enforced. - Development projects on the coast (existing and planned) prevent the establishment of MPAs. - Opposition from local communities and/or fishers prevents the establishment of MPAs. - Not all Protected Forests classified through the MoA's Decisions have a Management Plan.	- Reduce bureaucracy and lengthy processes for the endorsement of new proposed legislation to establish new PAs through lobbying efforts. - Raise awareness at the local and municipal levels about the importance of PAs and their benefits to communities. - Survey lands and clarify land ownership within the candidate nature reserves to facilitate their classification. - Define a national procedure to designate OECMs. - Develop the necessary decrees to establish additional categories of PAs, in order to increase the scale of PAs and achieve the 30% target. - Enforce the legislation classifying the nature sites to effectively conserve them. - Develop Management plans for the Protected Forests under the MoA's mandate.

GBF Target 4 - Halt species extinction, protect genetic diversity, and manage human-wildlife conflicts

Global Target	Existing Key National / Local Policies and Laws
Ensure urgent management actions to halt human induced extinction of known threatened species and for the recovery and conservation of species, in particular threatened species, to significantly reduce extinction risk, as well as to maintain and restore the genetic diversity within and between populations of native, wild and domesticated species to maintain their adaptive potential, including through in situ and ex situ conservation and sustainable management practices, and effectively manage human-wildlife interactions to minimize human-wildlife conflict for coexistence.	Terrestrial - Forest Law of 1949, and its draft updated under finalization (to be submitted to CoM soon). - Forest protection Law No. 558/1996. - Law No. 251/2014: Environmental Public Prosecution Unit. - Framework Protected Areas Law No. 130/2019 (MoE). - Specific legislation establishing each Nature Reserve/Nature Site in Lebanon (MoE). - Draft law regulating the trade of seeds, seedlings and propagation methods (developed by MoA and submitted to CoM). - Draft national law related to the management of plant genetic resources for food and agriculture, in accordance with the international treaty for plant genetic resources for food and agriculture (ITPGRFA). It is prepared by LARI, submitted by the Minister of agriculture to COM, and approved and transmitted by CoM to the Parliament through Decision No. 37/ 2019. - Decree No. 3989/2016 establishes an Environmental Police, issued by the CoM under the authority of the MoE. - Planned Micro-reserve category under PAs through a decree, which aims to conserve single/specific threatened species (MoE). - Decision No. 108/1 of 1995 (MoA) bans the import of cedar seeds, seedlings, and plants, in order to preserve the endemic Cedars tree <i>Cedrus libani</i>. - Decision No. 1/340 of 1996, (MoA) regulates the harvest of <i>Origanum</i> and <i>Salvia</i>. - Decision No. 19/1 of 1996 (MoA) regulates the export of all medicinal and aromatic plants of Lebanese origin. - Decision No. 294/1 of 2014 (MoA): National committee for plant genetic resources for food and agriculture, in accordance with the ITPGRFA. - Decision No. 269/1 of 2025 (MoA): Requirement of prior approval from LARI to all collection and exchange practices related to plant genetic resources for food and agriculture in Lebanon, in accordance with the ITPGRFA. - Specific municipal decisions classifying Himas in Lebanon. - Specific decisions classifying Protected Forests in Lebanon (MoA). - National Strategy for conservation and management of plant genetic resources for food and agriculture in Lebanon, 2015-2035 (MoA), in accordance with the ITPGRFA.

	Gaps/Challenges	Recommendations
	- Bureaucracy and lengthy legal procedures to issue new PAs. - Bureaucracy and lengthy legal procedures to issue the new Protected Area category decree (i.e. micro-reserve). - There is no national action plan for the conservation and recovery of threatened species. - There is no national legislation regulating seeds/gene banks for ex-situ conservation. - There is no national conservation strategy for native species. - Environmental police has not been designated to halt human-wildlife conflict. - Numerous violations against fishing, forestry, and other terrestrial and marine laws have been observed. - Drafts updated fishing and forestry laws have not been issued, due to bureaucracy and lengthy legal processes.	- Reduce bureaucracy and lengthy processes to issue new laws through lobbying efforts. - Create a centralized biodiversity data and monitoring platform to track species status, enforcement records, and law implementation. - Issue the draft law regulating seeds exports and imports, which is prepared by the MoA and submitted to CoM, in order to control and prevent seeds exports and imports of plant threatened species. - Issue the draft law regulating exchange of plant genetic resources for food and agriculture, which is prepared by the MoA and currently is in Parliament, in order to control the exchange of plant threatened species related to food and agriculture in Lebanon. - Effective implementation of MoA decision No. 269/1, 2025, to control the collection and exchange of plant threatened species for food and agriculture in Lebanon. - Effectively implement the national strategy for conservation and management of plant genetic resources for food and agriculture, in order to ensure productive ex-situ conservation and sustainable management practices of the threatened plant species related to food and agriculture in Lebanon. - Develop national conservation strategies and regulations for at least 100 native species of high conservation value, while prioritizing endemic species. - Ensure full activation and deployment of the Environmental Police Unit, including training on biodiversity crimes, enforcement protocols, and coordination with Civil Defense, Internal Security Forces, and municipalities.

GBF Target 4 - Halt species extinction, protect genetic diversity, and manage human-wildlife conflicts

Global Target	Existing Key National / Local Policies and Laws	
	Marine - Fishing Law of 1952, and its draft updated under preparation (Final stage/submitted to CoM). - Decision No. 125/1 of 1999 (MoA) bans the fishing of marine turtles, monk seals and whales, as well as the sale, use or trade of their derivatives. - Decision No. 1044/1 of 2014 (MoA): General measures to protect cetaceans/marine mammals (whales, dolphins and monk seals). - Lebanon Marine Protected Areas Strategy, 2012 (MoE/IUCN). - A National Action plan for the Conservation of Marine Turtles in Lebanon (2020-2025), 2019 (SPA/RAC, MoE). - A Stranding Network for Sea Turtles and a Protocol for Monitoring the Interaction between Marine Litter and Marine Turtles in Lebanon, 2020 (SPA/RAC, MoE). - Draft National Action plan for the Conservation of Monk Seals in Lebanon (under preparation).	

GBF Target 5 - Ensure sustainable, safe and legal harvesting and trade of wild species

Global Target	Existing Key National / Local Policies and Laws	
Ensure that the use, harvesting and trade of wild species is sustainable, safe and legal, preventing overexploitation, minimizing impacts on non-target species and ecosystems, and reducing the risk of pathogen spillover, applying the ecosystem approach, while respecting and protecting customary sustainable use by indigenous peoples and local communities.	Terrestrial - Forest Law of 1949 regulating the exploitation of forest resources and its draft updated under finalization (to be submitted to CoM soon) . - Hunting Law No. 580 of 2004 (MoE) bans the hunting of protected species all year long and limits hunting to a specific season and for target game birds and animal species only. - Law No. 223/2012: Lebanon ratifies the Convention on International Trade in Endangered Species of Wild Fauna and Flora (CITES). - Ministerial Decree No. 387/2009 (MoA): List of native species allowed for trade and export, with Cedrus libani listed as the only cedar species allowed. - Decision No. 108/1 of 1995 (MoA) bans the import of cedar seeds, seedlings, and plants, in order to preserve the endemic Cedars tree Cedrus libani. - Decision No. 19/1 of 1996 (MoA) regulates the export of all medicinal and aromatic plants of Lebanese origin.	

	Gaps/Challenges	Recommendations
		- Enforce effectively MoA Decisions No. 1/340 of 1996, 108/1 of 1995, No. 125/1 of 1999, and No. 1044/1 of 2014. - Issue decisions to regulate or control the use of specific native species of high economic value and/or endangered or highly exploited species, other than Origanum and Salvia. - Accelerate the finalization and adoption of the updated draft forest and fishing laws, and strengthen the current laws enforcement, in order to minimize human-wildlife conflict and protect threatened marine and forest species from violations.

	Gaps/Challenges	Recommendations
	- Although the development of such legislation is planned by the MoA, there is currently no national legislation regulating the trade of species listed under CITES, as required by the Convention. - There is no specific legislation targeting pathogen spillovers for terrestrial or marine farming. - Enforcement and monitoring gaps related to illegal imports persist, due to limited border control and insufficient customs oversight. - While some species, such as Origanum and Salvia, are regulated, many wild species lack harvest and trade regulations. - Limited species-specific regulations increase risk of overharvesting and biodiversity loss.	- Develop and endorse national legislation to regulate the trade of wild plants and animal species under CITES. - Issue additional specific decisions banning the trade of target threatened/rare wild species and their derivatives. - Develop and enact legislation to reduce the risk of pathogen spillovers from terrestrial and marine farming activities. - Enact regulations to oversee harvesting and trade of wild species. - Issue additional decisions regulating the harvesting of target species. - Strengthen the role of the ISF and the Forest Guards of the MoA to control the overexploitation of forest resources, hunting and fishing violations.

GBF Target 5 - Ensure sustainable, safe and legal harvesting and trade of wild species

Global Target	Existing Key National / Local Policies and Laws
	- Decisions No. 449/1 of 2017, 723/1 of 2018, 275/1 of 2019, and 135/1 of 2020, issued by MoE, open the hunting season from 15 September until the end of January, and define the game birds and animals' species allowed for hunting only during the defined hunting season, and the number allowed for each. - Decision No. 269/1 of 2025 (MoA): Requirement of prior approval from LARI to all collection and exchange practices related to plant genetic resources for food and agriculture in Lebanon, in accordance with the ITPGRFA. - National Strategy for conservation and management of plant genetic resources for food and agriculture in Lebanon (2015-2035/MoA), in accordance with the ITPGRFA. Marine - Fishing Law of 1952 and its draft updated under finalization (Final stage/ submitted to CoM). - Decision No. 125/1, 1999 (MoA) bans the fishing of marine turtles, monk seals and whales, as well as the sale, use or trade of their derivatives. - Decision No. 1044/1 of 2014 (MoA): General measures to protect cetaceans/marine mammals (whales, dolphins and monk seals). This decision also bans the sale, use or trade of their derivatives.

GBF Target 6 - Reduce the introduction of invasive alien species by 50% and minimize their impact

Global Target	Existing Key National / Local Policies and Laws
Eliminate, minimize, reduce and/or mitigate the impacts of invasive alien species on biodiversity and ecosystem services by identifying and managing pathways of the introduction of alien species, preventing the introduction and establishment of priority invasive alien species, reducing the rates of introduction and establishment of other known or potential invasive alien species by at least 50 per cent by 2030, and eradicating or controlling invasive alien species, especially in priority sites, such as islands.	Terrestrial - Laws establishing each nature reserve prohibit the introduction of any species to the reserve (MoE). - Decision No. 108/1 of 1995 (MoA) bans the import of cedar seeds, seedlings, and plants, in order to preserve the endemic Cedars tree <i>Cedrus libani</i>. Marine - National Action Plan on marine species introductions and invasive species in Lebanon, 2018 (SPA/RAC. MoE).

	Gaps/Challenges	Recommendations
	- Fragmented enforcement exists among ministries and agencies, in addition to bureaucratic delays. - There is a significant enforcement and control gap in the implementation of forestry, fishing, and hunting laws, allowing illegal logging, illegal fishing and illegal hunting practices to persist.	- Fully implement CITES and other international conventions, while addressing periodic bureaucratic hurdles that may delay or hinder efficient processing and enforcement. - Accelerate the finalization and adoption of the updated draft fishing law and forest law.

	Gaps/Challenges	Recommendations
	- There are no national legislation and regulations for regulating, controlling, and preventing the voluntary introduction of IAS into the country. - There are no species-specific decisions banning the introduction of target species into the country, other than the cedar. - There is no national strategy for regulating, controlling, or preventing the introduction of IAS into the country, nor for mitigating their impacts on biodiversity and ecosystems. - There are no national regulations or procedures and control on the implementation of the National Action Plan on marine species introductions and invasive species in Lebanon. As a result, this action plan is not enforced.	- Draft and enact comprehensive national legislation that explicitly regulates the introduction, trade, and management of invasive IAS. - Strengthen Border Controls and Quarantine Measures, in order to prevent unauthorized introduction of Invasive IAS. - Prepare a national IAS strategy and action plan. - Issue specific decisions to ban the introduction of target alien species into the country, other than the cedar, aiming to protect the endemic ones. - Incorporate IAS considerations into broader biodiversity, forestry, marine, and agricultural strategies, in order to ensure ecosystem-level resilience.

GBF Target 7 - Reduce pollution to levels that are not harmful to biodiversity

Global Target	Existing Key National / Local Policies and Laws
Reduce pollution risks and the negative impact of pollution from all sources by 2030, to levels that are not harmful to biodiversity and ecosystem functions and services, considering cumulative effects, including: (a) by reducing excess nutrients lost to the environment by at least half, including through more efficient nutrient cycling and use; (b) by reducing the overall risk from pesticides and highly hazardous chemicals by at least half, including through integrated pest management, based on science, taking into account food security and livelihoods; and (c) by preventing, reducing, and working towards eliminating plastic pollution.	Terrestrial - Law No. 35/2015 on food safety. - Law No. 80/2018: Integrated solid waste management. - Decree No. 59/1 of 2005 establishes the framework for pesticide registration, detailing the necessary documentation and safety assessments required for approval. - Decree No. 5/2024: Updated National Integrated Solid Waste Management Strategy (NISWMS), (CoM, developed by MoE/CDR). - Decision No. 280/1 of 2004 (MoA) regulates the importation, registration, and use of pesticides. It outlines the requirements for pesticide registration, including documentation, safety data, and efficacy studies. - Decision No. 311/1 of 2010 regulates the importation of pesticides. - Decision No. 485/1 of 2022 (MoPH) on the formation of an internal committee to implement the national nutrition plan. - Several resolutions prohibit the registration and import of agricultural pesticides and insecticides containing certain active substances. - Lebanon National Agriculture Strategy 2020-2025 (MoA). - National Nutrition Strategy and Action Plan 2021-2026 (MoPH). - MoA List of Banned Pesticides and Growth Regulators, 2025. - National Water Sector Strategy, 2025-2035 (MoEW). Marine - Law No. 292/1994 for protection against marine pollution.

GBF Target 8 - Minimize the impacts of climate change on biodiversity and build resilience

Global Target	Existing Key National / Local Policies and Laws
Minimize the impact of climate change and ocean acidification on biodiversity and increase its resilience through mitigation, adaptation, and disaster risk reduction actions, including through nature-based solutions and/or ecosystem-based approaches, while minimizing negative and fostering positive impacts of climate action on biodiversity.	- Provisions from the environmental protection Law No. 444/2002. - Decision No. 99/1 of 2013 (MoE) provides an incentive to the private sector (commercial, institutional and industrial enterprises), in order to directly report their GHG emissions and related activity data to the MoE and get awarded with a certificate signed by the Minister. - Decision No. 16/1 of 2022 (MoE) specifies the updated Environmental Limit Values for air pollutant emissions (updates Decision No. 8/1 of 2001). - Lebanon's Nationally Determined Contribution (NDC), last submitted to UNFCCC in 2021 (MoE). - The National Renewable Energy Action Plan (NREAP), 2021-2025, is issued by MoEW and approved by CoM.

	Gaps/Challenges	Recommendations
	- Pesticides regulations are scattered across multiple laws, decrees, decisions, taxes, and incentives without an overarching national strategy. - Multiple ministries, including agriculture, environment, health, and customs, operate independently, resulting in fragmented coordination about pesticides issues. - There is inadequate oversight of pesticide lifecycle management, after registration. - Current plastic bans are partial. There is no fully enforced national law addressing plastic production, consumption, and plastic waste management.	- Consolidate existing regulations, incentives, and policies into a unified national framework for pesticide management, with clear objectives, timelines, and measurable performance indicators. - Establish an inter-ministerial coordination committee to harmonize policies and enforcement. - Implement robust monitoring and control mechanisms for post-registration, including field inspections, residue testing, and compliance audits, in order to ensure safe use and limit environmental impacts. - Develop and enforce legislation on plastic bans that extends beyond public institutions.
	Gaps/Challenges	Recommendations
	- There is no dedicated, overarching national strategy specifically addressing climate change mitigation and biodiversity resilience. Existing frameworks are fragmented and embedded within various sectoral strategies, such as energy, biodiversity, and forestry, without a unified national vision or action plan for climate-biodiversity interlinkages.	- Develop and adopt an overarching national strategy that unifies existing sectoral approaches into a coherent national vision and action plan, addressing the interlinkages between climate and biodiversity.

GBF Target 9 - Manage wild species sustainably to benefit people

Global Target	Existing Key National / Local Policies and Laws
Ensure that the management and use of wild species are sustainable, thereby providing social, economic and environmental benefits for people, especially those in vulnerable situations and those most dependent on biodiversity, including through sustainable biodiversity-based activities, products and services that enhance biodiversity, and protecting and encouraging customary sustainable use by indigenous peoples and local communities.	- Draft law regulating the trade of seeds, seedlings and propagation methods (developed by MoA and submitted to CoM). - Draft law regulating exchange of plant genetic resources for food and agriculture. It is prepared by LARI, submitted by the Minister of agriculture to CoM, and currently in Parliament. - Decision No. 1/340 of 1996 (MoA) regulates the harvest of Origanum and Salvia. - Decision No. 269/1 of 2025 (MoA): Requirement of prior approval from LARI to all collection and exchange practices related to plant genetic resources for food and agriculture in Lebanon, in accordance with the ITPGRFA. - National Strategy for conservation and management of plant genetic resources for food and agriculture in Lebanon (2015-2035/MoA), in accordance with the ITPGRFA.

GBF Target 10 - Enhance biodiversity and sustainability in agriculture, aquaculture, fisheries, and forestry

Global Target	Existing Key National / Local Policies and Laws
Ensure that areas under agriculture, aquaculture, fisheries and forestry are managed sustainably, in particular through the sustainable use of biodiversity, including through a substantial increase of the application of biodiversity friendly practices, such as sustainable intensification, agroecological and other innovative approaches, contributing to the resilience and long-term efficiency and productivity of these production systems, and to food security, conserving and restoring biodiversity and maintaining nature's contributions to people, including ecosystem functions and services.	Terrestrial - Forest Law of 1949 regulates the exploitation of forest resources and rangelands, and its updated draft (MoA. final stage, and it will be submitted to CoM soon). - Law No. 85/1991 on the protection of forest resources. - Forest protection Law No. 558/1996. - National Afforestation and Reforestation Plan (NARP), also known as the 40 million trees program, 2014 (MoA/FAO endorsed by the CoM). - The National Forest Program 2015-2025 (MoA) with an updated version is currently being developed. - Lebanon National Agriculture Strategy, 2020-2025 (MoA). Marine - Law No. 1104 of 1921 determines coastal zone scope and penalties related to the infringement of fishing rules. - Law No. 372 of 1926 imposes regulations related to navigation, fishermen, and fishing boats.

	Gaps/Challenges	Recommendations
	- There is a decision regulating only the harvesting of Origanum and Salvia as wild species of economic value. - Monitoring and the enforcement of existing regulations are limited. - Indigenous and local communities' knowledge and practices are under-recognized and insufficiently incorporated in formal management plans. - Local communities engaged in the harvesting of wild species often lack access to training on sustainable practices, legal frameworks, and benefit-sharing opportunities. - There is no national action plan specifically focused on wildlife species management.	- Issue decisions to regulate and control the use of wild species of high economic value and/or endangered or highly exploited species, other than Origanum and Salvia. - Strengthen monitoring and enforcement mechanisms of existing regulations. - Promote co-management arrangements involving local communities, in order to ensure that they receive socio-economic benefits from sustainable use, while contributing to conservation efforts. - Develop a comprehensive National Action Plan for the sustainable management of wild species, ensuring species conservation and delivering social, economic, and environmental benefits for local communities. This plan should be supported by clear targets and monitoring indicators.

	Gaps/Challenges	Recommendations
	- National plans do not adequately promote the use of local cultivars, native seeds, and rootstocks within breeding and crop production programs. - Key sustainable agriculture practices and biodiversity-focused approaches are not fully integrated into current agricultural and forestry strategies and action plans. - Both forest and fisheries legislation are outdated and not responsive to current challenges. The new finalized updated draft law covers sustainable use and conservation of biodiversity, but bureaucracy and lengthy administrative and legal processes hinder their quick endorsement. - Sustainable fisheries and aquaculture using native and acclimatized species are not fully mainstreamed into agricultural frameworks.	- Mainstream biodiversity conservation and sustainable forestry into related national forestry strategies and action plans. - Mainstream the following measures into the national agriculture strategy and action plans: - o Locally produced released cultivars and local native rootstock varieties and seeds focusing on the use of local accessions in breeding programs. - o Organic farming, agroecology, agroforestry, the use of climate smart crops, crop rotation, conservation agriculture, agriculture and forest waste management, terracing, reuse of treated wastewater, efficient irrigation systems, use of rainfed crops, etc. - Mainstream sustainable fisheries and aquaculture using native, naturalized and acclimatized species into national agricultural strategies and action plans..

GBF Target 10 - Enhance biodiversity and sustainability in agriculture, aquaculture, fisheries, and forestry

Global Target	Existing Key National / Local Policies and Laws
	- Law, issued as Decision No. 2775 of 1929 (CoM) related to the control of marine and coastal fishing and its amendments. - Fishing Law of 1952, and its updated draft on fisheries and aquaculture (submitted by MoA to the CoM). - Draft updated ICZM Law and Strategy. - Decree No. 11881/1948 enforces the law organizing fishing in rivers. - Decree No. 8327/1974 imposes rules relating to fishing in rivers and relevant permit fee. - Decree No. 3899/1993 regulates the extraction of sand and other materials from the public maritime domain and seabed. - Decree No. 12841/1998 organizes fishing and leisure ports and regulates their use and conservation. - Decision No. 83/1 of 1983 prohibits fishing and hunting of some animal species (MoA). - Decision No. 166 of 1937 (High Commissioner) prohibits coastal fishing except for Lebanese ships (French high commissioner under mandate authority). - Decision No. 385/1 of 1997 (MoA) states that fishing activities are prohibited in all estuaries all year round. The restricted area involved extends over 500 m on each side of the estuary, 500 m inside the river, and 2 kilometers seawards. All human activities are banned except for those of scientists and the Coast Guards. - Decision No. 125/1 of 1999 (MoA) bans the fishing of marine turtles, monk seals and whales, as well as the sale, use or trade of their derivatives. - Decision No. 93/1 of 2008 (MoA) regulates scuba-diving industry, including permitting procedures and safety measures and scuba-diving fishing. - Decision No. 346/1 of 2010 (MoA) regulates and identifies fishing types and equipment, which ban the use of small mesh sizes and trawling nets and fishing by using scuba diving equipment. - Decision No. 1044/1 of 2014 (MoA): General measures to protect cetaceans/marine mammals (whales, dolphins and monk seals). - Decision No. 1045/1 of 2014 (MoA) bans the fishing, capture, transport, sale, consumption, and storage of sharks and dogfish. The decision also prohibits shark finning, as well as the transport, display, consumption, or storage of sharks' fins. - MoA decisions ban dynamite fishing and trawling nets.

	Gaps/Challenges	Recommendations
		- Accelerate the finalization and adoption of the updated draft forestry and fishing laws.

GBF Target 11 - Restore, maintain and enhance nature's contributions to people

Global Target	Existing Key National / Local Policies and Laws
Restore, maintain and enhance nature's contributions to people, including ecosystem functions and services, such as the regulation of air, water and climate, soil health, pollination and reduction of disease risk, as well as protection from natural hazards and disasters, through nature-based solutions and/or ecosystem-based approaches for the benefit of all people and nature.	- Law No. 64/88 of 1988, related to environmental protection against hazardous waste that could be harmful to air, water, biodiversity, soil, and people; it also states fines for activities that result in pollution and hazards to the environment and public health. - Provisions of the environmental protection Law No. 444/2002. - Framework Law No. 28/2018 for the protection of air quality. - The Water Resource Law No. 77/2018 aims to organize, develop, and protect water resources. - Decision No. 99/1 of 2013 (MoE) provides an incentive to the private sector (commercial, institutional and industrial enterprises), in order to directly report their GHG emissions and related activity data to the MoE and get awarded with a certificate signed by the Minister. - Decision No. 16/1 of 2022 (MoE) specifies the updated Environmental Limit Values for air pollutant emissions (updates Decision No. 8/1 of 2001) - Lebanon's National Strategy for Air Quality Management for 2030, 2017 (MoE). - Lebanon's Nationally Determined Contribution (NDC), last submitted to UNFCCC in 2021 (MoE). - The National Renewable Energy Action Plan (NREAP), 2021-2025, is issued by MoEW and approved by CoM.

GBF Target 12 - Enhance green spaces and urban planning for human well-being and biodiversity

Global Target	Existing Key National / Local Policies and Laws
Significantly increase the area and quality, and connectivity of, access to, and benefits from green and blue spaces in urban and densely populated areas sustainably, by mainstreaming the conservation and sustainable use of biodiversity, and ensure biodiversity-inclusive urban planning, enhancing native biodiversity, ecological connectivity and integrity, and improving human health and well-being and connection to nature, and contributing to inclusive and sustainable urbanization and to the provision of ecosystem functions and services.	Terrestrial - Decree No. 2366/2009: National Physical Master Plan for the Lebanese Territory (NPMPLT). - Decrees endorsing Master Plans in cities. - Master Plans for the buffer zones of nature reserves. The buffer zones cover natural spaces, as well as urban populated areas. - Work is being done through various initiatives to define and ensure ecological connectivity and corridors between PAs. Marine - Draft updated ICZM law. - Draft updated ICZM strategy. - Lebanon Marine Protected Areas Strategy, 2012 (MoE/IUCN). - Master Plans for specific coastal areas.

	Gaps/Challenges	Recommendations
	- Numerous violations affecting air, water, biodiversity, soil, and other environmental components have been observed, along with limited enforcement of relevant laws. - There is no dedicated overarching national strategy that specifically addresses climate change mitigation and biodiversity resilience. Existing frameworks are fragmented and embedded within various sectoral strategies, such as energy, biodiversity, and forestry, without a unified national vision or action plan for climate-biodiversity interlinkages. - Specialized strategies, such as the Air Quality Strategy, primarily focus on regulatory and technical measures, but give insufficient attention to ecosystem-based approaches. - The legal and policy framework lacks the implementation decrees, clear land-use/legal/institutional arrangements, financing instruments, and standardized monitoring mechanisms required to scale up nature-based solutions.	- Strengthen monitoring and enforcement mechanisms for existing regulations. - Develop and adopt an overarching national strategy that unifies existing sectoral approaches into a coherent national vision and action plan, addressing the interlinkages between climate and biodiversity. - Mainstream nature-based and ecosystem-based approaches across national policies, planning, and development sectors.

	Gaps/Challenges	Recommendations
	- National Physical Master Plan for the Lebanese Territory (NPMPLT) has not been updated and fully implemented. - Not all cities Master Plans include green spaces and parks. - Bureaucracy and lengthy processes characterize the law endorsement process regarding urban planning and Master Plans. - There is no legal adoption of the proposed ecological corridors. Bureaucracy and lengthy processes characterize the endorsement and adoption of the new ICZM draft law and strategy. - Master Plans for specific coastal areas have not been updated and fully implemented.	- Update and implement the National Physical Master Plan for the Lebanese Territory (NPMPLT) to conserve and enhance green and blue spaces in urban areas and ensure ecological connectivity. - The government, through its executive bodies, should develop a strategy to enhance green spaces and implement a green vision for urban planning, human well-being, and biodiversity. - Update and amend existing decrees related to cities Master Plans, in order to conserve green spaces, by reducing development rates in urban expansion zones, and incorporating new approaches, such as green rooftops, vertical rooftops, raised beds, green walls, while using native species.

GBF Target 12 - Enhance green spaces and urban planning for human well-being and biodiversity

Global Target	Existing Key National / Local Policies and Laws	

GBF Target 13 - Increase the sharing of benefits from genetic resources, digital sequence information and traditional knowledge

Global Target	Existing Key National / Local Policies and Laws	
Take effective legal, policy, administrative and capacity-building measures at all levels, as appropriate, to ensure the fair and equitable sharing of benefits that arise from the utilization of genetic resources and from digital sequence information on genetic resources, as well as traditional knowledge associated with genetic resources, and facilitating appropriate access to genetic resources, and by 2030, facilitating a significant increase of the benefits shared, in accordance with applicable international access and benefit-sharing instruments.	- Law No. 559/2004: Ratification of the International Treaty for Plant Genetic Resources for Food and Agriculture (ITPGRFA). - Law No. 34/2008: Ratification of the Nagoya Protocol by the Government of Lebanon. - Draft national law on access to Lebanese biological and genetic resources, and the fair and equitable sharing of benefits arising from their utilization. It is prepared by MoE and submitted to CoM, in accordance with Nagoya Protocol. - Decision No. 294/1 of 2014 (MoA): National committee for plant genetic resources for food and agriculture, in accordance with the ITPGRFA. - Decision No. 37/2019 (CoM) transmitting the draft national law related to the management of plant genetic resources for food and agriculture to the parliament (prepared by LARI and submitted by Minister of agriculture), in accordance with the international treaty for plant genetic resources for food and agriculture (ITPGRFA). - Decision No. 269/1 of 2025 (MoA): Requirement of prior approval from LARI to all collection, and exchange practices related to plant genetic resources for food and agriculture in Lebanon, in accordance with the ITPGRFA. - National Strategy for conservation and management of plant genetic resources for food and agriculture in Lebanon, 2015-2035 (MoA), in accordance with the ITPGRFA.	

	Gaps/Challenges	Recommendations
		- Adopt and endorse the Draft updated ICZM law and strategy. - Update and adopt the Master Plans for coastal areas, in accordance with the ICZM principles.
	Gaps/Challenges	Recommendations
	- Lengthy procedures to endorse the draft national law on access and benefit-sharing, due to bureaucracy and oppositions from some other ministries and at the CoM decision-making level. - Lengthy procedures to endorse draft national law related to the management of plant genetic resources for food and agriculture at the Parliament level. - National Strategy for conservation and management of plant genetic resources for food and agriculture in Lebanon is not fully implemented.	- Reduce bureaucracy and lengthy processes for the endorsement of national legislation through lobbying efforts. - Endorse and implement the draft national law on access and benefit-sharing. - Endorse and implement draft national law related to the management of plant genetic resources for food and agriculture. - Fully implement the National Strategy for conservation and management of plant genetic resources for food and agriculture in Lebanon.

GBF Target 14 - Integrate Biodiversity in decision-making at every level

Global Target	Existing Key National / Local Policies and Laws
Ensure the full integration of biodiversity and its multiple values into policies, regulations, planning and development processes, poverty eradication strategies, strategic environmental assessments, environmental impact assessments and, as appropriate, national accounting, within and across all levels of government and across all sectors, in particular those with significant impacts on biodiversity, progressively aligning all relevant public and private activities, and fiscal and financial flows with the goals and targets of this framework.	- Forest Law of 1949, and its updated draft prepared by MoA, and it will be submitted to CoM soon. - Municipalities' Act/Municipal law, Decree-Law No. 118/1977 (CoM). - Expropriation Law No. 58/1991. - Law No. 251/2014 on Environmental Public Prosecution Unit. - Decree No. 8633/2002 on Fundamentals of Environmental Impact Assessment (EIA) (CoM). - Decree No. 2366/2009: National Physical Master Plan for the Lebanese Territory (NPMPLT). - Decree No. 8213/2012 on Strategic Environmental Assessment for proposed policies, plans, and programs in the public sector (SEA). - Decree No. 8157/2012 on Lebanese National Environmental Council (NEC) (CoM). - Decree No. 3989/2016 on Establishing an Environmental Police (CoM). - Lebanon Rural Tourism Strategy, 2014. - National Afforestation and Reforestation Plan (NARP), also known as the 40 million trees program, 2014 (MoA/FAO endorsed by the CoM). - National Disaster Risk Reduction Strategy, 2021-2030 (UNDRR). - Agriculture Sector Strategy, 2021-2025 (MoA). - CoM Decision No. 45/2023 endorses the Updated National Forest Fire Strategy of 2023 (MoE). - Draft Master Plans for High Mountain Areas in Lebanon, preparations ongoing as of 2023 (MoE). - Lebanon National Health Strategy: Vision 2023-2030 (MoPH). - Sustainable Tourism Strategy for the Mountains of Lebanon, 2024 (MoT/UNDP). - National Water Sector Strategy (NWSS), 2025-2035 (MoEW). - MoA Strategic Directions, 2025-2026. - Lebanon National Health Strategy: 2-year review 2025 (MoPH). - Fishing law of 1952, and its updated draft on fisheries and aquaculture, prepared by MoA and submitted to the CoM.

	Gaps/Challenges	Recommendations
	- Not all national strategies in other sectors fully integrate and mainstream biodiversity, which is treated as a secondary aspect rather than a cross-cutting priority, resulting in missed opportunities for sustainable development. - The National Environmental Council does not hold regular meetings and is not actively engaged in national environmental planning and review of key developments and projects in the country. - Expropriation Law No. 58/1991 has not been fully implemented. - Environmental Police Decree No. 3989 has not been implemented, and Environmental Police has not been designated. - Lengthy procedures for the issuance of the updated draft fishing and forestry laws, as well as other draft legislation.	- Mainstream biodiversity into all national strategies is one of the top cross-cutting priorities. - Reactivate the National Environmental Council and hold regular meetings. - Officially designate trained Environmental Police officers, in order to implement Decree No. 3989/2016. - Accelerate the adoption of the updated draft forestry and fishing laws. - Ensure regular monitoring of SEA/EIA implementation and biodiversity performance.

GBF Target 15 - Businesses assess, disclose and reduce biodiversity-related risks and negative impacts

Global Target	Existing Key National / Local Policies and Laws
Take legal, administrative or policy measures to encourage and enable business, and in particular to ensure that large and transnational companies and financial institutions: - Regularly monitor, assess, and transparently disclose their risks, dependencies and impacts on biodiversity, including with requirements for all large as well as transnational companies and financial institutions along their operations, supply and value chains, and portfolios; - Provide information needed to consumers to promote sustainable consumption patterns; - Report on compliance with access and benefit-sharing regulations and measures, as applicable; In order to progressively reduce negative impacts on biodiversity, increase positive impacts, reduce biodiversity-related risks to business and financial institutions, and promote actions to ensure sustainable patterns of production.	- Law No. 444/2002: Environment Protection Framework Law: Article 4 stipulates the Polluter-Payer Principle. Article 20 mandates EIAs for environmentally impactful projects and allows the use of economic and financial instruments (MoE). - Public Procurement Law No. 244/2021 promotes the integration of sustainability principles into public procurement processes, encouraging the adoption of sustainable practices that balance economic, social, and environmental considerations. - Decree No. 8471/2012 on the Environmental Compliance of Establishments (CoM based on MoE proposal). - Decree No. 167/2017, issued pursuant to Article 20 of Law No. 444/2002 (CoM, based on MoE proposal), establishes environmental economic incentives (e.g. tax credits for industries meeting standards, customs exemptions on green imports, subsidies via reduced tax brackets for eco-friendly projects).

	Gaps/Challenges	Recommendations
	- Polluter payer principle stated in Law No. 444 has not yet been implemented. - The incentives stated in Decree No. 167/2017 are limited and uneven implemented. - There is no legal obligation for businesses or financial institutions to assess, report or compensate biodiversity risks or impacts. - Supplied and valued chain responsibilities related to sustainability in the private sector are not addressed through any legal instruments. - The integration of private sector into biodiversity planning remains minimal.	- Implement Polluter Payer Principle stated in Law No. 444. - Implement incentives stated in Decree No. 167/2017. - Ensure enforcement of Decree No. 8471/2012 on the Environmental Compliance of Establishments and set penalties for non-compliance. Penalties should annually increase until 2030. - Establish a national Corporate Social Responsibility (CSR) program that focuses on biodiversity. This encourages businesses to act in ways to benefit both society and the environment. - Update tax-related legislation to reduce the government fees, such as municipal fees, and customs fees, for environmentally compliant enterprises. - Update relevant legislation/regulation for public procurement, in order to give priority to environmentally compliant enterprises. - Update relevant legislation/regulation, in order to reduce fees for permits related to development projects that affect biodiversity positively.

GBF Target 16 - Enable sustainable consumption choices to reduce waste and overconsumption

Global Target	Existing Key National / Local Policies and Laws	
Ensure that people are encouraged and enabled to make sustainable consumption choices, including by establishing supportive policy, legislative or regulatory frameworks, improving education and access to relevant and accurate information and alternatives, and by 2030, reduce the global footprint of consumption in an equitable manner, including through halving global food waste, significantly reducing overconsumption and substantially reducing waste generation, in order for all people to live well in harmony with Mother Earth.	- Law No. 28/2017: Right of access to information. - Law No. 80 of 2018: Integrated solid waste management. - Decree No. 5/2024, Updated National Integrated Solid Waste Management Strategy (NISWMS), (CoM, developed by MoE/CDR). - Sustainable Consumption and Production, National Action Plan (SCP-NAP), 2015 (MoI). - National strategy on greening education/Education for sustainable development. It is currently being developed by MEHE.	

	Gaps/Challenges	Recommendations
	- Law No. 28/2017 on access to information has not been fully implemented. - The implementation of the updated National Integrated Solid Waste Management Strategy (NISWMS) has not yet started. - The Sustainable Consumption and Production National Action Plan has not been fully implemented. - There are no legal obligations or incentives for businesses to offer sustainable products or for consumers to make eco-conscious choices. - Most circular economic initiatives related to plastic reuse, repair, and upcycling are NGO- or donor-driven. They are not scaled or mainstreamed through a policy. - There is no national goal, reporting or interventions on food loss or waste.	- Fully implement Law No. 28/2017 on access to information. - Implement the recent updated National Integrated Solid Waste Management Strategy (NISWMS), and Decree No. 5/2024, specifically the strategic objective 2 and its sub-objectives related to Circular Economy.

GBF Target 17 - Strengthen biosafety and distribute the benefits of biotechnology

Global Target	Existing Key National / Local Policies and Laws
Establish, strengthen capacity for, and implement in all countries, biosafety measures as set out in Article 8(g) of the Convention on Biological Diversity and measures for the handling of biotechnology and distribution of its benefits as set out in Article 19 of the Convention.	- Law No. 778/2006: Plant quarantine and phytosanitary measures. - Law No. 31/2008: Ratification of the Cartagena Protocol on Biosafety, accessed in 2013. - Law No. 35/2015 on food safety. - Decision No. 612/1 of 2010, MoA, establishes the National Committee on Biotechnology and Biosafety. - Decision No. 783/1 of 2011, MoA, related to the import of propagation materials for fruit trees (seeds, cuttings, roots and grafted seedlings) and requiring the submission by the importer of a clear statement, confirming that the imported materials are not genetically modified. - Decision No. 781/1 of 2011, MoA, indicates among others the ban of import of seeds for sowing from fodder, vegetables and legumes (except potatoes), that pose a threat to human or animal health. It may also threaten the safety of the environment, so checking if these materials contain genetically modified materials is necessary. - Decision No. 53/2014 (CoM), approves the draft decree on national biosafety measures developed by MoE, and setting the national legal measures for the implementation of the Cartagena Protocol on Biosafety at national level.

	Gaps/Challenges	Recommendations
	- Article 14 of Law No. 778/2006: “Plant quarantine and phytosanitary measures” states that the plant or its derivatives are forbidden from entering the country. This case is only applied, if the plant or its derivatives were genetically modified, and if the aforementioned modification would present a risk or damage to humans or animals. While in its Article 16, the law states that “Subject to the provisions of Articles 6, 8 and 9 of this law, the MoA shall issue instructions regulating plant quarantine procedures, including prohibiting the import of Living Modified Organisms”. Accordingly, pursuant to this law, the MoA issued the Decisions No. 781/1 and No. 783/1 in 2011, which ban the import of vegetal materials posing threats to human or animal health, as well as to the safety of the environment, including the ban of genetically modified materials. Currently, the MoA operates under these two Decisions, and the country continues to ban the entry of GMOs. The Cartagena Protocol on Biosafety regulates the transboundary movement of LMOs, but it does not ban its entry to countries. - The Food Safety Law No. 35 /2015 established a “Food Safety Lebanese Commission” (FSLC), as a designated body responsible for the enforcement of this law. It states in its Article 19 that the MoA in coordination with the “Food Safety Lebanese Commission” sets the criteria and standards that should be met by the genetically modified food. However, these criteria have not been set yet.	- Currently, the MoA follows its decisions No. 781/1 and 783/1 of 2011 (issued based on the “Plant quarantine and phytosanitary measures” No. 778/2006). These decisions ban the import of vegetal materials posing a threat to human or animal health, as well as to the safety of the environment, including the ban of materials containing genetically modified materials. The Cartagena Protocol on Biosafety regulates the transboundary movement of LMOs, but it does not ban its entry to countries. Accordingly, and pending the issuance of the aforementioned draft decree on national measures regarding biosafety, the “Plant quarantine and phytosanitary measures” Law and its relevant Decisions should be amended and updated, given that the Government of Lebanon has ratified and accessed the Cartagena Protocol on Biosafety (CPB). The provisions of the latter are also predominant and shall be applied at the national level. - The “National Committee on Biotechnology and Biosafety”, established by MoA, includes representatives from relevant ministries, research and academic institutions, and independent experts. The Committee’s aim is to follow up and discuss all issues related to the use of biotechnology in agricultural production and its potential impact on the environment and human health. Its mandate aims to submit scientific suggestions and appropriate recommendations required for the issuance of suitable decisions in this field, and to suggest national policies related to the use of biotechnology in the programmes dedicated for the improvement of agricultural production. Once the draft decree, prepared by MoE on national biosafety measures, in accordance with the CPB, is officially issued by the CoM and becomes operational, the national committee proposed by the national biosafety decree will replace this committee.

GBF Target 17 - Strengthen biosafety and distribute the benefits of biotechnology

Global Target	Existing Key National / Local Policies and Laws	

GBF Target 18 - Reduce harmful incentives by at least \$500 billion per year, and scale up positive incentives for biodiversity

Global Target	Existing Key National / Local Policies and Laws	
Identify by 2025, and eliminate, phase out or reform incentives, including subsidies, harmful for biodiversity, in a proportionate, just, fair, effective and equitable way, while substantially and progressively reducing them by at least \$500 billion per year by 2030, starting with the most harmful incentives, and scale up positive incentives for the conservation and sustainable use of biodiversity.	Terrestrial - Forest Law of 1949, and its updated draft (developed by MoA, and it will be submitted to CoM soon) - particularly regarding the penalties for violations. - Law No. 444/2002: Environment Protection Framework Law: Article 4 stipulates the Polluter-Payer Principle. Article 20 allows for the use of economic and financial instruments. - Decree No. 167/2017, issued pursuant to Article 20 of Law 444/2002, establishes environmental economic incentives (e.g. tax credits for industries meeting standards, customs exemptions on green imports, subsidies via reduced tax brackets for eco-friendly projects). Marine - Fishing Law of 1952, and its draft updated under endorsement, particularly regarding the penalties for violations.	

	Gaps/Challenges	Recommendations
	- The “National Committee on Biotechnology and Biosafety”, established by the Minister of Agriculture, hosted several meetings shortly after its establishment, but ceased operating afterwards. - The draft decree setting the national measures for the implementation of the Cartagena Protocol at national level, prepared by MoE, was approved by the CoM, but the decree has not yet been issued.	- The revival of the “National Committee on Biotechnology and Biosafety”, established by MoA, is proposed pending the issuance of the draft decree on national biosafety measures. This national committee is prepared by MoE, in accordance with the CPB, and submitted to the CoM. - The criteria and standards to be met by the genetically modified food should be established by MoA, in coordination with the “Food Safety Lebanese Commission”, as stipulated in Article (19) of the Food Safety Law. - Issue the draft decree on national biosafety measures prepared by MoE, in order to implement the Cartagena protocol on biosafety at the national level, and to manage the transboundary movement of LMOs in the country.
	Gaps/Challenges	Recommendations
	- Polluter payer principle stated in Law No. 444 has not yet been implemented. - The incentives stated in Decree No. 167/2017 are limited and uneven implemented. - The existing incentives stated in Law No. 444/2002 and Decree No. 167/2017 address environmental protection in general. They do not specifically cover biodiversity and ecosystems. - The fines included in the existing national forest law and fishing law are outdated and devalued, due to currency inflation.	- Implement Polluter payer principle stated in Law No. 444/2002. - Implement Incentives stated in Law No. 444/2002 and Decree No. 167/2017. - Conduct a comprehensive review of existing incentives affecting biodiversity and ecosystems under Law No. 444/2002 and update the law accordingly to ensure that these incentives are aligned with conservation goals and sustainable practices, thereby fostering biodiversity resilience and ecosystem health across Lebanon. This includes updating current legislation to incorporate positive incentives. - Develop and implement targeted financial and regulatory incentives for biodiversity conservation and sustainable ecosystem management.

GBF Target 18 - Reduce harmful incentives by at least \$500 billion per year, and scale up positive incentives for biodiversity

Global Target	Existing Key National / Local Policies and Laws	

GBF Target 19 - Mobilize \$200 billion per year for biodiversity from all sources, including \$30 billion through international finance

Global Target	Existing Key National / Local Policies and Laws	
Substantially and progressively increase the level of financial resources from all sources, in an effective, timely and easily accessible manner, including domestic, international, public and private resources, in accordance with Article 20 of the Convention, to implement national biodiversity strategies and action plans, mobilizing at least \$200 billion per year by 2030, including by:	- Article 8 of Law No. 444/2002 calls for the establishment of a National Environmental Fund. - MoE organizational Law No. 690/2005, establishes the MoE's mandate to coordinate environmental policy, including resource mobilization from domestic and international sources. - Law No. 130/2019 on the Protected Areas Framework, stipulates that entrance fees to Nature Reserves, as well as fees for practicing specific ecotourism activities inside the reserve, shall be applied, with the specific fee amounts. These fees shall be determined by a decree issued by the CoM, based on proposals from the Ministers of Environment and Finance, and according to the fees suggested by each Nature Reserve's committee. These fees, along with fines from violations, are also directly allocated to the reserve committee's budget, and must be used by the committee to improve the conditions of the reserve.	

	Gaps/Challenges	Recommendations
		- Update necessary legislation, in order to increase fees for construction permits near ecologically sensitive areas (i.e. buffer zones of PAs, forests, rivers, marine public domains, etc.) - Update necessary legislation, in order to provide tax credits, subsidies, or other financial incentives to individuals/ companies that adopt environmentally sustainable practices, specifically those positively affecting biodiversity and ecosystems. - Review the clauses related to fines in the updated draft of forest and fishing laws, and increase the penalties for fishing and forestry violations, including illegal logging, in order to promote sustainable forest and fishing management, minimize environmental degradation, and take into account currency inflation since the end of 2019.
	Gaps/Challenges	Recommendations
	- The national environmental fund stated in Law No. 444/2002 has not yet been operational. - The decree specifying the entrance fees to the Nature Reserves and the fees for practicing ecotourism activities inside the reserve, as outlined in the Protected Areas Framework Law No. 130/2019, has not yet been issued and is still under development.	- Operationalize the national environmental fund stated in Law No. 444/2002. - Issue the decree defining the amount of entrance fees and ecotourism activities inside the Nature Reserves, as stated in the Protected Areas Framework Law No. 130/2019, taking into account currency inflation since the end of 2019. The fees collected inside the reserve, as well as fines from violations and confiscation actions related to encroachment on the reserve, go directly to the reserve committee's budget. The committee must use the amounts collected in order to improve reserve conditions.

GBF Target 19 - Mobilize \$200 billion per year for biodiversity from all sources, including \$30 billion through international finance

Global Target	Existing Key National / Local Policies and Laws	
h) Increasing total biodiversity related international financial resources from developed countries, including official development assistance, and from countries that voluntarily assume obligations of developed country Parties, to developing countries, in particular the least developed countries and small island developing States, as well as countries with economies in transition, to at least \$20 billion per year by 2025, and to at least \$30 billion per year by 2030; i) Significantly increasing domestic resource mobilization, facilitated by the preparation and implementation of national biodiversity finance plans or similar instruments according to national needs, priorities and circumstances; j) Leveraging private finance, promoting blended finance, implementing strategies for raising new and additional resources, and encouraging the private sector to invest in biodiversity, including through impact funds and other instruments; k) Stimulating innovative schemes such as payment for ecosystem services, green bonds, biodiversity offsets and credits, and benefit-sharing mechanisms, with environmental and social safeguards;		

	Gaps/Challenges	Recommendations
		- Develop and enact legislation to establish a tracking tool for economic instruments and finance for biodiversity (biodiversity positive taxes and fees, fines, projects, tradeable permits, environmentally motivated subsidies, biodiversity offsets, etc.) - Develop and enact legislation to implement tax incentives and funding programs, in order to promote PPP (private public partnership) in favor of biodiversity conservation and sustainable use of resources. - Develop a national biodiversity finance plan, as detailed in National Action 25.6.

GBF Target 19 - Mobilize \$200 billion per year for biodiversity from all sources, including \$30 billion through international finance

Global Target	Existing Key National / Local Policies and Laws	
l) Optimizing co-benefits and synergies of finance targeting the biodiversity and climate crises; m) Enhancing the role of collective actions, including by indigenous peoples and local communities, Mother Earth centric actions and non-market-based approaches including community based natural resource management and civil society cooperation and solidarity aimed at the conservation of biodiversity; n) Enhancing the effectiveness, efficiency and transparency of resource provision and use.		

GBF Target 20 - Strengthen capacity-building, technology transfer, and scientific and technical cooperation for biodiversity

Global Target	Existing Key National / Local Policies and Laws	
Strengthen capacity-building and development, access to and transfer of technology, and promote development of and access to innovation and technical and scientific cooperation, including through South-South, North-South and triangular cooperation, to meet the needs for effective implementation, particularly in developing countries, fostering joint technology development and joint scientific research programmes for the conservation and sustainable use of biodiversity and strengthening scientific research and monitoring capacities, commensurate with the ambition of the goals and targets of the Framework.	- Decree No. 9117/196 formally created the Lebanese Agricultural Research Institute (LARI), defined its role under the MoA, and institutionalized its funding as part of the MoA's allocated budget. - Decree No. 15706/1962 establishes the National Council for Scientific Research (CNRS) and stipulates that the Council's budget forms part of the state budget. - Decree No. 2356/1971 established the Center for Educational Research and Development (CRDP). - The annual national budget for each ministry is adopted by Parliament under an annual budget law. - Regarding biodiversity conservation, the MoE's annual national budget includes funding allocated to Nature Reserve committees, in order to cover a portion of the management and protection costs of the reserves.	

	Gaps/Challenges	Recommendations
	Gaps/Challenges	Recommendations
	- The annual national budget is frequently delayed and not issued on schedule due to various challenges, including political instability in the country. - The MoE's national budget is notably lower than that of other ministries. - Due to the ongoing severe economic crisis that began at the end of 2019, the national budgets of all ministries, including the MoE, have been significantly devalued. - The annual national budget law of MoE does not allocate significant financial resources to environmental research focusing on biodiversity conservation and sustainable use of natural resources. Moreover, even if a budget is allocated, it is rarely used to finance biodiversity research and studies.	- Implement a financial mechanism through the National Budget Law and relevant legislation, in order to prioritize the conservation and sustainable use of biodiversity in alignment with the GBF Targets and NBSAP. - Allocate budgetary resources within the national budget law to support capacity building, scientific cooperation, research and monitoring related to biodiversity and ecosystems. This allocation should target relevant ministries and public institutions focusing on the implementation of GBF, CBD, and NBSAP.

GBF Target 21 - Ensure that knowledge is available and accessible to guide biodiversity action

Global Target	Existing Key National / Local Policies and Laws
Ensure that the best available data, information and knowledge are accessible to decision makers, practitioners and the public to guide effective and equitable governance, integrated and participatory management of biodiversity, and to strengthen communication, awareness-raising, education, monitoring, research and knowledge management and, also in this context, traditional knowledge, innovations, practices and technologies of indigenous peoples and local communities should only be accessed with their free, prior and informed consent, in accordance with national legislation.	- Law No. 28/2017: Right of access to information. - Decree No. 2356/1971 established the Center for Educational Research and Development (CRDP). - National strategy on greening education/Education for sustainable development. It is currently being developed by MEHE.

GBF Target 22 - Ensure participation in decision-making and access to justice and information related to biodiversity for all

Global Target	Existing Key National / Local Policies and Laws
Ensure the full, equitable, inclusive, effective and gender-responsive representation and participation in decision-making, and access to justice and information related to biodiversity by indigenous peoples and local communities, respecting their cultures and their rights over lands, territories, resources, and traditional knowledge, as well as by women and girls, children and youth, and persons with disabilities and ensure the full protection of environmental human rights defenders.	- Labor code of 1946 and its amendments. - Law No. 720/1998, establishing the National Commission for Lebanese Women (NCLW). - Law No. 220/2000, regarding the rights of people with disabilities. - Law No. 28/2017: Right of access to information. - The draft decree defining the amount of the entrance to the nature reserves, as well as the amount of practicing specific ecotourism activities inside the reserves (under development by MoE) cover specific fees' categories for women, children and youth, and persons with disabilities. - National legislations, policies, strategies, and plans, as well as national and local development action plans/ Master Plans related to the environment and biodiversity.

	Gaps/Challenges	Recommendations
	- Law No. 28/2017 on access to information is not fully implemented. - The free, prior, and informed consent of indigenous peoples and local communities when accessing their traditional knowledge, innovations, practices and technologies is not recognized in national legislation, leaving their rights legally unprotected.	- Fully implement Law No. 28/2017 on access to information. - Adopt and implement the “National strategy on greening education/Education for sustainable development”, which is currently being developed by the MEHE. It is necessary to integrate under this strategy environmental education into school curricula, including biodiversity (fauna and flora), and implement extracurricular activities related to the environment. - Review the national legislation and update it, in order to protect the rights of indigenous peoples and local communities, with regards to obtaining their free, prior and informed consent when accessing their traditional knowledge, innovations, practices and technologies.
	Gaps/Challenges	Recommendations
	- The right of access to information law is not fully implemented. It does not specifically address access to biodiversity-related information. Moreover, it does not specifically recognize the rights of local communities, women, girls, youth, and persons with disabilities to access such information. These groups are only covered under the general provisions applicable to all Lebanese citizens. - The National Strategy for Women promotes gender equality and women’s empowerment across all sectors. However, it does not directly address environmental and biodiversity governance.	- Amend and implement Law No. 28/2017 on access to information, in order to ensure access to biodiversity-related information and preserve the rights of local communities, women, girls, youth, and persons with disabilities to access such information. - Need for an effective implementation of the labor law within the environment and biodiversity sectors, especially for addressing gender equality and the issues of persons with disabilities.

GBF Target 22 - Ensure participation in decision-making and access to justice and information related to biodiversity for all

Global Target	Existing Key National / Local Policies and Laws	
	- National and local commissions/committees related to the environment and biodiversity. - National Strategy for Women in Lebanon 2022-2030 (developed by the National Commission for Lebanese Women ((NCLW)).	

	Gaps/Challenges	Recommendations
	- National and local commissions/committees related to environment and biodiversity, including the Lebanese National Environmental Council, Higher Hunting Council, and Committees of Nature Reserves, do not take into consideration equitable and gender responsive representation. - There are no dedicated legal frameworks that recognize, protect, and regulate the use of indigenous or traditional knowledge of local communities related to biodiversity. The only partial exception is the draft national law on access and benefit-sharing, which partially addresses the rights of local communities when accessing biological resources on their lands and/or using their traditional knowledge. - Bureaucracy and lengthy processes characterize the law endorsement process. - Sectoral national legislation, policies, strategies, and plans, as well as national and local development action plans or Master Plans, do not specifically ensure the inclusion of local communities, women, girls, youth, and persons with disabilities into decision-making processes and other sector-related activities. - There is no legal reforms, including the absence of biodiversity codes that promote gender equality within biodiversity governance.	- Integrate environmental and biodiversity targets into the local development action plans or strategies as per the existing national and/or regional Master Plans. - Integrate gender considerations into legislation, policies, strategies and plans related to biodiversity, especially those under review and update. - Ensure that national and local commissions or committees related to environment and biodiversity, such as the Lebanese National Environmental Council, Higher Hunting Council, Committees of Nature Reserves, take into consideration equitable and gender responsive representation. - Integrate environmental and biodiversity issues into the national women's strategy during its next update. - Develop and enforce legislation to protect the rights of environmental human rights defenders.

GBF Target 23 - Ensure gender equality and a gender-responsive approach for biodiversity action

Global Target	Existing Key National / Local Policies and Laws	
Ensure gender equality in the implementation of the Framework through a gender-responsive approach, where all women and girls have equal opportunity and capacity to contribute to the three objectives of the Convention, including by recognizing their equal rights and access to land and natural resources and their full, equitable, meaningful and informed participation and leadership at all levels of action, engagement, policy and decision-making related to biodiversity.	- Law No. 720/1998, establishing the National Commission for Lebanese Women (NCLW). - The draft decree defining the amount of the entrance to the nature reserves, as well as the amount of practicing specific ecotourism activities inside the reserves (under development by MoE), cover specific fees' categories for women, children and youth, and persons with disabilities. - National Strategy for Women in Lebanon 2022-2030 (developed by the National Commission for Lebanese Women ((NCLW)). - National and local commissions/committees related to the environment and biodiversity. - National local development action plans and strategies related to the environment and biodiversity.	

	Gaps/Challenges	Recommendations
	- The national strategy for women promotes gender equality and women empowerment across all sectors but does not directly address the environmental and biodiversity governance. - National and local commissions or committees related to environment and biodiversity, such as the Lebanese National Environmental Council, Higher Hunting Council, Committees of Nature Reserves, do not take into consideration equitable and gender responsive representation. - Sectoral national legislation, policies, strategies, and plans, as well as national and local development action plans or Master Plans, do not ensure specifically the inclusion of women and girls, into decision-making processes and other sector-related activities. - There is no legal reforms, including the absence of biodiversity codes that promote gender equality within biodiversity governance.	- Ensure the inclusion of the needs of women and girls, into the decision-making processes related to biodiversity at the governmental level and at the local authorities' level. - Ensure that national and local commissions or committees related to environment and biodiversity, such as the Lebanese National Environmental Council, Higher Hunting Council, Committees of Nature Reserves, take into consideration equitable and gender responsive representation. - Integrate environmental and biodiversity targets into the local development action plans or strategies as per the existing national and/or regional Master Plans. - Integrate gender considerations into legislation, policies, strategies and plans related to biodiversity, especially those under review and update. - Integrate environmental and biodiversity issues into the national women's strategy during its next update.

A full-page background image of a mountain landscape. In the foreground, there are dense, dark green evergreen trees. Behind them, a steep, rocky mountain slope rises, featuring a prominent, light-colored, craggy rock face. The mountain continues to rise into the distance under a blue sky with scattered white clouds.

05

BIODIVERSITY VISION, NATIONAL ACTION PLAN AND MONITORING SYSTEM

5.1 Lebanon's Vision for Biodiversity

"By 2030, Lebanon's biodiversity will be valued, conserved, and sustainably managed at the ecosystem, habitat, and species levels. This will enable the country to effectively respond to both anthropogenic and natural pressures while ensuring that all Lebanese citizens have equitable access to ecosystem goods and services."

Lebanon's Unique Natural Environment:

- **Ecosystem Diversity:** Lebanon's highly variable ecosystems support a wide range of biodiversity, enabling diverse life forms to thrive.
- **Climatic Variability:** Lebanon is characterized by its four distinct seasons. Citizens in Lebanon experience winter rainfall and warm, dry summers, which are vital for agricultural productivity.
- **Agricultural Richness:** Lebanon is characterized by a rich variety of high-quality fruits and crops.
- **Diverse Recreational Opportunities:** Lebanon's geographic and climatic diversity provides a variety of recreational opportunities.

Principles for the management and conservation of biodiversity in Lebanon:

- The conservation of biodiversity should be recognized as a moral imperative, which must be nurtured at the individual, institutional, and governmental levels.
- Biodiversity values –whether currently known or yet to be discovered- should be acknowledged at the social, economic, and national levels.
- Polluters and/or degraders should be held accountable through appropriate taxation or penalties.

- Development programs should be ecologically sound and their impact on biodiversity and the environment should be closely examined.
- Educational programs at all levels should integrate biodiversity conservation, cultivating a sense of responsibility and ethical stewardship for nature.
- Existing laws and regulations should be properly enforced to ensure the preservation and sustainability of biodiversity.

This Vision presents a significant challenge for Lebanon, requiring decisive action to halt our biodiversity loss. This chapter outlines the national Targets and Actions developed to address this challenge.

National targets are based on the review of the previous NBSAP, guided by the GBF Targets, as shown in Table 5-1. These targets take into consideration the issues, threats, gaps, and opportunities identified through stakeholder consultation workshops. Although Lebanon is updating its 2016 NBSAP, the national targets are set for 2030 in alignment with CBD guidance. This comprehensive strategy is designed as Lebanon's main biodiversity policy document for the coming years. Its implementation will demand ongoing commitment, adaptability to changing circumstances, and a flexible planning approach.

Progress toward the identified NBSAP national targets entails the development of specific **national actions**. Some of these actions are built upon existing programs and practices, while others are new initiatives in response to changing circumstances and evolving science.

The National Action Plan section provides details on the implementation of the Strategy. It identifies a series of strategic actions at institutional, legislative, scientific, and economic levels, aiming to effectively achieve the identified national targets.

5.2 National Action Plan

National Target 1: By 2030, ensure that at least 20% of all natural ecosystems outside Protected Areas (PAs) are under participatory, integrated, and biodiversity-inclusive spatial planning and/or effective management processes, addressing land- and sea-use change, as well as bringing biodiversity loss close to zero in areas of high biodiversity importance and ecosystems of high ecological integrity, while respecting the rights of local communities.

National Action 1.1:

Establish clear criteria for identifying and mapping areas under sustainable forestry, fisheries, artificial reefs, grazing, and agriculture, as well as areas in need of sustainable management.

National Action 1.2:

Based on Land Use/ Land Cover, Marine Spatial Plan (MSP) databases and other sources, and in accordance with the criteria identified under NA 1.1, identify and map the extent and spatial distribution of areas under sustainable forestry, fisheries, artificial reefs, grazing, and agriculture, as well as areas in need of sustainable management.

National Action 1.3:

Develop a Marine Spatial Plan (MSP) for Lebanese territorial waters based on scientific assessments and participatory approaches.

National Action 1.4:

Identify marine areas of high biodiversity importance, including ecosystems of high ecological integrity outside protected areas.

National Action 1.5:

Inform concerned municipalities and their federations hosting identified areas of high biodiversity importance (such as KBAs and potential areas for conservation) to integrate these areas into existing Master Plans for each relevant municipality or region, while ensuring the participation of relevant stakeholders.

National Action 1.6:

Properly enforce and update, when necessary, the legal framework related to the sustainable use of

biodiversity resources outside Nature Reserves under the MoA mandate (e.g., forests, grasslands, fisheries, edible and medicinal plants, agrobiodiversity, etc.).

National Action 1.7:

Develop and/or update monitoring programs for areas of high biodiversity importance (e.g., Forest fires, land and coastal changes, violation, and land and coastal degradation, and ecosystems of high ecological integrity outside PAs, while using a participatory approach for both terrestrial and aquatic environments.

National Action 1.8:

Disseminate existing guidelines on forest and rangeland management and conduct the necessary capacity-building for at least 30 technicians from the MoA, NGOs, and municipalities to implement management plans for their forests and rangeland resources.

National Action 1.9:

Map changes in land cover/land use and MSPs to track anthropogenic pressures and disturbance on affecting adjacent natural ecosystems.

National Action 1.10:

Develop and implement sustainable forest and rangeland management plans in at least 10 communal lands outside PAs, through close collaboration between MoA and relevant local authorities.

National Action 1.11:

Develop and/or update bathymetric maps of the Lebanese marine environment within territorial waters.

National Target 2: By 2030, rehabilitation plans are implemented in at least 20% of degraded terrestrial, inland water, and marine and coastal ecosystems (including areas affected by the 2024 war), so that these ecosystems can safeguard the sustained delivery of ecosystem services and enhance ecological integrity and connectivity.

National Action 2.1:

Prepare a national inventory of degraded sites by type and location (including sites affected by the 2024 war), and update and complete existing inventories.

National Action 2.2:

Develop a prioritization scheme based on socio-environmental criteria to identify sites in need of immediate intervention.

National Action 2.3:

Develop technical guidelines for the rehabilitation of different types of degraded sites and grant them legally binding status.

National Action 2.4:

Develop new rehabilitation plans where they do not exist or review existing plans, ensuring that they align with the newly developed guidelines specified in NA 2.3.

National Action 2.5:

Develop a master plan for the rehabilitation of

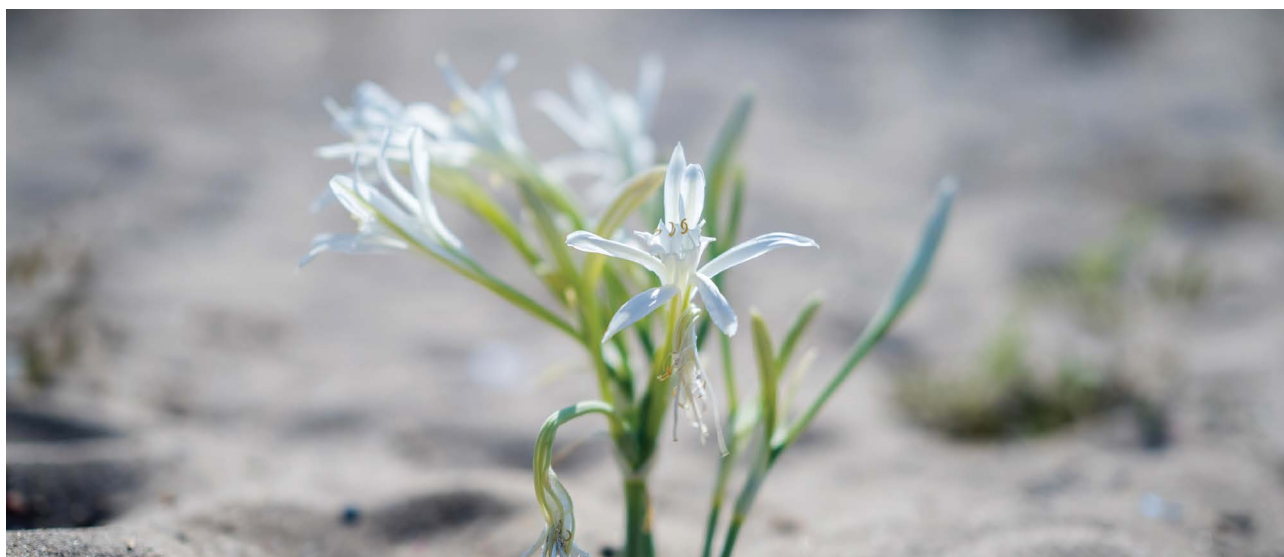
different types of degraded sites that builds on existing master plans (e.g., quarry and dumpsite rehabilitation), ensuring that separate plans are clearly highlighted for terrestrial and marine degraded sites.

National Action 2.6:

Designate selected degraded sites as pilot sites for research and development of effective rehabilitation methods.

National Action 2.7:

Undertake pilot rehabilitation in at least 20% of the key sites identified as per NA 2.1 and NA 2.2 based on the developed prioritization scheme. This should cover at least one site of each type, using scientifically validated, nature-based, and sustainable practices, including: quarries, dumpsites, degraded forests, rangelands, riverbeds, wetlands, old terraces, submarine canyons, vermetid reefs, seagrass meadows, ports, artificial lakes, dam sites, sea-filled coastal areas, and aquaculture sites.



Tyre Coast Nature Reserve

National Target 3: By 2030, at least 30% of natural terrestrial, inland water areas, and marine and coastal areas—especially areas of particular importance for biodiversity—are effectively conserved and managed through ecologically representative, well-connected and equitably governed systems of protected areas and other effective area-based conservation measures, while recognizing and respecting the rights of local communities, including their rights over traditional territories.

National Action 3.1:

Develop clear and standardized criteria for identifying natural and semi-natural areas of high biodiversity importance and high ecological value across the country that are suitable for conservation, based on international criteria where appropriate. These criteria should specifically focus on identifying ecosystems suitable for designation as PAs and OECMs.

National Action 3.2:

Identify and map natural and semi-natural areas of high biodiversity importance and high ecological value, based on clear criteria (according to NA 3.1), to produce a tool for identifying the most suitable areas for the establishment of new PAs and for the declaration of OECMs.

National Action 3.3:

Enforce regulations related to the management of Nature Reserves and increase the level of fines related to the goods and services that are illegally harvested or extracted.

National Action 3.4:

Engage with local communities and stakeholders to ensure that their rights, opinions, and knowledge are integrated into the classification process for new PAs and OECMs.

National Action 3.5:

Develop and regularly update management plans for all existing Nature Reserves, incorporating biodiversity conservation, community engagement, and sustainable-use strategies (in accordance with the NRs legislation). The management plans should be developed by the NRs committees and MoE and involving local communities and relevant stakeholders.

National Action 3.6:

Require each existing Nature Reserve to complete the Management Effectiveness Tracking Tool (METT) annually to assess and improve management effectiveness.

National Action 3.7:

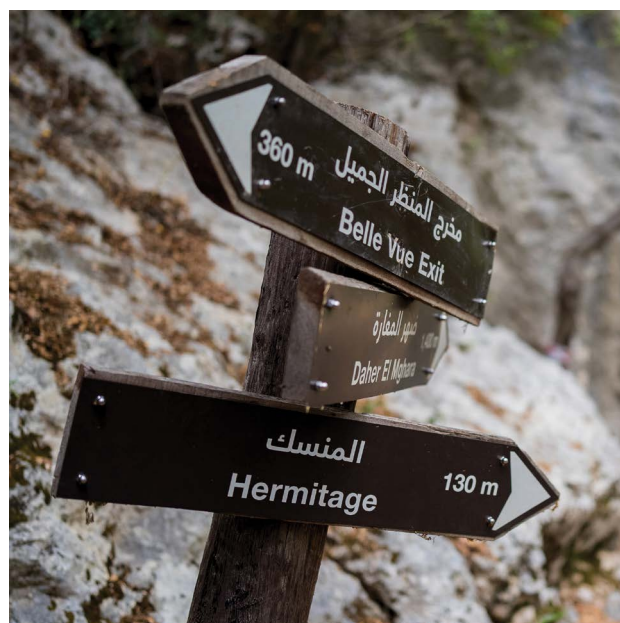
Recruit and train qualified management teams for Nature Reserves, focusing on biodiversity conservation and community engagement.

National Action 3.8:

Secure the necessary equipment and infrastructure to support effective management and monitoring of NRs.

National Action 3.9:

Identify and establish ecological corridors to enhance connectivity between PAs.



Bentael Nature Reserve

National Target 4: By 2030, the status of 25% of known flora and fauna species is identified, and conservation actions are implemented for at least 10 threatened species to significantly reduce extinction risk.

National Action 4.1:

Update the biodiversity national inventory (Biodiversity Country Study) prepared by the Ministry of Agriculture (MoA), based on field surveys of fauna, flora, and fungi, and recently completed studies, with separate sections for marine and terrestrial lists.

National Action 4.2:

Apply IUCN Red Listing to the identified species in the updated species inventory.

National Action 4.3:

Update and ensure the sustainability of the Flora of Lebanon platform for data storage and dissemination, including information on species distribution, uses, IUCN Red List status, and other relevant information.

National Action 4.4:

Develop guidelines and implement action plans to minimize human-wildlife interactions to reduce risk to and restore and maintain genetic diversity of at least 10 threatened species.



Jaj Cedars Nature Reserve

National Target 5: By 2030, the genetic diversity of 40% of native fauna and flora, including endemic and economically important species, is conserved in-situ and ex-situ through sustainable management practices to maintain their adaptive potential.

National Action 5.1:

Identify native species of high conservation value, including economically important species, in the updated national species inventory referenced in National Action 4.1.

National Action 5.2:

Develop national conservation strategies and

regulations for at least 100 native species of high conservation value, prioritizing endemic species.

National Action 5.3:

Conduct monetary valuations (including social, cultural, and ecological values) for at least 30 native species of high conservation value.

National Target 6: Ensure that the use, harvesting and trade of wild species are sustainable, safe and legal, preventing overexploitation, minimizing impacts on non-target species and ecosystems, and reducing the risk of pathogen spillover by applying the ecosystem approach, while respecting and protecting sustainable customary use by local communities.

National Action 6.1:

Develop and implement mechanisms, and enact legislation to reduce the risk of pathogen spillovers from terrestrial and marine farming activities.

National Action 6.2:

Develop and enact laws to implement CITES and other international conventions related to the harvesting and trade of wild species.

National Action 6.3:

Develop, based on scientific assessments, “Fishing Year” guidelines for the fisheries sector that include a set of regulations and/or recommendations defining fishing seasons and practices for a particular year.

National Action 6.4:

Conduct capacity building programs for relevant public institutions (MoA Forest guards and quarantine services, PA rangers, custom services, border security forces, municipal police, etc.) on national and

international regulations related to the harvesting and trade of wild species, as well as on species protected or regulated nationally and internationally (IUCN red list, CITES and other international conventions), in order to strengthen enforcement of related laws and guidelines.

National Action 6.5:

Conduct assessments of current harvesting practices of terrestrial wild species to identify unsustainable methods and species overexploitation and establish guidelines –endorsed by the MoA–for the sustainable harvesting and trade of terrestrial wild species that are not covered by existing guidelines. These guidelines should focus on maintaining population viability and minimizing impacts on non-target species and ecosystems.

National Action 6.6:

Develop protocols for the sustainable use of endemic species affected by overexploitation, based on the most recent list of endemic species.

National Target 7: By 2030, effective measures are in place to limit the introduction and diffusion of Invasive Alien Species (IAS).

National Action 7.1:

Support ongoing efforts to establish a register of IAS reported in the terrestrial and aquatic ecosystems in Lebanon. This register should be considered a live document and to be updated whenever new IAS are identified.

National Action 7.2:

Develop an awareness campaign about invasive

species to educate on the proliferation, impacts, and control of identified IAS.

National Action 7.3:

Provide technical, operational and financial support to quarantine customs and border security forces to regulate the import of species for crops, landscape, aquaculture, domesticated animals, and aquarium trade sectors, to avoid genetic pollution of local species and genotypes.

National Target 8: By 2030, reduce pollution and its negative impacts to levels that are not harmful to biodiversity and ecosystem functions and services, considering cumulative effects, including (a) reducing excess nutrients lost to the environment; (b) reducing the overall risk from pesticides and highly hazardous chemicals; and (c) reducing and working toward better management of plastic pollution.

National Action 8.1:

Enhance knowledge on nutrient management and integrated pest management through public awareness and targeted training. These activities should emphasize the impacts of these nutrients on surrounding environments, the consequences of pesticides misuse, and the use of biopesticides and safer alternatives.

National Action 8.2:

Develop and implement a national strategy related to nutrient management to prevent excess loss into the environment. This should consider both point and non-point sources of excess nutrients (fertilizers, lost feed in aquaculture, etc.).

National Action 8.3:

Develop and implement a national strategy related to managing pesticides, fungicides, herbicides, and antibiotics to prevent their excessive introduction into the environment. This should consider both point and non-point sources of pollution.

National Action 8.4:

Monitor pollutants levels in ecosystems of high conservation value (coastal areas, river mouths, rivers, wetlands, water springs) to identify areas that require priority action.

National Action 8.5:

Areas of priority action identified under NA 8.4, conduct capacity-building for polluters and local authorities to define measures to mitigate, reduce or, where possible, eliminate pollution levels.

National Action 8.6:

Improve the technical infrastructure of the MoA, CNRS and LARI to support the monitoring of pollution and chemical imports.

National Action 8.7:

Update pesticide regulations and strengthen enforcement by banning hazardous chemicals from entering the market, in line with the GFC targets and guidelines.

National Action 8.8:

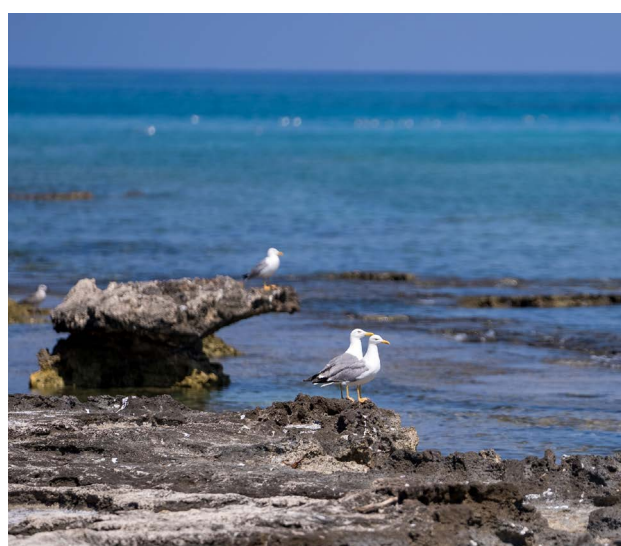
Reduce and prevent plastic pollution by implementing the National Integrated Solid Waste Management Strategy, while raising awareness of the impacts of plastic pollution on surrounding habitats.

National Action 8.9:

Assess the impact of pollution, while focusing on phosphorus resulting from the 2024 war on natural (terrestrial, fresh water, and marine) and agricultural areas affected by the conflict.

National Action 8.10:

Identify and map sources of marine litter in coastal and marine environments and develop management plans.



Palm Islands Nature Reserve

National Target 9: By 2030, identify ecosystems vulnerable to climate change, minimize the impacts of climate change on biodiversity, and increase its resilience, through mitigation, adaptation, and disaster risk reduction actions. This includes nature-based solutions and/or ecosystem-based approaches, while minimizing negative and fostering positive impacts of climate action on biodiversity.

National Action 9.1:

Conduct comprehensive assessments of the vulnerabilities of terrestrial, coastal and marine ecosystems to climate change. identifying key risks and adaptation needs.

National Action 9.2:

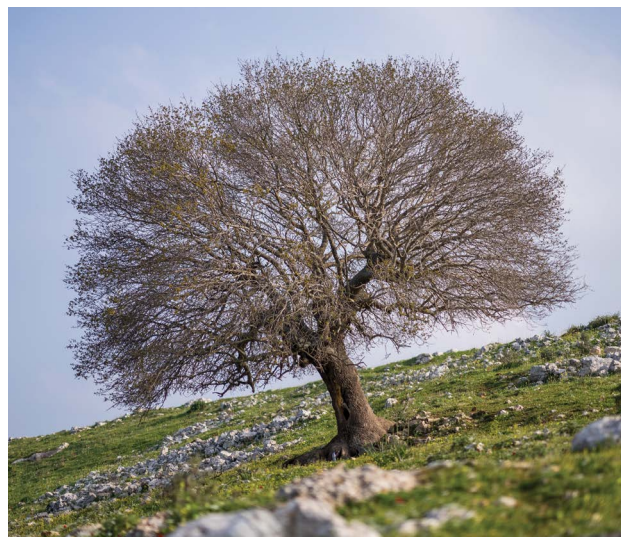
Monitor, assess and document the impact of climate change on species and their habitats, by generating species prediction distribution models under future climate scenarios for at least 50 native species, with a focus on species of high conservation and economic value.

National Action 9.3:

Develop adaptation plans to mitigate the impact of climate change on at least five vulnerable natural ecosystems identified in NA 9.1, with special emphasis on species of high conservation value identified under NA 5.1. In addition, implement at least two conservation and restoration projects, aimed at enhancing biodiversity resilience in the targeted ecosystems.

National Action 9.4:

Develop a relative sea level rise prediction model specific for the Lebanese coast to evaluate the effect of sea level rise on the marine coastal zone



Bentael Nature Reserve

National Target 10: By 2030, ensure that the management and use of at least 10 wild-used species are sustainable, thereby providing social, economic and environmental benefits for people, especially those in vulnerable situations and those most dependent on biodiversity. This includes sustainable biodiversity-based activities, products and services that enhance biodiversity, while protecting and encouraging customary sustainable use by local communities.

National Action 10.1:

Identify, map and prioritize wild-used species of high economic value, including forage and other values.

National Action 10.2:

Prioritize populations of different representative wild-

used species of high economic value and/or species that are endangered or highly exploited species, to be designated as Genetic Conservation Units (GCU).

National Action 10.3:

Establish a robust system knowledge-sharing system

on ethnobotanic agrobiodiversity among relevant ministries, research institutes, and major commercial users.

National Action 10.4:

Develop and implement sustainable management plans for GCUs.

National Action 10.5:

Test ex-situ propagation and/or breeding of wild-used species in MoA nurseries and other nurseries and research institutes, in collaboration with the MoA, universities and the private sector, and disseminate to local users.

National Target 11: Ensure that areas under agriculture, aquaculture, fisheries and forestry are managed sustainably, in particular through the sustainable use of biodiversity thereby contributing to the resilience, long-term efficiency, and productivity of these production systems, as well as to food security, while conserving and restoring biodiversity, and maintaining nature's contributions to people, including ecosystem functions and services.

National Action 11.1:

Mainstream locally produced released cultivars and local native rootstocks varieties and seeds into national agricultural strategies and action plans and focus on the use of local accessions in breeding programs.

National Action 11.2:

Mainstream sustainable agriculture production systems into national agricultural strategies and action plans, including: organic farming, agroecology, agroforestry, the use of climate smart crops, crop rotation, conservation agriculture, agriculture and forest waste management, terracing, reuse of treated wastewater, efficient irrigation systems, use of rainfed crops, etc.

National Action 11.3:

Mainstream sustainable fisheries and aquaculture—using native, naturalized, and acclimatized species—into national agricultural strategies and action plans, based on needs assessment and SWOT analysis.

National Action 11.4:

Mainstream biodiversity conservation and sustainable forestry into related national forestry strategies and action plans.

National Action 11.5:

Develop sustainably managed national hatcheries for aquaculture species (fresh water and marine).

National Action 11.6:

Develop a market for national feedstock production for the aquaculture sector and/or use existing markets.



Tyre Coast Nature Reserve

National Target 12: By 2030, restore, maintain and enhance nature's contributions to people, including ecosystem functions and services, such as the regulation of air, water and climate, soil health, pollination and reduction of risk, as well as protection from natural hazards and disasters. This should be achieved through nature-based solutions and/or ecosystem-based approaches for the benefit of all people and nature.

National Action 12.1:

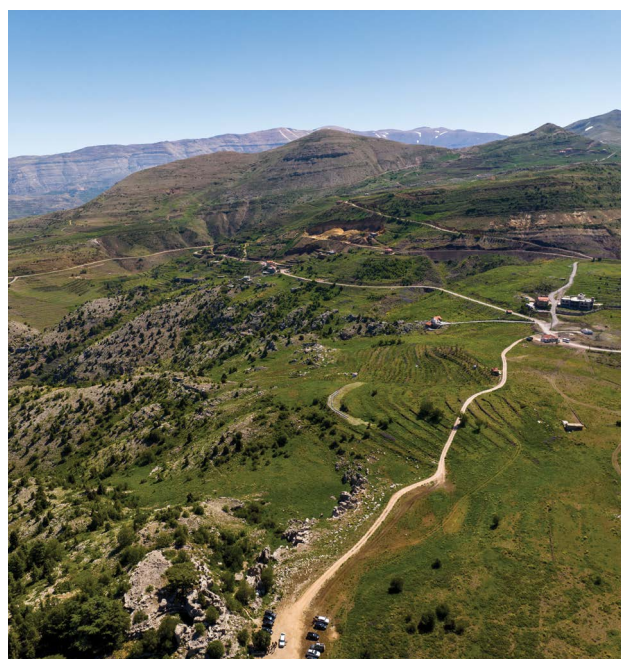
Assess ecosystem functions and services in representative protected areas across various ecosystems (covering at least three types of ecosystems).

National Action 12.2:

Promote the adoption of nature-based solutions to mitigate natural hazards and enhance ecosystem services through scientifically validated practices (e.g., creation of artificial reefs, artificial ponds and wetlands, restoration of degraded corridors, etc.)

National Action 12.3:

Collaborate with the MoA, Green Plan, LARI, and local NGOs to maintain agrobiodiversity, climate- and hazard-resilient, wild-crop relatives, and native species in ecosystem restoration, agro-forestry, and crop selections in agriculture, targeting at least 50 hectares.



Tannourine Cedar Forest Nature Reserve

National Target 13: Conserve the area, quality, connectivity of, and accessibility of, and benefits from green and blue spaces in urban and densely populated areas, by mainstreaming the conservation and sustainable use of biodiversity, and ensuring biodiversity-inclusive urban planning, that enhances native biodiversity, ecological connectivity and integrity, improves human health and well-being and connection to nature, and contributes to inclusive and sustainable urbanization and the provision of ecosystem functions and services.

National Action 13.1:

Update existing legislation to conserve green spaces by reducing the development rate in urban expansion zones.

National Action 13.2:

Establish guidelines for implementing new tested

technologies for urban green space in urban areas—such as green rooftops, vertical rooftops, raised beds, green walls, etc—using native species.

National Action 13.3:

Update urban plans for main cities to incorporate green

spaces and parks in urban settings, and to increase shaded areas near buildings and in open spaces by planting trees (native species) and constructing green roofs and walls.

National Action 13.4:

Adopt new national guidelines for urban forestry/greenery.

National Action 13.5:

Introduce native plant species in urban forestry, and conserve and expand existing ones.

National Action 13.6:

Update and adopt the integrated urban plan for coastal areas in accordance with ICZM principles and in light of current violations.

National Target 14: By 2030, traditional knowledge, uses, and practices of local communities relevant to biodiversity and sustainable use of resources are collected, evaluated, documented, preserved, and shared/published, based on their free, prior, and informed consent, in accordance with national legislation.

National Action 14.1:

Conduct extensive surveys and studies to gather traditional knowledge related to biodiversity and sustainable practices.

National Action 14.2:

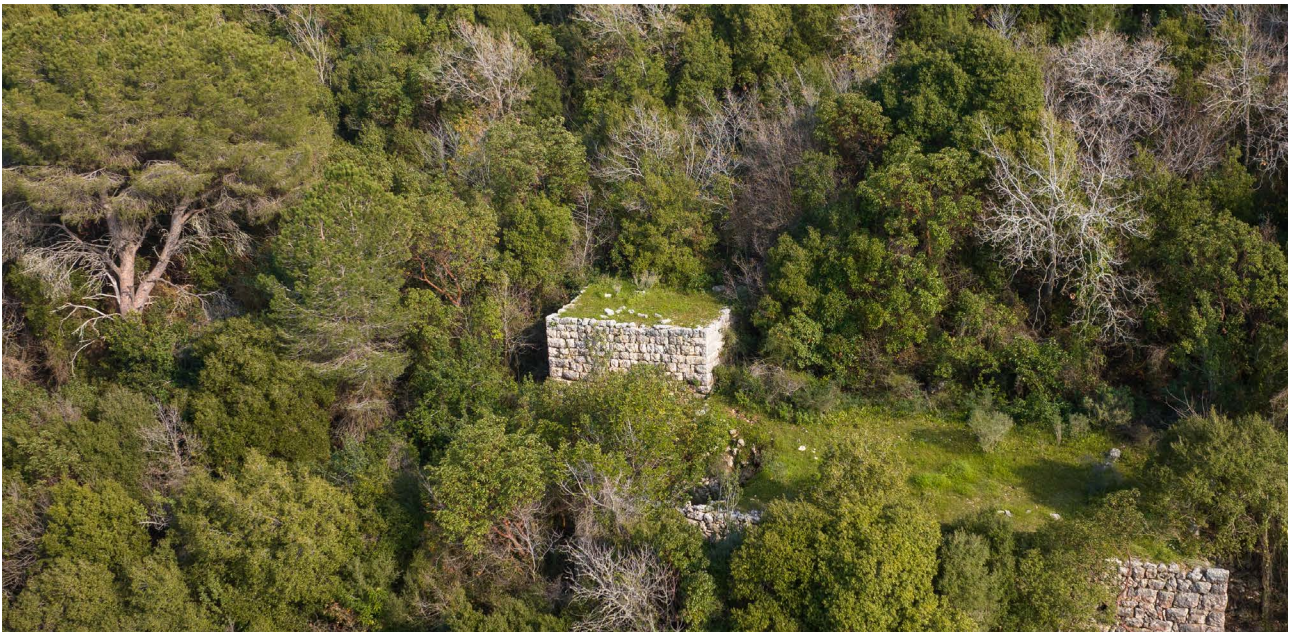
Document and archive traditional knowledge, integrate it into education, and disseminate it through related community events.

National Action 14.3:

Raise awareness and build capacities to preserve local and traditional practices for the sustainable use of biodiversity resources.

National Action 14.4:

Ensure the necessary resources to revive and sustain the Clearing-House Mechanism (CHM) to share documented knowledge widely.



Machaa Chnaniir Nature Reserve

National Target 15: By 2030, the Lebanese Government reviews, updates, reinforces, and takes effective legal, policy, administrative and capacity-building measures at all levels, as appropriate, to ensure the fair and equitable sharing of benefits that arise from the utilization of genetic resources and digital sequence information on genetic resources. This also includes traditional knowledge associated with genetic resources, and facilitating appropriate access to genetic resources. By 2030, facilitating a significant increase of the benefits shared, in accordance with applicable international access and benefit-sharing (ABS) instruments.

National Action 15.1:

Raise awareness and conduct capacity-building for concerned law enforcement personnel, including internal security forces, forest guards, PAs rangers, municipal police, and customs employees on biodiversity legislation related to ABS, to ensure that they can effectively assess situations, understand biodiversity legislation, recognize environmental crimes, and take appropriate action.

National Action 15.2:

Develop specific capacity-building training programs and awareness campaigns and programs on “Access and Benefit-Sharing (ABS)” regulations and the digital sequence information (DSI), to promote the implementation of related international conventions.

National Action 15.3:

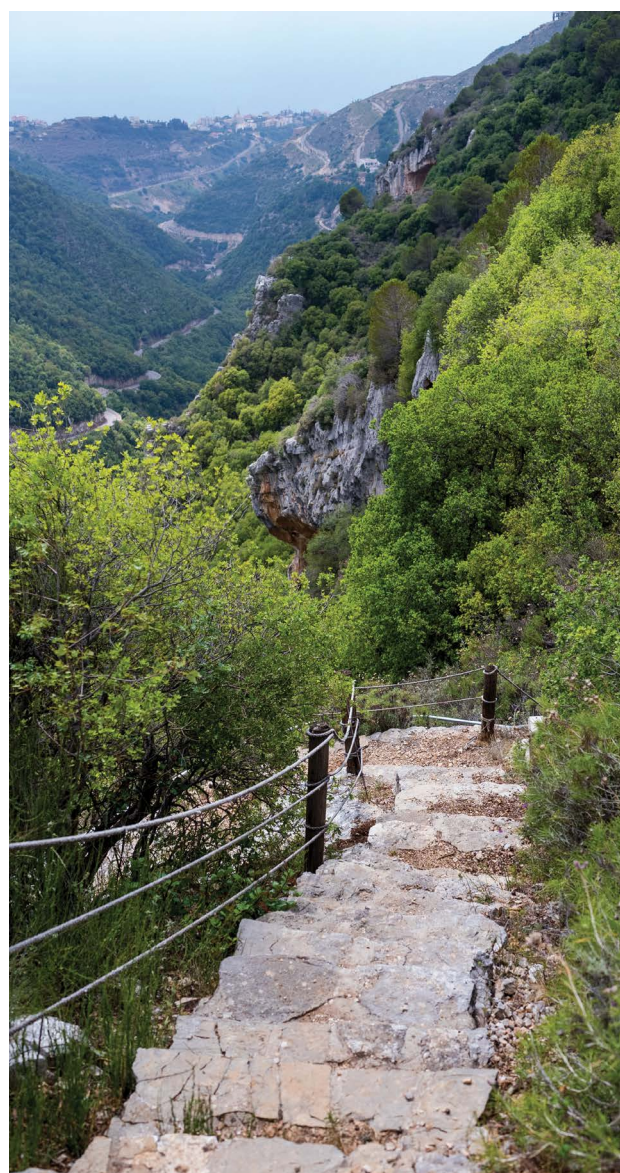
Establish clear agreements and mechanisms to facilitate benefit sharing, and technology transfer arising from the utilization of genetic resources and from digital sequence information (DSI) on genetic resources, to promote the implementation of the related international conventions.

National Action 15.4:

Establish a national database of genetic resources from native species.

National Action 15.5:

Conduct advanced research on genetics of native species (e.g., sequencing and barcoding).



Machaa Chnaniir Nature Reserve

National Target 16: By 2030, government entities mainstream biodiversity priorities (conservation, benefit-sharing, pressure alleviation, sustainable management, and sustainable use of natural resources), into their policy making processes and implementation.

National Action 16.1:

Strengthen the capacity of the MoE to implement the SEA process, (including review) by establishing a dedicated unit or expert groups within the ministry.

National Action 16.2:

Conduct at least 10 training sessions annually on the SEA Decree (No. 8213/2012) for public sector employees at central and local levels.

National Action 16.3:

Develop and publish comprehensive guidelines for ecological impact assessments as part of SEA and conduct at least five sector-specific training sessions annually.

National Action 16.4:

Develop and implement a cross-sectoral planning enhancement program by integrating environmental considerations into at least seven key sectors (e.g., agriculture, fisheries, forestry, tourism, etc.).

National Action 16.5:

Conduct training and capacity-building to raise awareness and build technical skills in public institutions concerned with biodiversity conservation (e.g., MoA, MEHE, DGUP, CDR, MoEW, MoPWT, LARI, etc.).

National Action 16.6:

Develop and implement a training program on legislation related to natural resources and its enforcement for internal security forces, forest guards, and municipal police. Train at least 200 officers annually, to increase control of violations by the responsible authorities and help them manage the depletion of natural resources.

National Action 16.7:

Once the public salary scale is adjusted, recruit and train 50 environmental police officers.

National Action 16.8:

Implement a cross-sectoral environmental violations reporting system.

National Action 16.9:

Review existing biodiversity-related environmental legislation where needed, make necessary amendments, prepare remaining implementation decrees, and draft missing laws.

National Action 16.10:

Build capacity on biodiversity management at the level of governorates, cazas, UoMs, and municipalities, including environmental committees in municipal councils.

National Action 16.11:

Integrate biodiversity accounting into the MoF.

National Action 16.12:

Develop scenario-based standard operating procedures (SOPs) for the operation of the Joint Maritime Operation Chamber, in coordination with relevant governmental bodies for marine and coastal environment management.

National Action 16.13:

Develop a comprehensive environmental law database for the Ministry of Justice, that includes all relevant legislation and regulations related to environmental matters and serves as a complete reference for judges.

National Action 16.14:

Integrate the biodiversity agenda into the National Council for Environment (NCE) to enhance coordination.

National Action 16.15:

Enforce the resolution of forest violations to manage and control tree cutting through national legislation and regulations. This includes proposing (or amending) laws.

National Action 16.16:

Enforce the resolution of marine and river violations through national legislation and regulations.

National Action 16.17:

Prevent further development on high mountains, maritime and river basin public domains by developing and adopting the necessary national legislation and regulations.

National Action 16.18:

Develop a sustainable tourism strategy and action plan for areas below 500 m to complement the sustainable tourism strategy and action plan for the mountains of Lebanon.

National Target 17: By 2030, ensure that 75% of large businesses in Lebanon (defined as those with over 250 employees) a) regularly implement biodiversity impact assessments and publicly disclose results, b) and demonstrate a 30% reduction in negative biodiversity impacts and a 20% increase in positive impacts compared to baselines conducted between 2020 and 2026.

National Action 17.1:

Ensure enforcement of Decree 8471/2012 on the Environmental Compliance of Establishments, and set penalties for non-compliance, increasing annually until 2030.

National Action 17.2:

Hire an environmental expert in large-scale companies to integrate sustainability, including biodiversity, into their core business strategies, enhance their reputation as responsible corporate citizens, and contribute positively to environmental and social well-being.

- Develop internal sustainability teams or outsource such services for all companies with over 250 employees and keep this as recommendation for companies below 250 employees.

National Action 17.3:

Establish a national Corporate Social Responsibility (CSR) program focused on biodiversity, by encouraging businesses to act in a manner that benefits the well-being of society and the environment:

- Create a public CSR registry requiring annual reporting of biodiversity-related activities by all large companies.
- Develop a standardized biodiversity impact assessment tool and train representatives

from at least 75% of large companies and 25% of medium-sized companies on its use.

- Launch a “Biodiversity Leaders” recognition program, that annually acknowledges the top 20 companies demonstrating exceptional biodiversity performance.

National Action 17.4:

Implement a multi-tiered financial incentive system for environmentally friendly companies, including:

- 10-20% reduction in government fees (e.g., municipal fees, customs fees, etc.) for environmentally compliant enterprises.
- Priority access to government procurement processes for environmentally compliant enterprises.
- Expedited permitting processes for biodiversity-positive development projects.
- Annual awards and public recognition for top performing companies in each major industry sector.



Abbassiyeh Coast Nature Reserve

National Target 18: By 2030, at least 40% of large enterprises (over 250 employees) and 20% of medium-sized enterprises (50-249 employees) have implemented sustainable production plans in key sectors (e.g., industrial, agriculture, energy, and tourism), to mitigate or prevent negative impacts on ecosystems from the use of natural resources.

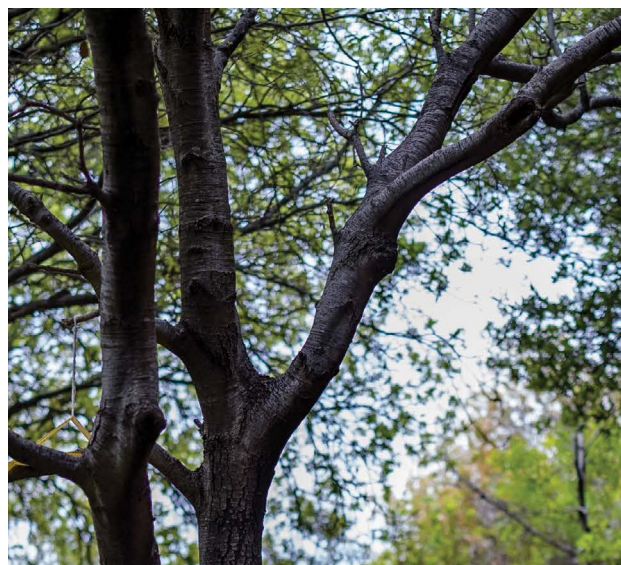
National Action 18.1:

Implement the National Integrated Solid Waste Management Strategy across industrial, agriculture, energy, and tourism sectors, to support the transition toward a Circular Economy.

National Action 18.2:

Conduct targeted awareness campaigns need to endorse sustainable strategies (e.g., sustainable production, and sustainable consumption targeting consumers, etc.) by:

- Developing sector-specific educational materials for four key industries.
- Launching a public media campaign targeting consumers, with annual surveys, to measure impact and behavior change.



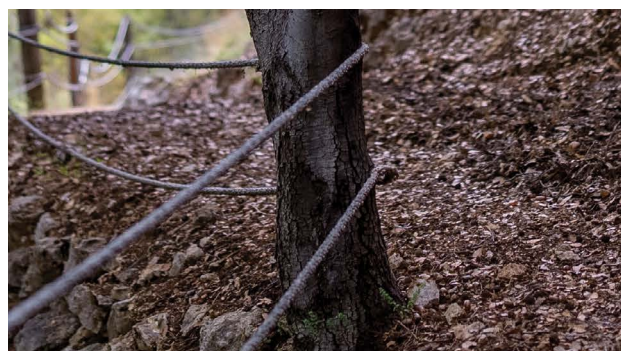
National Target 19: Encourage and enable people to make sustainable consumption choices by establishing supportive policy, legislative or regulatory frameworks, and by improving education and access to relevant and accurate information and alternatives. By 2030, reduce Lebanon's national consumption footprint in an equitable manner, by reducing overconsumption, and waste generation (including food waste), so that all people can live well in harmony with nature.

National Action 19.1:

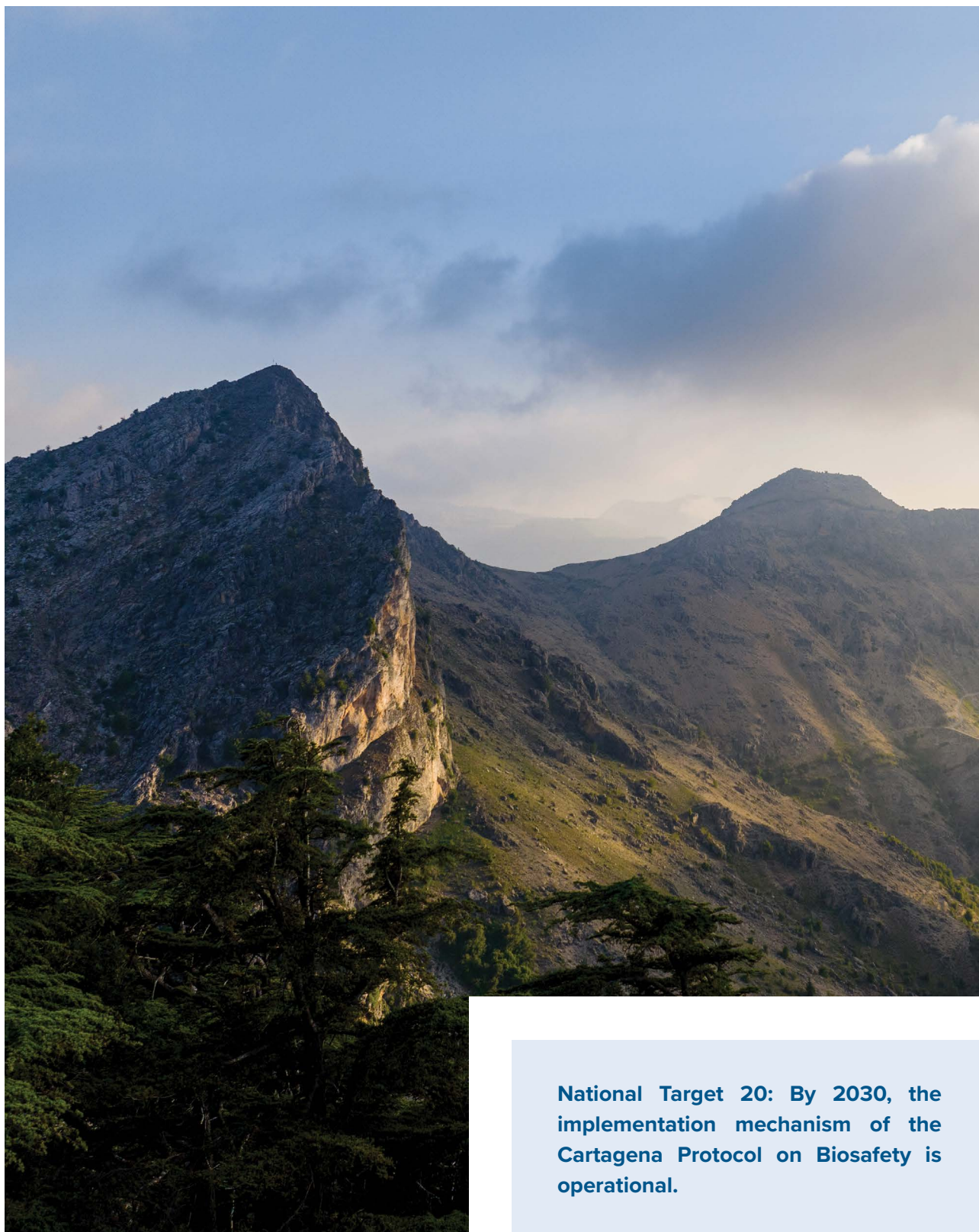
Develop consumer tools to encourage sustainable consumption behavior, such as integrating QR codes on sold products to provide a summary of product life cycle, and track consumer's behavior change through tracking sales records.

National Action 19.2:

Develop and implement a national strategy to reduce marine litter by encouraging and enabling sustainable consumption choices.



Bentael Nature Reserve



Tannourine Cedar Forest Nature Reserve

National Target 20: By 2030, the implementation mechanism of the Cartagena Protocol on Biosafety is operational.

National Action 20.1:

Enforce and operationalize national biosafety legislation through the issuance of effective implementation mechanisms.

National Action 20.2:

Assess risks related to Living Modified Organisms (LMOs) and monitor the adequacy of laboratory testing equipment in certified laboratories.

National Action 20.3:

Develop and implement legislation to control trade and prevent trafficking, especially at the national borders.

National Action 20.4:

Enforce better control by customs and relevant authorities over import activities involving Living Modified Organisms (LMOs).

National Action 20.5:

Incentivize and support seed banks preserving genetic diversity for the future while also promoting public awareness of their importance.

National Action 20.6:

Promote the use of local and native species and mandate their inclusion as a minimum standard in all government-funded projects.

National Action 20.7:

Encourage the Orders of Engineers, (particularly agriculture engineers) and scientists to adopt and implement a charter, guideline or a mandatory pledge among its members to refrain from using harmful substances and/or activities derived from biotechnology, in order to implement Biosafety measures.

National Target 21: By 2030, identify and phase out harmful incentives, and scale up positive incentives for the conservation and sustainable use of biodiversity.

National Action 21.1:

Implement and enforce legislation related to IEEs, EIAs and SEAs, and ensure the implementation of the environmental monitoring plan included in the IEEs, EIAs and SEAs.

National Action 21.2:

Conduct a comprehensive review of existing incentives affecting biodiversity and ecosystems and develop a clear roadmap to ensure that incentives are aligned with conservation goals and sustainable practices. This will help foster biodiversity resilience and ecosystem health across Lebanon. This includes updating current legislation to incorporate positive incentives.

National Action 21.3:

Increase fees for construction permits near ecologically sensitive areas (e.g., buffer zones of protected areas, forests, rivers, marine public domains, etc.).



Benta el Nature Reserve

National Action 21.4:

Impose fees on imported fresh fish to protect the local fish market.

National Action 21.5:

Improve infrastructure related to the fishing sector, in collaboration with the Directorate General of Cooperatives at the MoA and Directorate General of Land and Maritime Transport. This includes ports, fishing nets, fishing equipment, and other tools, to reduce the need for direct public financial support and rehabilitation costs, and to mitigate unregulated practices.

National Action 21.6:

Promote local fish products (wild catch and aquaculture) through national campaigns.

National Action 21.7:

Promote local organic agricultural products through national campaigns.

National Action 21.8:

Provide financial incentives or subsidies to farmers who adopt environmentally sustainable practices, such as organic farming, agroforestry, sustainable aquaculture, and conservation agriculture.

National Action 21.9:

Increase the number of fines related to forests and fishing violations and illegal logging to promote sustainable forestry management and minimize environmental degradation.

National Target 22: By 2030, substantially and progressively increase the level of financial resources from all sources—including domestic, international, public, and private resources—in an effective, timely and easily accessible manner to implement national biodiversity strategies and action plans, mobilizing at least \$100 million per year.

National Action 22.1:

Operationalize the national environmental fund established through Law No. 444/2002.

National Action 22.2:

Direct Green Climate Fund and financing towards biodiversity projects (e.g., Lebanon Green Investment Facility (LGIF).

National Action 22.3:

Partially Increase the Nature Reserves entrance fee and allocate the additional revenue to the national environmental fund.

National Action 22.4:

Establish a tracking tool for economic instruments and biodiversity finance (e.g., biodiversity positive taxes and fees, fines, projects, tradeable permits, environmentally motivated subsidies, biodiversity offsets., etc.).

National Action 22.5:

Implement tax incentives and funding programs to promote PPPs (private public partnership) in support of biodiversity conservation and the sustainable use of resources.

National Action 22.6:

Develop a national biodiversity finance plan, including the following:

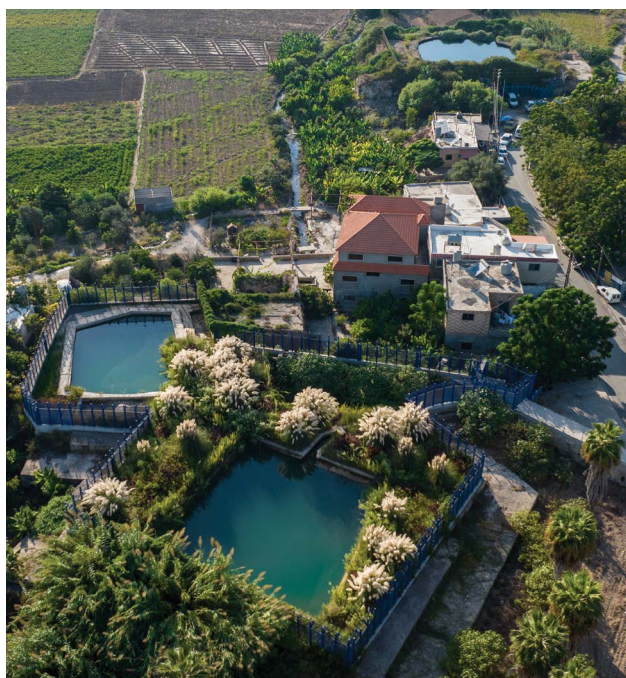
- Study innovative sources of financing for biodiversity.
- Engage donors in the implementation of the plan
- Engage the private sector in resource mobilization
- Conduct an environmental valuation study to promote the mobilization of internal resources.
- Assess and develop mechanisms to facilitate access to funding to vulnerable and low-income population.

- Develop guidelines to Introduce biodiversity valuation into SEAs and EIAs to assess the economic value, potential loss, and offset measures resulting from project impacts
- Develop a national framework for evaluating the economics of ecosystems and biodiversity in Lebanon (TEEB, BIOFIN). This may include payments for ecosystem services, reforming environmentally harmful subsidies, or introducing fiscal incentives for conservation.
- Conduct economic valuation studies for Nature Reserves and utilize the findings in decision making, seeking internal and external funding, and promoting ecotourism and sustainable tourism practices.
- Conduct economic valuation studies for coastal zones, maritime public domain, high mountains, riparian zones classified as nature sites and at least 20% of public forests and utilize the findings in strategic land-use planning, seeking internal and external funding and promoting sustainable management practices.

National Action 22.7:

Conduct awareness campaigns and educational seminars to introduce the concept of biodiversity valuation and its importance for conservation and sustainable management to decision-makers, practitioners, and other concerned stakeholders (e.g., the public sector, including deputies, ministers, Directors Generals; the private sector, research institutions; NGOs; etc.).

National Target 23: Strengthen capacity-building, joint scientific research programs, for the conservation and sustainable use of biodiversity and scientific research and monitoring capacities.



Tyre Coast Nature Reserve

National Action 23.1:

Allocate a capacity-building and scientific cooperation budget within the national budget.

National Action 23.2:

Allocate a capacity-building budget for relevant ministries focusing on GBF, CBD, and NBSAP implementation.

National Action 23.3:

Ensure the necessary resources to revive and sustain the Clearing-House Mechanism (CHM) and use it to consolidate biodiversity-related studies and avoid overlap and duplication of work.

National Action 23.4:

Develop a spin-off incubation and acceleration program to foster the creation of innovative products and services derived from scientific research that can be utilized by companies. Establish a system to promote collaboration between the private sector and research centers.

National Target 24: Ensure that the best available data, information, and knowledge are accessible to decision-makers, practitioners, and the public to guide effective and equitable governance and integrated, participatory management of biodiversity. This will also strengthen communication, awareness-raising, education, monitoring, research, and knowledge management.

National Action 24.1:

Develop and implement, in collaboration with the Central Administration of Statistics (CAS), a survey program to assess and monitor public awareness of biodiversity.

National Action 24.2:

Strengthen the awareness unit at the MoE to enhance public outreach and direct communication related to biodiversity.

National Action 24.3:

Adopt and implement the “National Strategy on Greening education/Education for sustainable development” being developed by the MEHE, integrate environmental education, including biodiversity (fauna and flora), into school curricula under this strategy and implement extracurricular activities related to the environment. Implementation efforts should include comprehensive training and capacity-building for schoolteachers and health educators to ensure effective delivery of environmental education across Lebanon.

National Action 24.4:

Organize participatory events to raise awareness of biodiversity among students, youth, and the public, such as national science fairs, guided open-house events at the MoE, etc.

National Action 24.5:

Support local biodiversity clubs, health and environment school clubs, and local action groups across the country.

National Action 24.6:

Build the capacities of NGOs to recognize and collect relevant data on biodiversity awareness.



Mount Hermon Nature Reserve

National Target 25: Ensure the full, equitable, inclusive, effective, and gender-responsive representation and participation in decision-making, as well as access to justice and information related to biodiversity by local communities—while respecting their cultures and their rights over lands, territories, resources, and traditional knowledge. This also includes women and girls, children and youth, and persons with disabilities, and ensures the full protection of environmental human rights defenders.

National Action 25.1:

Develop and enforce legislation to protect the rights of environmental human rights defenders.

National Action 25.2:

Design awareness-raising campaigns that highlight the equal contributions of both men and women in conserving biodiversity particularly focusing on women serving in local councils and Community Based Organizations (CBOs).

National Action 25.3:

Ensure the inclusion of needs of local communities, women, girls, children, youth, and persons with disabilities in the decision-making process related to biodiversity at the governmental and local authorities' levels.

National Action 25.4:

Integrate environmental and biodiversity targets into local development action plans/strategies, in line with existing national and or regional master plans.

National Action 25.5:

Integrate gender considerations into all policies, strategies, and plans related to biodiversity.

National Action 25.6:

Develop, in collaboration with the National Commission for Lebanese Women (NCLW), a biodiversity-focused gender action plan. This plan can promote gender-sensitive cross-ministerial collaboration (including, but not limited to, MoE, MoA and others) to shape supportive policies and mainstream environmental priorities at all levels.

National Target 26: Ensure gender equity in the implementation of the Global Biodiversity Framework through a gender-responsive approach, ensuring that all women and girls have equal opportunities and capacities to contribute to the three objectives of the Convention. This includes recognizing their equal rights and access to land and natural resources, as well as ensuring their full, equitable, meaningful, and informed participation and leadership at all levels of action, engagement, policy and decision-making related to biodiversity.

National Action 26.1:

Ensure the integration of environmental concerns (including biodiversity) in national gender strategies.

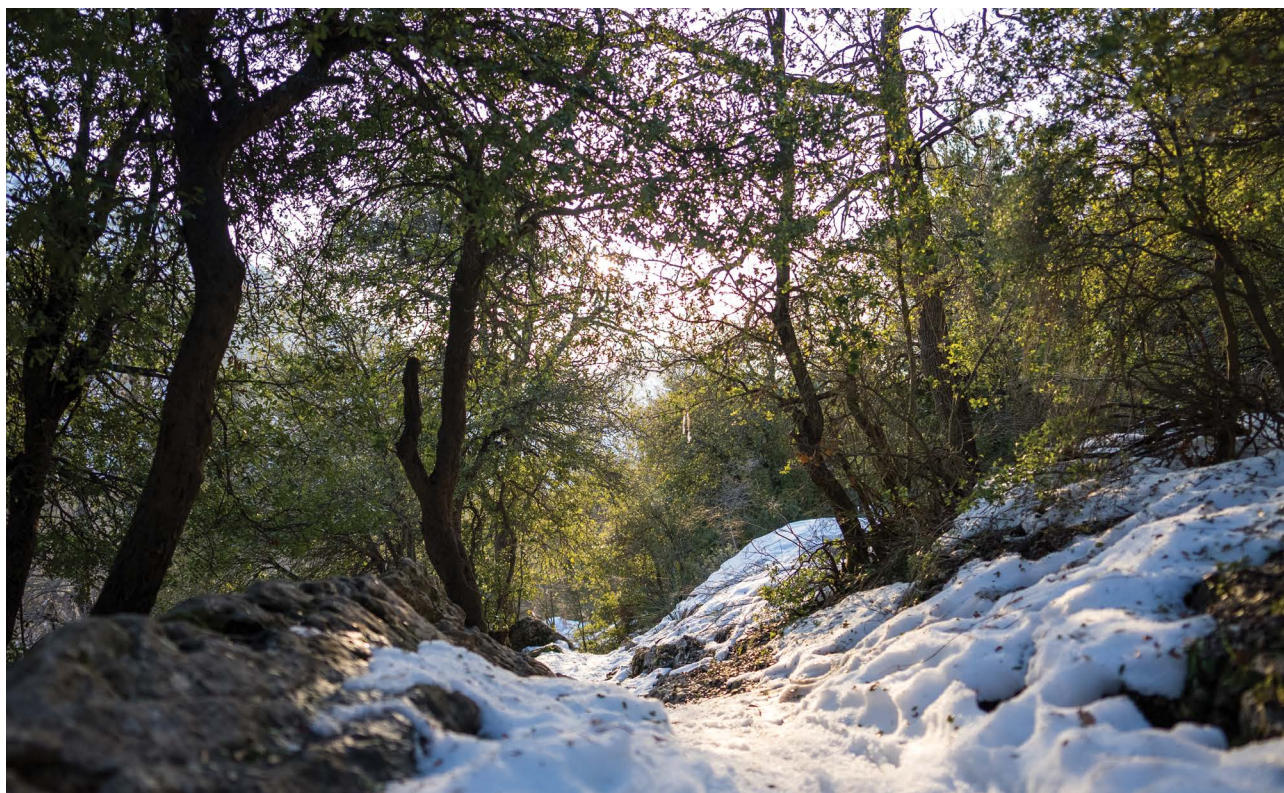
National Action 26.2:

Work with cooperatives, including women-led cooperatives, to direct and encourage women to diversify biodiversity-

based activities through awareness, capacity-building, and financial support.

National Action 26.3:

Conduct a baseline study on gender contextual analysis related to the biodiversity sector.



Horsh Ehdén Nature Reserve

5.3 Developing a National Monitoring System and Action Plan for Lebanon's NBSAP

The Global Biodiversity Monitoring Framework was adopted at COP15 through Decision 15/5, providing a standardized set of indicators to track progress in implementing the Kunming-Montreal GBF. It offers countries and stakeholders a harmonized approach to measuring progress toward halting biodiversity loss and achieving the targets set under the Kunming-Montreal GBF. The framework also serves as a critical tool for national reporting under the CBD and for global assessments of biodiversity trends.

Developing a national monitoring action plan for Lebanon's NBSAP is a key component of implementing NBSAP implementation, and consequently of the GBF and related decisions from the COP 15. Establishing a robust, sustainable, and well-resourced monitoring system provides an important foundation for effective

biodiversity action. At the national, regional, and global level, monitoring frameworks help track biodiversity status and trends, evaluate the effectiveness of actions and policies implemented under the GBF and NBSAPs, and assess the resources-particularly financial resources mobilized to achieve goals and targets across all scales.

The national monitoring action plan (detailed in Appendix C) serves as a practical implementation roadmap. It outlines the steps, responsibilities, resources, and timelines needed to establish and operationalize monitoring for the NBSAP.

The monitoring system itself is the mechanism or structure that continuously collects, manages, analyzes, and reports biodiversity-related data. It

defines the institutional, technical, and methodological components required for ongoing tracking, reporting, and adaptive management. Typically, this includes the institutional setup, data management platforms and databases, indicators and metrics, protocols and methodologies, reporting and visualization tools, and feedback loops.

Building on these frameworks, Lebanon's national biodiversity monitoring action plan establishes a comprehensive system for generating data, tracking indicators, and producing reports to regularly assess progress in implementing the NBSAP. It follows the guidelines outlined in "Guidance for developing plans for national monitoring systems", formulated by the United Nations Environment Programme's World Conservation Monitoring Centre (UNEP-WCMC).

5.4 Objectives of the National Biodiversity Monitoring System and action plan

National biodiversity monitoring systems can serve more than one purpose. Primarily, they support **the assessment of biodiversity status and trends** by surveilling and evaluating the condition of various species, habitats, and ecosystems, as well as related social, economic, policy, and other relevant information. This enables continuous tracking of changes in the distribution, abundance, and health of species and ecosystems over time.

By providing **data-driven insights to inform policy, planning, and decision-making**, the monitoring system strengthens biodiversity conservation and sustainable management, while facilitating the integration of biodiversity considerations across diverse policy areas beyond the environmental sector. By providing reliable data, the system also **supports scientific research and ecological studies**, potentially leading to new insights and discoveries in the field of biodiversity. Additional purposes of a national monitoring system include:

- Supporting the design of projects and guiding resource mobilization, notably by identifying needs and gaps for further biodiversity action.
- Contributing to international cooperation and data sharing.
- Enhancing national-level communication to policymakers, companies and the general public, for example by increasing public awareness and understanding of biodiversity, its importance, and its relationship to ecosystem services.
- Leveraging cooperation among the biodiversity community, researchers and academic institutions.

5.5 Measuring Progress Towards National Targets and National Actions

During the CBD COP15, Parties agreed to align their national monitoring systems as closely as possible with the Global Monitoring Framework. This global framework provides the basis for assessing progress in implementing the GBF and NBSAPs through specific indicators. Parties are encouraged to use these indicators at the national level to the extent possible, while recognizing that more than one indicator may be required to fully capture the scope of each target.

Types of Indicators in the Global Biodiversity Monitoring Framework:

- **Headline indicators** are the core set of high-level indicators adopted by the Parties to the CBD under the GBF. They represent the minimum set of indicators that countries are expected to report, as far as possible, to enable tracking of global progress toward the GBF Goals and Targets. To be listed as headline indicators, they must meet a number of criteria, such as data availability and regular updates.

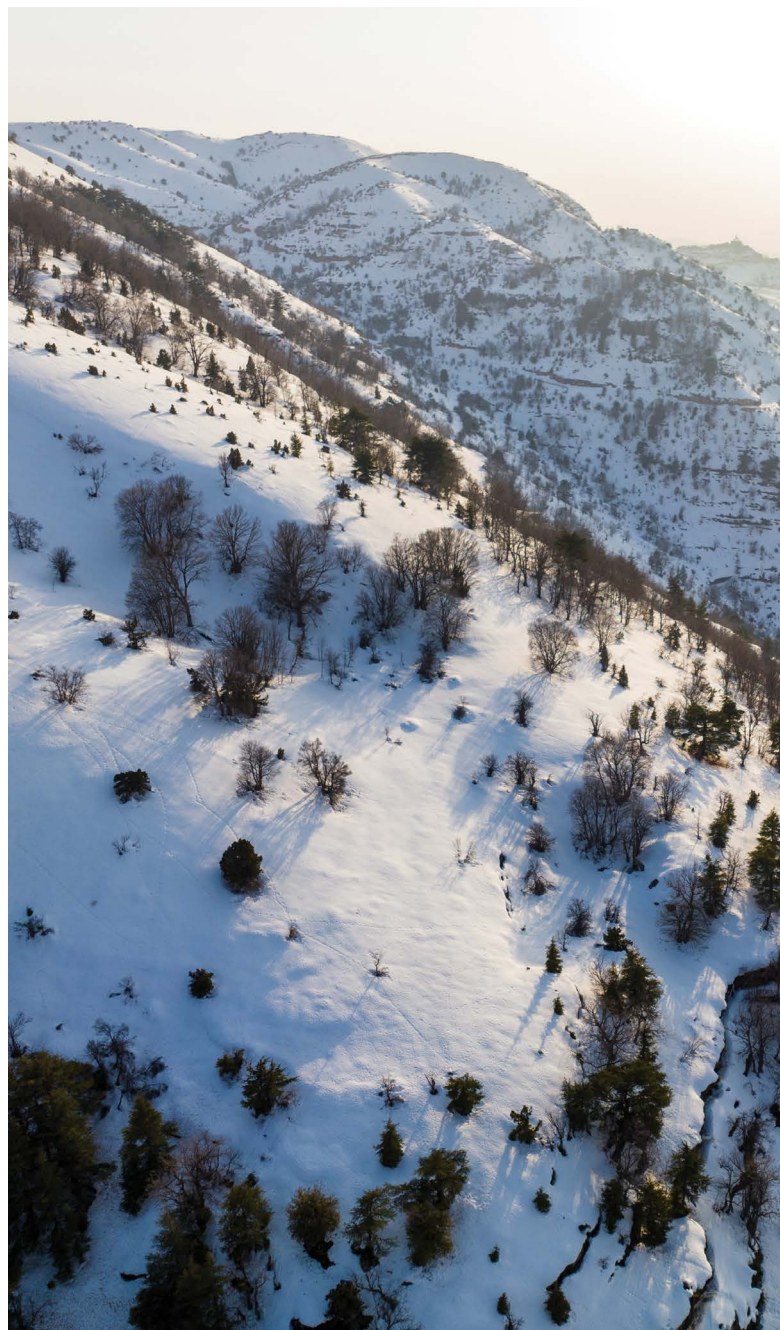
They are complemented, as appropriate, by component and complementary indicators. Headline indicators follow methodologies agreed upon by Parties and are calculated at the country level based on domestic data from national monitoring networks and sources, while acknowledging that in some cases, global datasets may be needed to complement national information. Simultaneously, organizations such as the FAO or the United Nations Environment Programme (UNEP) supply global indicators, in addition to supplementary information provided through binary indicator questions (Annex II of CBD/SBSTTA/26/L.10), which Parties will be required to complete as part of their national reporting to the CBD.

- **Component indicators** are optional indicators that, alongside the headline indicators, address specific aspects of the goals and targets of the GBF. They typically already have advanced methodologies and are provided by established organizations that can assist countries in their national application.
- **Complementary indicators** are other optional indicators used for thematic or in-depth analysis of each goal and targets. They vary in the extent of their development and may not all be suitable for all Parties.

The list of indicators under the Global Biodiversity Monitoring Framework is developed by the CBD, based on recommendations from the Ad Hoc Technical Expert Group on indicators.

Many headline, component and complementary indicators are solely global in nature or do not include national data for Lebanon; therefore, their use is not recommended as part of the country's national monitoring framework for the time being. It is recommended to periodically revise the list to assess the availability of global data.

- **National and subnational indicators:** All national targets should be informed by corresponding national —and, where relevant, subnational—indicators. These indicators are part of the monitoring plan.



Horsh Ehden Nature Reserve

5.6 Gaps in the Existing Monitoring System

The national monitoring system should enable the evaluation of progress towards each of the proposed national targets and actions.



While Lebanon's 5th and 6th National Biodiversity Reports (August 2015 and January 2019, respectively) are comprehensive, illustrative, and provide an excellent overview of biodiversity status and trends, as well as measures taken to implement the NSBAP, they made only limited use of systematic, long-term indicators, as currently envisioned under the GBF, which was issued after the release of these reports. Therefore, in light of the upcoming National Reports due in February 2026 and June 2029, Lebanon should consider strengthening its approach by adopting systematic, indicator-based monitoring systems.

Despite the availability of extensive scientific information on biodiversity in Lebanon, the country lacks a consistent, indicator-based approach that would enable long-term data comparability and streamline reporting to the CBD and other multilateral environmental agreements. A commonly adopted good practice is the establishment of an entity dedicated to biodiversity monitoring, typically affiliated with research or academic institution. Alternatively, the MoE of Lebanon could assume this role directly, while outsourcing data collection and analysis to research and academic partners. Regardless of the chosen approach, the availability of adequate resources remains a significant challenge, especially in light of the current economic crisis that has affected the country since late 2019.

Based on validation by national stakeholders in Lebanon, as well as progress made in implementing the National Actions of the 2016 NBSAP and preparing the 6th National Report in 2019, important studies and publications are regularly produced to inform progress toward national targets. Examples include scientific publications regarding certain species or groups of species, as well as ecosystems and other country reports. The national monitoring system should complement existing materials or ad hoc assessments in order to fill potential gaps, foster regular and consistent data collection, or provide additional expertise and resources.

Systematically tracking progress toward the newly aligned national targets will require Lebanon to make substantial efforts to develop the necessary data and establish consistent data collection processes for certain headline indicators. Five global targets and their associated national targets and actions particularly stand out, as they will require significant resources to be monitored.

- **Global Target 1 (Land management):** The Red List of Ecosystem methodology for both fauna and flora need to be applied regularly and systematically. Furthermore, Lebanon will need to classify its ecosystems following IUCN's Global Ecosystems Typology (Global Ecosystems Typology GET.2).
- **Global Target 4 (Species):** The Red List methodology needs to be applied regularly and systematically in Lebanon for both flora and fauna. Work on the Red List index and indicator for the national target on genetic diversity will need to be undertaken in order to provide the data needed for the indicators related to Global Target 4.
- **Global Target 7 (Pollution):** Several pollution-related metrics are included in the global monitoring framework. Lebanon needs to evaluate which indicators are relevant at the national level and develop a plan to work with the relevant authorities to ensure this data is made available.
- **Global Target 11 (Restore, Maintain and Enhance Nature's Contributions to People):** Headline indicator B.1. (Services provided by ecosystems) will require significant effort to assess ecosystem services provided by ecosystem type and by realm, biome and ecosystem functional group.
- **Global Target 18 (Harmful and positive incentives):** Data on incentives and subsidies can be challenging to compile. Lebanon could seek advice from the Organization for Economic Co-operation and Development (OECD), which has already worked with countries to establish such data.

5.7 Guidelines for Setting Up the National Monitoring System

The Monitoring System outlines the framework through which biodiversity-related information is regularly gathered, managed, analyzed, and communicated. It sets out the institutional, technical, and methodological arrangements that support ongoing assessment, reporting, and adaptive management of biodiversity in Lebanon. It typically includes:

- Institutional setup (who collects, compiles, and reports data).
- Data management platform or database (where data is stored and accessed).
- Indicators and metrics (to measure progress toward targets).
- Protocols and methodologies (for data collection, QA/QC, frequency, etc.).
- Reporting and visualization tools (dashboards, reports, web portals).
- Feedback loops (how monitoring results inform policy or NBSAP updates).

The establishment of the national monitoring system is guided by the following principles:

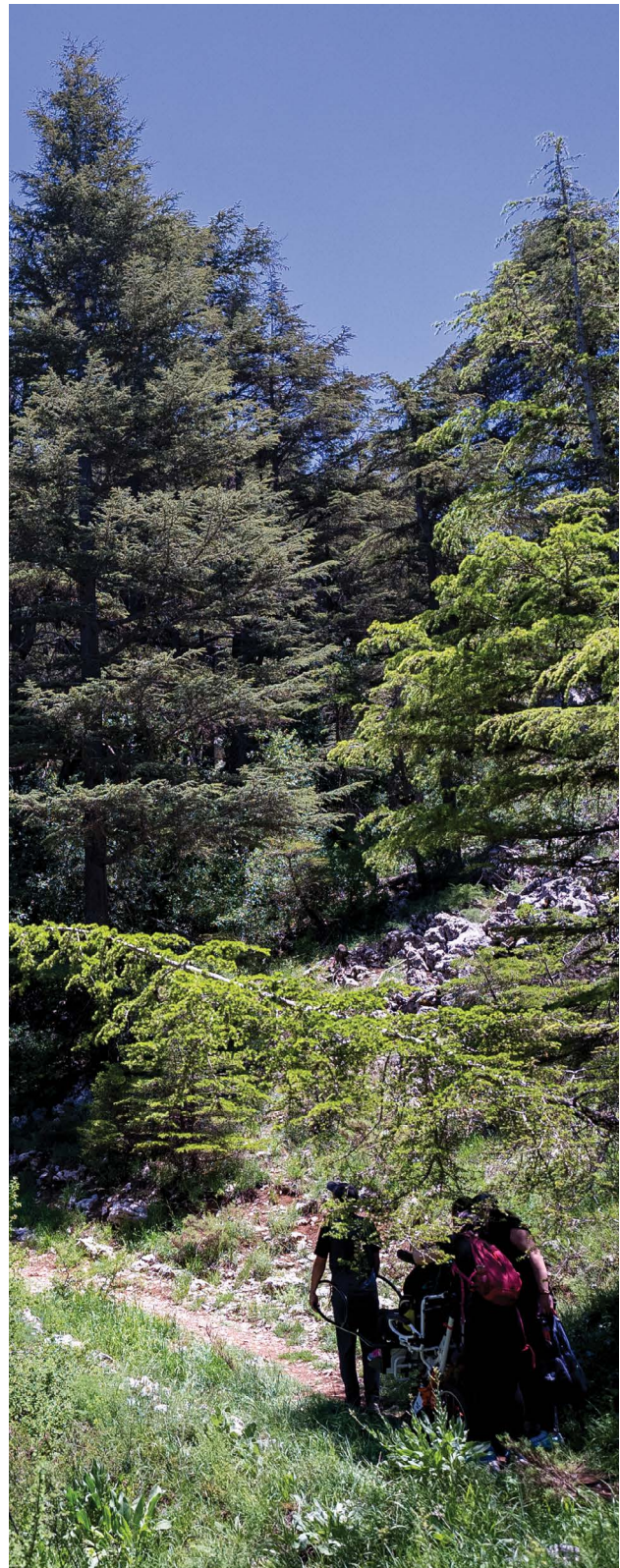
1. **Designate a government entity to coordinate biodiversity monitoring:** It is recommended to designate a specific government entity to coordinate biodiversity monitoring (as specifically as possible). In most cases, this entity is responsible for producing national reports for the CBD and possibly other biodiversity-related multilateral environmental agreements. In the case of Lebanon, this role would typically fall under the MoE, if the situation allows (in terms of the economic context and the availability of the necessary human and financial resources). In many countries, (e.g. Ethiopia, Mexico, EU), the concerned governmental entity is supported by a specialized institution that collects, manages,

and provides biodiversity data (e.g. Ethiopia Biodiversity Institute (EBI), the Mexican Conabio, the South African Sanbi, the European Environment Agency (EEA)). Such an arrangement could also be considered by Lebanon. Another task of the designated entity, whether a governmental body or a supporting institution, is to keep the list of indicators under review by following global developments, such as the adoption of new indicators by the CBD, the emergence of new tools or global datasets, or progress at the national level.

2. Create and Secure a Budget for Biodiversity

Monitoring: It is recommended to create and secure a budget for biodiversity monitoring. While the resources do not necessarily need to originate from the same institution, the coordinating entity may benefit from maintaining a clear overview of all funds allocated to biodiversity monitoring. In this manner, the coordinating entity can detect changes in budget allocations, seek additional internal and external resources as needed, and maintain contact with institutions that contribute to the monitoring system.

3. Establish a clearance mechanism: It is recommended to establish a clearance mechanism for data and assessments originating from the national monitoring system, particularly in preparation for the upcoming 7th National Report to the CBD. This mechanism should ensure broad government ownership that extends beyond the MoE and includes other relevant ministries; in line with the whole-of-government approach required for NBSAP. This approach is also encouraged by the CBD for national reports, which should be developed collaboratively across government agencies. The clearance mechanisms should therefore include consultative processes among government ministries and with stakeholders.



Tannourine Cedar Forest Nature Reserve

4. Form a Consultative Group for Lead Agencies on Indicators:

It is recommended to establish a consultative group of lead agencies responsible for the different indicators, which can include government entities, research institutions and possibly civil society organizations.

5. Establish a communication plan that is linked to – or is part of – the biodiversity monitoring system. For instance, a single webpage could be established where all biodiversity monitoring information is gathered (see also CBD CHM). Several proposed NAs also aim to enhance communication efforts.

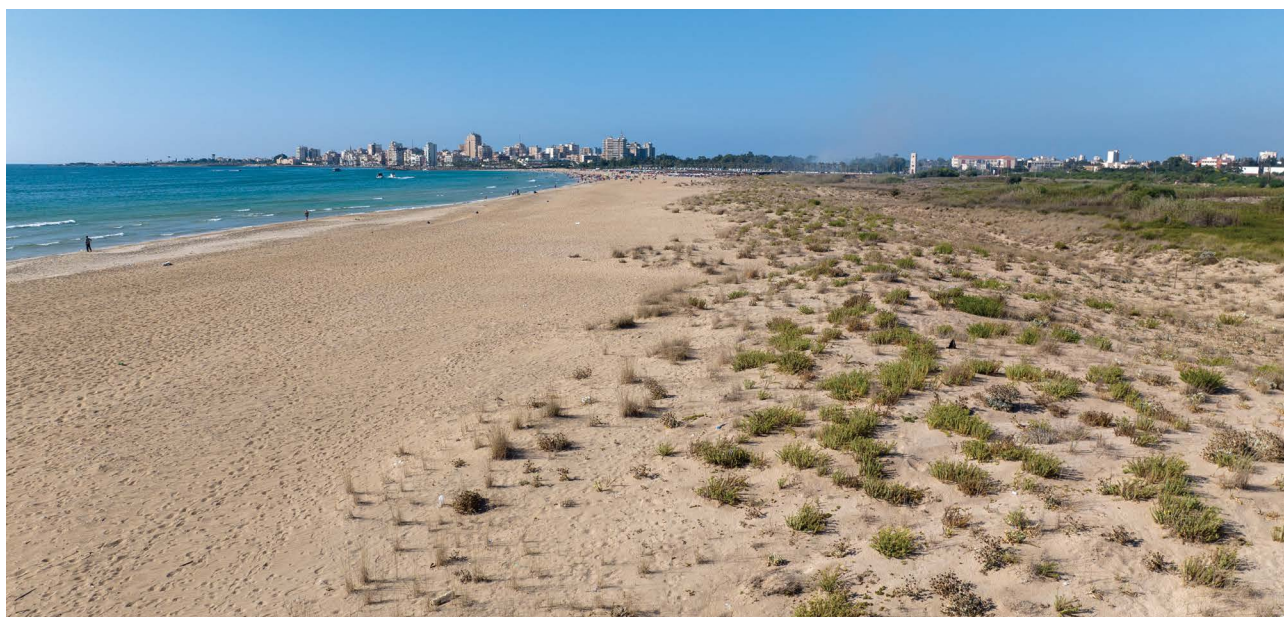
6. Identify baselines for each indicator, taking into account decision CBD COP 15/5, which states: “Decides to use the period from 2011–2020, where data is available, as the reference period, unless otherwise indicated, for reporting and monitoring progress in the implementation of the Kunming-Montreal GBF, while noting that baselines, conditions and periods used to express desirable states or levels of ambition in goals and targets should, where relevant, take into account historical

trends, current status, future scenarios of biodiversity and available information on the natural state”.

7. While the GBF requires a stronger focus on indicators within the monitoring framework, Lebanon should **build on its 5th and 6th National Reports** by providing illustrative background on its biodiversity-related efforts. Indicators should not come at the expense of explaining the situation and detailing developments related to the respective NT/NA.

8. As basis for the national monitoring system action plan, **assess the existing capacities for biodiversity monitoring** within government, academia and NGOs, and identify gaps that can be addressed over the coming years. International funding may be sought to support this endeavor; the gaps identified in this document together with the proposed list of indicators, could be used for this purpose.

9. Launch and communicate the establishment of the national biodiversity monitoring system. This provides an opportunity to recognize achievements and generate attention towards the importance of biodiversity monitoring.



Tyre Coast Nature Reserve

5.8 Managing the Monitoring System

Once the national biodiversity monitoring system is established, the following tasks will require continuous or periodic monitoring:

- **Keep the set of indicators under review** by verifying that the indicators are still relevant, exploring opportunities for new indicators, and checking for changes in lead agencies or other indicator specifications. The set of indicators may also require updates in response to global developments, such as the adoption of new indicators by the CBD, the emergence of new tools or global datasets, or progress at the national level.
- **Keep track of global developments.** As global datasets and tools continue to evolve, periodically revise the list of global data sets and assess the availability of global data. If possible and necessary, it may be helpful to update the list of national indicators by adding new ones or omitting those that are no longer feasible to maintain.
- **Fulfill reporting requirements** by ensuring compliance with reporting conditions under multilateral environmental agreements, and by tracking these requirements early on. Identify potential synergies where similar data can be provided across multiple national reports. Also, assess whether global tools such as the UN Biodiversity Lab or UNEP's Data and Reporting Tool (DaRT) could be used.
- **Convene the consultative group at regular intervals** to assess progress and ensure alignment among lead agencies engaged in biodiversity monitoring and indicator development.
- **Identify opportunities for communicating** the system and its results to policymakers, civil society organizations, businesses, and other stakeholders. Several NAs related to

awareness campaigns can potentially be discussed by the consultative group.

- **Identify needs for capacity-building, resources, and/or strengthened cooperation** arising from the implementation of various national targets, actions, and indicators. Conduct a comprehensive evaluation of current biodiversity monitoring capabilities across government, academia, and NGOs to pinpoint gaps that require attention in the coming years. Where appropriate, explore opportunities for international funding to support these efforts, using the identified gaps and proposed indicators—including those present in this document—as justification.
- **Explore the potential for monitoring and implementation support projects**, including international projects, based on communication opportunities or capacity-building needs identified by the consultative group and the lead agencies.



Ammiq Wetlands

Table 5-1 includes the proposed indicators for the national targets and national actions. The list incorporates headlines, components, and complementary indicators. In many cases, proposed national indicators have been added to cover the full scope of national targets and actions. Please refer to Appendix C for the detailed specifications for each indicator.

Table 5-1: National Target, Relevant GBF Goals and Target, National Action, Relevant Indicator, Responsible Party, Timeline, and Cost

National Target 1: By 2030, ensure that at least 20% of all natural ecosystems outside Protected Areas (PAs) are under participatory, integrated, and biodiversity-inclusive spatial planning and/or effective management processes, addressing land- and sea-use change, as well as bringing biodiversity loss close to zero in areas of high biodiversity importance and ecosystems of high ecological integrity, while respecting the rights of local communities.			
Relevant GBF Goals and Target	National Action	Indicator	
Goal A Goal B Global target 1	National Target 1	Headline Indicators: HI A.1 IUCN Red list Index of Ecosystems HI A.2 Extent of natural ecosystems HI 1.1 Biodiversity in spatial planning	
	National Action 1.1: Establish clear criteria for identifying and mapping areas under sustainable forestry, fisheries, artificial reefs, grazing, and agriculture, as well as areas in need of sustainable management.	National Indicator: <i>Binary</i> : Criteria for identifying and mapping areas in need of sustainable management established.	
	National Action 1.2: Based on Land Use/Land Cover and Marine Spatial Plan (MSP) databases alongside other sources, and in accordance with the criteria identified under NA 1.1, identify and map the extent and spatial distribution of areas under sustainable forestry, fisheries, artificial reefs, grazing, and agriculture, as well as areas in need of sustainable management.	National Indicator: <i>Percentage</i> : Proportion of Lebanon's total ecosystem area—derived from Land Use/Land Cover (LULC) and Marine Spatial Plan (MSP) databases—that is identified as requiring sustainable management interventions.	
	National Action 1.3: Develop a Marine Spatial Plan (MSP) for Lebanese territorial waters, based on scientific assessments and participatory approaches.	Headline Indicator: HI 1.B Marine spatial planning.	
	National Action 1.4: Identify marine areas of high biodiversity importance, including ecosystems of high ecological integrity outside protected areas.	National Indicator: <i>percentage</i> : Share of marine area with high biodiversity importance outside protected areas.	

	Responsibility (ies) for the Implementation of the National Action	Timeline		Estimated Cost for the Implementation of the National Action (USD)
		Start Date	End Date	
	Lead: MoE Others: MoA, research institutions, academic institutions, private and public sectors	2026	2026	10,000.00
	Lead: MoE Others: MoA, CAS, CNRS, OMSAR, CDR, academic Institutions, research Institutions.	2026	2026	300,000.00
	Lead: MoE Others: Research centers, Academic institutions, Public and private sectors, IUCN, Other similar NGOs	2026	2027	500,000.00
	Lead: CNRS Others: MoE, MoA, LARI	2026	2027	1,000,000.00

National Target 1: By 2030, ensure that at least 20% of all natural ecosystems outside Protected Areas (PAs) are under participatory, integrated, and biodiversity-inclusive spatial planning and/or effective management processes, addressing land- and sea-use change, as well as bringing biodiversity loss close to zero in areas of high biodiversity importance and ecosystems of high ecological integrity, while respecting the rights of local communities.

Relevant GBF Goals and Target	National Action	Indicator	
	National Action 1.5: Inform concerned municipalities and their federations hosting identified areas of high biodiversity importance (such as KBAs and potential areas for conservation) to integrate these areas into existing or future Master Plans for each relevant municipality/region, while ensuring the participation of relevant stakeholders.	National Indicator: <i>percentage</i> : Share of village master plans with identified areas of high biodiversity importance (such as KBAs and potential areas for conservation).	
	National Action 1.6: Properly enforce and, where needed, update the legal framework related to the sustainable use of biodiversity resources outside Nature Reserves under the MoA mandate (e.g., forests, grasslands, fisheries, edible and medicinal plants, agrobiodiversity, etc.).	National Indicator: <i>number</i> : Number of legal instruments related to the sustainable use of biodiversity resources under the MoA mandate that have been updated, enforced, or effectively implemented, disaggregated by resource type (e.g., forests, grasslands, fisheries, edible and medicinal plants, agrobiodiversity, etc.).	
	National Action 1.7: Develop and/or update monitoring programs for areas of high biodiversity importance (e.g., Forest fires, land and coastal changes, violation, land and coastal degradation, etc.) for areas of high biodiversity importance, and ecosystems of high ecological integrity outside PAs while using a participatory approach for both terrestrial and aquatic environments.	National Indicator: <i>percentage</i> : Share of unprotected areas of high biodiversity importance and ecosystems of high ecological integrity that have monitoring programs outside PAs.	
	National Action 1.8: Disseminate existing guidelines on forest and rangeland management and conduct the necessary capacity-building for at least 30 technicians from the MoA, NGOs, and municipalities to implement management plans for their forests and rangeland resources.	National Indicator: <i>quantitative [count]</i> : Total number of technicians from the MoA, NGOs, and municipalities who received-capacity building on forest and rangeland management and the implementation of management plans.	

	Responsibility (ies) for the Implementation of the National Action	Timeline		Estimated Cost for the Implementation of the National Action (USD)
		Start Date	End Date	
	Lead: MoE Others: Municipalities	2026	2027	100,000.00
	Lead: MoA Others: MoE, Ministry of Justice, Research institutions, NGOs, Local municipalities	2026	2027	1,000,000.00
	Lead: MoE Others: CNRS, Research institutions, Local municipalities, Environmental NGOs, Academic institutions.	2026	2027	500,000.00
	Lead: MoA Others: MoE, Academic institutions, CNRS, FAO, Local municipalities, NGOs	2026	2027	200,000.00

National Target 1: By 2030, ensure that at least 20% of all natural ecosystems outside Protected Areas (PAs) are under participatory, integrated, and biodiversity-inclusive spatial planning and/or effective management processes, addressing land- and sea-use change, as well as bringing biodiversity loss close to zero in areas of high biodiversity importance and ecosystems of high ecological integrity, while respecting the rights of local communities.

Relevant GBF Goals and Target	National Action	Indicator	
	National Action 1.9: Map changes in land cover/land use and MSPs to track anthropogenic pressures and disturbance affecting adjacent natural ecosystems.	National Indicator: <i>binary</i> : Have changes in land cover/land use and Marine Spatial Plans (MSPs) been mapped.	
	National Action 1.10: Develop and implement sustainable forest and rangeland management plans in at least 10 communal lands outside PAs, in close collaboration between MoA and the local authorities.	National Indicator: <i>quantitative [count]</i> : Number of communal lands outside PAs where sustainable forest and rangeland management plans have been developed.	
		National Indicator: <i>percentage [percentage]</i> : Share of communal lands where sustainable forest and rangeland management plans have been implemented.	
	National Action 1.11: Create and/or update bathymetry maps of the Lebanese marine environment within territorial waters.	National Indicator: <i>quantified [percentage]</i> : Share of Lebanese territorial waters covered by bathymetry maps.	

National Target 2: By 2030, rehabilitation plans are implemented in at least 20% of degraded terrestrial, inland water, and marine and coastal ecosystems (including areas affected by the 2024 war), so that these ecosystems can safeguard the sustained delivery of ecosystem services and enhance ecological integrity and connectivity.

Relevant GBF Goals and Target	National Action	Indicator	
Goal A Goal B Global target 2	National Target 2	Headline Indicator: HI 2.1 Surface area under restoration for a) areas planned to be restored; b) areas currently under restoration; c) areas already restored.	

	Responsibility (ies) for the Implementation of the National Action	Timeline		Estimated Cost for the Implementation of the National Action (USD)
		Start Date	End Date	
	Lead: MoE, CNRS Others: MoA, Academic institutions, Research centers, Local municipalities	2026	2027	200,000.00
	Lead: MoA Others: Local municipalities, MoE, NGOs, FAO	2026	2028	1,000,000.00
	Lead: CNRS Others: MoE, Research institutions, Academic institutions, Private sector	2026	2028	1,000,000.00
	Responsibility (ies) for the Implementation of the National Action	Timeline		Estimated Cost for the Implementation of the National Action (USD)
		Start Date	End Date	

National Target 2: By 2030, rehabilitation plans are implemented in at least 20% of degraded terrestrial, inland water, and marine and coastal ecosystems (including areas affected by the 2024 war), so that these ecosystems can safeguard the sustained delivery of ecosystem services and enhance ecological integrity and connectivity.

Relevant GBF Goals and Target	National Action	Indicator	
	National Action 2.1: Prepare a national inventory of degraded sites by type and location (including areas affected by the 2024 war), and update and complete existing inventories.	Component Indicator: Proportion of land area degraded over total land area (adapted for Lebanon; corresponds to SDG indicator 15.3.1.	
		National Indicator: <i>quantified [percentage]</i> : Share of degraded areas covered by [updated] rehabilitation plans.	
	National Action 2.2: Develop a prioritization scheme based on socio-environmental criteria to identify sites in need of immediate intervention.	National Indicator: <i>quantified [percentage]</i> : Share of sites in the inventory that has been prioritized. The prioritization scheme should be developed (e.g., “high priority” vs. “low priority”).	
	National Action 2.3: Develop technical guidelines for the rehabilitation of different types of degraded sites and give them legally binding status.	National Indicator: binary: Technical guidelines for the rehabilitation of different types of degraded sites developed.	
	National Action 2.4: Develop new rehabilitation plans where they do not exist, or review existing ones, while ensuring that they align with the newly developed guidelines specified in NA 2.3.	Headline Indicator: HI 2.1 Area under restoration for: a) areas planned to be restored; b) areas currently under restoration; c) areas already restored.	
	National Action 2.5: Develop a master plan for the rehabilitation of different types of degraded sites that builds on existing master plans (e.g., quarry and dumpsite rehabilitation), ensuring that separate plans are clearly highlighted for terrestrial and marine degraded sites.	National Indicator: Share of prioritized degraded sites included in the national rehabilitation Master Plan for different types of degraded sites, for which funding has been secured.	

	Responsibility (ies) for the Implementation of the National Action	Timeline		Estimated Cost for the Implementation of the National Action (USD)
		Start Date	End Date	
	Lead: MoE Others: MoA, CAS, CNRS, CDR	2026	2027	1,000,000.00
	Lead: MoE Others: MoA, CAS, CNRS, OMSAR, CDR	2026	2026	10,000.00
	Lead: MoE Others: MoA, CNRS, National Council for Quarries	2026	2026	200,000.00
	Lead: MoE Others: MoA, CNRS, Universities	2027	2027	500,000.00
	Lead: MoE, MoA Others: CNRS, Universities	2028	2028	500,000.00

National Target 2: By 2030, rehabilitation plans are implemented in at least 20% of degraded terrestrial, inland water, and marine and coastal ecosystems (including areas affected by the 2024 war), so that these ecosystems can safeguard the sustained delivery of ecosystem services and enhance ecological integrity and connectivity.

Relevant GBF Goals and Target	National Action	Indicator	
	National Action 2.6: Designate selected degraded sites as pilot sites for research and development of effective rehabilitation methods. National Action 2.7: Undertake pilot rehabilitation in at least 20% of the key sites identified as per NA2.1 and NA2.2 based on the developed prioritization scheme. This should cover at least one site of each type, using scientifically validated, nature-based and sustainable practices, including: quarries, dumpsites, degraded forests, rangelands, riverbeds, wetlands, old terraces, submarine canyons, vermetid reefs, seagrass meadows, ports, artificial lakes, dam sites, sea-filled coastal areas, and aquaculture sites.	National Indicator: numerical: Number of pilot rehabilitation activities conducted in key sites.	

National Target 3: By 2030, at least 30% of natural terrestrial and inland water areas, and marine and coastal areas—especially areas of particular importance for biodiversity—are effectively conserved and managed through ecologically representative, well-connected, and equitably governed systems of protected areas and other effective area-based conservation measures, while recognizing and respecting the rights of local communities, including over their traditional territories.

Relevant GBF Goals and Target	National Action	Indicator	
Goal A Goal B Goal C Global target 3	National Target 3	Headline Indicator: HI 3.1 Protected Area and OECM coverage. Component Indicator: Percentage of a country or region covered by connected protected lands.	

	Responsibility (ies) for the Implementation of the National Action	Timeline		Estimated Cost for the Implementation of the National Action (USD)
		Start Date	End Date	
	Lead: MoE Others: Research Institutions, Universities, NGOs	2029	2030	1,000,000.00
	Lead: MoE Others: Universities, Municipalities, NGOs	2029	2029	5,000,000.00
	Responsibility (ies) for the Implementation of the National Action	Timeline		Estimated Cost for the Implementation of the National Action (USD)
		Start Date	End Date	

National Target 3: By 2030, at least 30% of natural terrestrial and inland water areas, and marine and coastal areas—especially areas of particular importance for biodiversity—are effectively conserved and managed through ecologically representative, well-connected, and equitably governed systems of protected areas and other effective area-based conservation measures, while recognizing and respecting the rights of local communities, including over their traditional territories.

Relevant GBF Goals and Target	National Action	Indicator	
Goal A Goal B Goal C Global target 3	National Target 3	Component Indicator: Protected Area Connectedness Index (PARC-Connectedness).	
		Component Indicator: Species Protection Index.	
		Complementary Indicator: Number of sites in Lebanon on the IUCN Green List of Protected and Conserved Areas.	
	National Action 3.1: Develop clear and standardized criteria for identifying natural and semi-natural areas of high biodiversity importance and high ecological value across the country that are suitable for conservation, based on international criteria where appropriate. These criteria should specifically focus on identifying ecosystems suitable for designation as PAs and OECMs.	National Indicator: <i>binary</i> : Have clear and standardized criteria for identifying natural and semi-natural areas of high biodiversity importance and high ecological value been developed?	
	National Action 3.2: Identify and map natural and semi-natural areas of high biodiversity importance and high ecological value, based on clear criteria (according to NA 3.1), to produce a tool for identifying the most suitable areas for the establishment of new PAs and for the declaration of OECMs.	National Indicator: <i>surface area</i> : - Surface area of sites that have been identified based on criteria (NA 3.1). - Surface area of identified potential OECMs and new PAs.	
		National Indicator: <i>binary</i> : Has a map of natural and semi-natural areas of high biodiversity importance and high ecological value—and of potential OECMs and new PAs—based on NA 3.1 been produced?	

	Responsibility (ies) for the Implementation of the National Action	Timeline		Estimated Cost for the Implementation of the National Action (USD)
		Start Date	End Date	
	Lead: MoE, MoA Others: Municipalities	2026	2027	25,000.00
	Lead: CNRS Others: MoA, MoE, LARI, Lebanese Army	2026	2027	500,000.00

National Target 3: By 2030, at least 30% of natural terrestrial and inland water areas, and marine and coastal areas—especially areas of particular importance for biodiversity—are effectively conserved and managed through ecologically representative, well-connected, and equitably governed systems of protected areas and other effective area-based conservation measures, while recognizing and respecting the rights of local communities, including over their traditional territories.

Relevant GBF Goals and Target	National Action	Indicator	
	National Action 3.3: Enforce regulations related to the management of Nature Reserves and increase the level of fines related to goods and services that are illegally harvested or extracted.	National Indicator: <i>qualified [index]</i> : Level of enforcement of regulations in Nature Reserves.	
	National Action 3.4: Engage with local communities and stakeholders to ensure that their rights, opinions (where relevant), and knowledge are integrated into the classification process for new PAs and OECMs.	National Indicator: <i>binary</i> : Have the rights, opinions (where relevant), and knowledge of local communities and stakeholders been integrated into the classification process of new PAs and OECMs?	
	National Action 3.5: Develop and regularly update management plans for all existing Nature Reserves, incorporating biodiversity conservation, community engagement, and sustainable use-strategies (in accordance with the NRs legislation). The management plans should be developed by the NRs committees and MoE, involving local communities and relevant stakeholders.	National Indicator: <i>quantified [percentage]</i> : Share of Nature Reserves with new or updated management plans.	
	National Action 3.6: Require each existing Nature Reserve to complete the Management Effectiveness Tracking Tool (METT) annually to assess and improve management effectiveness.	National Indicator: <i>quantified [percentage]</i> : Share of Nature Reserves that complete the METT.	
	National Action 3.7: Recruit and train qualified management teams for Nature Reserves, focusing on biodiversity conservation and community engagement.	National Indicator: <i>quantified [number]</i> : Number of NRs teams trained in biodiversity conservation and community engagement.	

	Responsibility (ies) for the Implementation of the National Action	Timeline		Estimated Cost for the Implementation of the National Action (USD)
		Start Date	End Date	
	Lead: MoE Others: Ministry of Justice (MoJ), Internal Security Forces (ISF)	2027	2028	100,000.00
	Lead: MoE Others: Local municipalities, NGOs, Research institutions, Community organizations	2026	2028	200,000.00
	Lead: MoE, NRs committees Others: Local municipalities, NGOs, Research institutions, Community organizations	2026	2031	2,000,000.00
	Lead: MoE, NRs committees Others: NGOs, Research institutions, Local municipalities, International organizations	2026	Ongoing	250,000.00
	Lead: MoE, NRs committees Others: NGOs, Local municipalities	2026	Ongoing	500,000.00

National Target 3: By 2030, at least 30% of natural terrestrial and inland water areas, and marine and coastal areas—especially areas of particular importance for biodiversity—are effectively conserved and managed through ecologically representative, well-connected, and equitably governed systems of protected areas and other effective area-based conservation measures, while recognizing and respecting the rights of local communities, including over their traditional territories.

Relevant GBF Goals and Target	National Action	Indicator	
	National Action 3.8: Secure the necessary equipment and infrastructure to support effective management and monitoring of NRs.	National Indicator: quantified [percentage]: NRs reporting that the necessary equipment and infrastructure are in place.	
	National Action 3.9: Identify and establish ecological corridors and connectivity between PAs.	National Indicator: number: Counts officially designated corridors between PAs. Component Indicator: Protected Area Connectedness Index (PARC-Connectedness).	

National Target 4: By 2030, the status of 25% of known flora and fauna species is identified, and conservation actions are implemented for at least 10 threatened species to significantly reduce extinction risk.

Relevant GBF Goals and Target	National Action	Indicator	
Goal A Goal B Global target 4	National Target 4	Headline Indicator: HI A.3 Red list index. National Indicator: Measures the number of threatened species (as defined by IUCN criteria) for which conservation actions have been implemented. Component Indicator: Number of (a) plant and (b) animal genetic resources for food and agriculture secured in medium- or long-term conservation facilities. Component Indicator: Proportion of local breeds classified as being at risk of extinction.	

	Responsibility (ies) for the Implementation of the National Action	Timeline		Estimated Cost for the Implementation of the National Action (USD)
		Start Date	End Date	
	Lead: MoE, NRs committees Others: International donors, Private sector, NGOs, Local municipalities	2026	2028	200,000.00
	Lead: MoE, CNRS Others: MoA, Local municipalities, NGOs, Research institutions	2026	2028	250,000.00

	Responsibility (ies) for the Implementation of the National Action	Timeline		Estimated Cost for the Implementation of the National Action (USD)
		Start Date	End Date	

National Target 4: By 2030, the status of 25% of known flora and fauna species is identified, and conservation actions are implemented for at least 10 threatened species to significantly reduce extinction risk.

Relevant GBF Goals and Target	National Action	Indicator	
	National Action 4.1: Update the biodiversity national inventory (Biodiversity Country Study) prepared by the Ministry of Agriculture (MoA), based on field surveys of fauna, flora, and fungi and recently completed studies, with separate sections for marine and terrestrial lists.	National Indicator: <i>percentage</i> : Share of flora and fauna species in the updated species inventory whose conservation has been evaluated according to the new global evaluation criteria.	
	National Action 4.2: Apply IUCN Red Listing to the identified species in the updated species inventory.	National Indicator: <i>quantitative + percentage</i> : This indicator measures the conservation status of species in the updated national species inventory by applying the IUCN Red List criteria. It documents the threat level (e.g., Critically Endangered, Endangered, Vulnerable, etc.) assigned to each species based on standardized assessment protocols. The goal is to provide a comprehensive and transparent evaluation of species' extinction risks to inform conservation priorities and policy actions.	
	National Action 4.3: Update and ensure the sustainability of the Flora of Lebanon platform for data storage and dissemination, including information on species distribution, uses, IUCN Red List status, and other relevant information.	National Indicator: <i>binary</i> : Has the Flora of Lebanon platform (http://www.lebanon-flora.org/) been updated and sustained, ensuring that it provides comprehensive data on species distribution, uses, IUCN Red List status, and other relevant information?	
	National Action 4.4: Develop guidelines and implement action plans to minimize human-wildlife interactions to reduce risk to, and restore and maintain the genetic diversity of, at least 10 threatened species.	National Indicator: <i>number</i> : Number of guidelines and/or action plans developed to minimize human-wildlife conflicts in Lebanon. National Indicator: <i>index</i> : Number of conservation actions implemented to minimize human-wildlife conflicts and threats and reduce risks to threatened species.	

	Responsibility (ies) for the Implementation of the National Action	Timeline		Estimated Cost for the Implementation of the National Action (USD)
		Start Date	End Date	
	Lead: MoA Others: MoE, CNRS, LARI, Academic Institutions, Research Centers	2026	2027	1,000,000.00
	Lead: MoE Others: Research institutions, Academic institutions, Public and private sectors, IUCN, Other similar NGOs	2026	2026	100,000.00
	Lead: MoE Others: MoA, Research institutions, Academic institutions, Private and public sectors	2026	2027	500,000.00
	Lead: MoE Others: Academic institutions, Experts with relevant technical and scientific background	2027	2028	200,000.00

National Target 5: By 2030, the genetic diversity of 40% of native fauna and flora (including endemic and economically important species) is conserved in-situ and ex-situ through sustainable management practices, to maintain their adaptive potential.

Relevant GBF Goals and Target	National Action	Indicator	
Goal A Goal B Goal C Global target 4	National Target 5	Headline Indicator: HI A.3 Red List Index.	
		Headline Indicator: HI A.4 Proportion of populations within species with an effective population size > 500.	
		Component Indicator: Proportion of local breeds classified as being at risk of extinction.	
	National Action 5.1: Identify native species of high conservation value, including economically important species, in the updated national species inventory referenced in National Action 4.1.	National Indicator: <i>binary</i> : Native species of high conservation value, including economically important species, have been identified and added to the updated national species inventory (referenced in National Action 4.1).	
	National Action 5.2: Develop national conservation strategies and regulations for at least 100 native species of high conservation value, prioritizing endemic species.	National Indicator: <i>count</i> : Number of native species of high conservation value covered by national conservation strategies and regulations.	
	National Action 5.3: Conduct monetary valuations (including social, cultural, and ecological values) of at least 30 native species of high conservation value.	National Indicator: <i>count</i> : Number of native species of high conservation value for which monetary valuations have been conducted.	

	Responsibility (ies) for the Implementation of the National Action	Timeline		Estimated Cost for the Implementation of the National Action (USD)
		Start Date	End Date	
	Lead: MoE, MoA Others: CNRS, Research institutions, Academic institutions, NGOs, Local experts	2026	2027	150,000.00
	Lead: MoE, MoA Others: Research and academic institutions, National and international organizations	2026	2027	500,000.00
	Lead: MoA Others: MoE, LARI, Research institutions, Public and private sectors.	2026	2026	500,000.00

National Target 6: Ensure that the use, harvesting, and trade of wild species are sustainable, safe, and legal, preventing overexploitation, minimizing impacts on non-target species and ecosystems, and reducing the risk of pathogen spillover by applying the ecosystem approach, while respecting and protecting customary sustainable use by indigenous people and local communities.

Relevant GBF Goals and Target	National Action	Indicator	
Goal A Goal B Goal C Global target 5	National Target 6	Headline Indicator: HI 5.1 Status of fish stocks.	
		Complementary Indicator: Progress by Lebanon in the degree of implementation of international instruments aiming to combat illegal, unreported, and unregulated fishing.	
		Complementary Indicator: Biodiversity-based trade, growth rates.	
	National Action 6.1: Develop and implement mechanisms and enact legislation to reduce the risk of pathogen spillovers from terrestrial and marine farming activities.	National Indicator: <i>descriptive</i> : Description of legal and other measures taken to reduce the risk of pathogen spillover from farming activities.	
	National Action 6.2: Develop and enact laws aimed at implementing CITES and other international conventions related to the harvesting and trade of wild species.	National Indicator: <i>binary</i> : Is legislation regulating the harvesting and trade of wild species in force?	
	National Action 6.3: Develop, based on scientific assessments, "Fishing Year" guidelines for the fisheries sector that include a set of regulations and/or recommendations defining seasons and practices for a particular year.	National Indicator: <i>binary</i> : Have the guidelines for the fisheries sector been developed?	
	National Action 6.4: Conduct capacity-building for relevant public institutions (MoA Forest guards and quarantine services, PA rangers, custom services, border security forces, municipal police, etc.) on national and international regulations related to the harvesting and trade of wild species, as well as on species protected or regulated nationally and internationally (IUCN Red List, CITES and other international conventions), in order to strengthen enforcement of related laws and guidelines.	National Indicator: <i>count</i> : Number of staff from relevant public institutions trained in national and international regulations related to the harvesting and trade of wild species, to enhance enforcement of related laws and guidelines.	

	Responsibility (ies) for the Implementation of the National Action	Timeline		Estimated Cost for the Implementation of the National Action (USD)
		Start Date	End Date	
	Lead: MoE Others: MoA, CNRS, Academic Institutions, Research Institutions	2026	2027	250,000.00
	Lead: MoE Others: MoA, MoJ, ISF, IUCN, Environmental NGOs	2026	2026	100,000.00
	Lead: MoA Others: MoE, CNRS, Research Institutions, Fishermen's Syndicates	2027	2027	100,000.00
	Lead: MoA, MoE Others: Customs Directorate, ISF, Academic institutions, NGOs, International organizations	2026	2028	250,000.00

National Target 6: Ensure that the use, harvesting, and trade of wild species are sustainable, safe, and legal, preventing overexploitation, minimizing impacts on non-target species and ecosystems, and reducing the risk of pathogen spillover by applying the ecosystem approach, while respecting and protecting customary sustainable use by indigenous people and local communities.

Relevant GBF Goals and Target	National Action	Indicator	
Goal A Goal B Goal C Global target 5	National Action 6.5: Conduct assessments of current harvesting practices of terrestrial wild species to identify unsustainable methods and species overexploitation and establish guidelines—endorsed by the MoA—for the sustainable harvesting and trade of terrestrial wild species. These guidelines should focus on maintaining population viability and minimizing impacts on non-target species and ecosystems.	National Indicator: <i>quantified [percentage]</i> + descriptive: The percentage of assessed harvesting practices identified as unsustainable, based on scientific assessment. National Indicator: <i>binary</i> : Have guidelines for the sustainable harvesting and trade of targeted terrestrial wild species been developed? Have these guidelines been endorsed by the MoA?	
	National Action 6.6: Develop protocols for sustainable use of endemic species affected by overexploitation, based on the most recent list of endemic species.	National Indicator: count: Number of protocols developed for the sustainable use of endemic species affected by overexploitation, based on the most recent list of endemic species.	

National Target 7: By 2030, effective measures are in place to limit the introduction and diffusion of Invasive Alien Species (IAS).

Relevant GBF Goals and Target	National Action	Indicator	
Goal A Goal B Global target 6	National Target 7	Headline Indicator: HI 6.1 Rate of invasive alien species establishment.	
	National Action 7.1: Support ongoing efforts to establish a register of IAS reported in terrestrial and aquatic ecosystems in Lebanon. This register should be considered a live document and to be updated whenever new IAS are identified.	Headline Indicator: HI 6.1 Rate of invasive alien species establishment.	

	Responsibility (ies) for the Implementation of the National Action	Timeline		Estimated Cost for the Implementation of the National Action (USD)
		Start Date	End Date	
	Lead: MoA, MoE Others: Research institutions, Academic institutions, NGOs, Local communities	2026	2028	500,000.00
	Lead: MoA, MoE Others: Academic institutions, Research institutions, NGOs	2026	2027	250,000.00
	Responsibility (ies) for the Implementation of the National Action	Timeline		Estimated Cost for the Implementation of the National Action (USD)
		Start Date	End Date	
	Lead: MoE, MoA Others: CNRS, Research Institutions	2026	2027	200,000.00

National Target 7: By 2030, effective measures are in place to limit the introduction and diffusion of Invasive Alien Species (IAS).

Relevant GBF Goals and Target	National Action	Indicator	
	National Action 7.2: Develop an awareness campaign about invasive species to educate on the proliferation and impacts of identified IAS.	National Indicator: <i>binary</i> : Has an awareness campaign been developed and implemented to educate stakeholders on the proliferation and impacts of identified IAS?	
	National Action 7.3: Provide technical, operational, and financial support to quarantine, customs, and border security forces to regulate the import of species for crops, landscape, aquaculture, domesticated animals, and aquarium trade sectors, to avoid genetic pollution of local species and genotypes.	National Indicator: <i>descriptive</i> : This indicator describes the technical, operational, and financial support provided to quarantine, customs, and border security forces to regulate the import of species in the agricultural, landscape, reforestation, aquaculture, and aquarium trade sectors. It focuses on measures taken to avoid genetic pollution of local species and genotypes (qualitative assessment based on the measures implemented and support provided, as well as outcomes in terms of improved regulation and enforcement).	

	Responsibility (ies) for the Implementation of the National Action	Timeline		Estimated Cost for the Implementation of the National Action (USD)
		Start Date	End Date	
	Lead: MoE, MoA Others: CNRS, NGOs, Academic institutions, Media outlets, Municipalities.	2026	2027	100,000.00
	Lead: MoA, Customs Directorate Others: MoE, Border Security Forces, Research institutions	2027	2028	250,000.00

National Target 8: By 2030, reduce pollution and the negative impacts of pollution, to levels that are not harmful to biodiversity and ecosystem functions and services, considering cumulative effects, including: (a) reducing excess nutrients lost to the environment; (b) reducing the overall risk from pesticides and highly hazardous chemicals; and (c) reducing, and working toward better management of, plastic pollution.

Relevant GBF Goals and Target	National Action	Indicator	
Goal A Goal B Global target 7	National Target 8	Headline Indicator: HI 7.1 Index of coastal eutrophication potential.	
		Headline Indicator: HI 7.2 Aggregated Total Applied Toxicity.	
		Component Indicator: Cropland nutrient budget.	
		Complementary Indicator: Pesticide use per area of cropland.	
	National Action 8.1: Enhance knowledge on nutrient management and integrated pest management, through public awareness and targeted training. These activities should emphasize the impacts of these nutrients on surrounding environments, the consequences of pesticide misuse, and the use of biopesticides and safer alternatives.	National Indicator: <i>percentage</i> : Percentage of surveyed stakeholders reporting increased knowledge about nutrient management and integrated pest management and use.	
	National Action 8.2: Develop and implement a national strategy related to nutrient management, to prevent excess loss into the environment. This should consider both point and non-point sources of excess nutrients (fertilizers, lost feed in aquaculture, etc.).	National Indicator: <i>binary</i> : Has a national nutrient management strategy been developed?	
		National Indicator: <i>percentage</i> : descriptive: Describes the implementation of the national nutrient management strategy to reduce excess nutrient loss into the environment, focusing on actions targeting both point and non-point sources.	

	Responsibility (ies) for the Implementation of the National Action	Timeline		Estimated Cost for the Implementation of the National Action (USD)
		Start Date	End Date	
	Lead: MoE, MoA Others: NGOs	2026	2027	200,000.00
	Lead: MoA Others: MoE, LARI, Farmers' associations	2026	2028	100,000.00

National Target 8: By 2030, reduce pollution and the negative impacts of pollution, to levels that are not harmful to biodiversity and ecosystem functions and services, considering cumulative effects, including: (a) reducing excess nutrients lost to the environment; (b) reducing the overall risk from pesticides and highly hazardous chemicals; and (c) reducing, and working toward better management of, plastic pollution.

Relevant GBF Goals and Target	National Action	Indicator	
	National Action 8.3: Develop and implement a national strategy related to managing pesticides, fungicides, herbicides, and antibiotics and preventing their excessive introduction into the environment. This should consider both the point and non-point sources of pollution.	National Indicator: <i>binary</i> : Has a national pesticide and chemical management strategy been developed?	
		National Indicator: <i>descriptive</i> : Describes the implementation of the national strategy to manage pesticides, fungicides, herbicides, and antibiotics and prevent their excessive introduction into the environment. Focuses on actions targeting both point and non-point sources.	
	National Action 8.4: Monitor pollutant levels in ecosystems of high conservation value (coastal areas, river mouths, rivers, wetlands, water springs) to identify areas that require priority action.	National Indicator: <i>count</i> : Number of ecosystems of high conservation value where pollutant levels have been monitored.	
	National Action 8.5: In areas of priority action identified under NA 8.4, conduct capacity-building for polluters and local authorities to define measures to mitigate, reduce, or, where possible, eliminate pollution levels.	National Indicator: <i>count</i> : Number of polluters and local authority representatives trained on pollution mitigation measures in areas of priority action identified under NA 8.4.	
	National Action 8.6: Improve the technical infrastructure of the MoA, CNRS, and LARI to support the monitoring of pollution and chemical imports.	National Indicator: <i>binary</i> : Has the technical infrastructure of the MoA, CNRS, and LARI been improved to enable effective monitoring of pollution and chemical imports.	

	Responsibility (ies) for the Implementation of the National Action	Timeline		Estimated Cost for the Implementation of the National Action (USD)
		Start Date	End Date	
	Lead: MoA Others: MoE, LARI, Farmer's associations	2026	2028	100,000.00
	Lead: MoE Others: MoA, LARI, Research institutions, NGOs	2026	2027	500,000.00
	Lead: MoE, MoA Others: Local Municipalities, Environmental NGOs	2026	2028	200,000.00
	Lead: MoA, CNRS, LARI Others: MoE, Customs Directorate, International donors	2026	2028	500,000.00

National Target 8: By 2030, reduce pollution and the negative impacts of pollution, to levels that are not harmful to biodiversity and ecosystem functions and services, considering cumulative effects, including: (a) reducing excess nutrients lost to the environment; (b) reducing the overall risk from pesticides and highly hazardous chemicals; and (c) reducing, and working toward better management of, plastic pollution.

Relevant GBF Goals and Target	National Action	Indicator	
	National Action 8.7: Update pesticide regulations and strengthen enforcement by banning hazardous chemicals from entering the market, in line with the GFC targets and guidelines.	National Indicator: <i>Number</i> : Increase in the number of hazardous chemicals/pesticides that are banned.	
	National Action 8.8: Reduce and prevent plastic pollution through the implementation of the National Integrated Solid Waste Management Strategy, while raising awareness of the impacts of plastic pollution on surrounding habitats.	National Indicator: <i>number + description</i> : Increase in economic instruments applied as part of the National Integrated Solid Waste Management Strategy.	
	National Action 8.9: Assess the impact of pollution–phosphorus– resulting from the 2024 war on natural (terrestrial, fresh water, and marine) and agricultural areas affected by the 2024 war.	National Indicator: <i>quantitative</i> : Number of assessments conducted to evaluate the impact of pollution, with an emphasis on phosphorus, on natural (terrestrial, freshwater, and marine) and agricultural areas affected by the 2024 war.	
	National Action 8.10: Identify and map sources of marine litter in coastal and marine environments and develop management plans.	National Indicator: <i>binary</i> : Have management plans for marine litter in coastal and marine environments been developed?	

	Responsibility (ies) for the Implementation of the National Action	Timeline		Estimated Cost for the Implementation of the National Action (USD)
		Start Date	End Date	
	Lead: MoA Others: MoE, CNRS, LARI, Customs Directorate, FAO	2026	2028	100,000.00
	Lead: MoE Others: Municipalities, Environmental NGOs	2026	2030	300,000.00
	Lead: MoE, CNRS, MoA Others: LARI, Research institutions, NGOs, International organizations	2026	2027	500,000.00
	Lead: MoE Others: Research centers, academic institutions	2026	2028	500,000.00

National Target 9: By 2030, identify ecosystems vulnerable to climate change, minimize the impacts of climate change on biodiversity, and increase its resilience, through mitigation, adaptation, and disaster risk reduction actions. This includes nature-based solutions and/or ecosystem-based approaches, while minimizing negative and fostering positive impacts of climate action on biodiversity.

Relevant GBF Goals and Target	National Action	Indicator	
Goal A Goal B Global target 8	National Target 9	Headline Indicator: HI 8.b Lebanon has developed, adopted, or implemented policies and/or management plans and action plans to minimize the impact of climate change and ocean acidification on biodiversity, and to minimize negative and foster positive impacts of climate action on biodiversity. □ Indicator measuring the number of management plans developed and/or other measures taken.	
	National Action 9.1: Conduct comprehensive assessments of the vulnerabilities of terrestrial, coastal, and marine ecosystems to climate change, identifying key risks and adaptation needs.	National Indicator: binary: Have comprehensive assessments of the vulnerabilities of terrestrial, coastal, and marine ecosystems to climate change—identifying key risks and adaptation needs—been conducted?	
	National Action 9.2: Monitor, assess and document the impact of climate change on species and their habitats by generating species prediction distribution models under future climate scenarios for at least 50 native species, with a focus on species of high conservation and economic value.	National Indicator: <i>quantitative</i> : Number of native species for which prediction distribution models have been generated under future climate scenarios, with a focus on species of high conservation and economic value.	

	Responsibility (ies) for the Implementation of the National Action	Timeline		Estimated Cost for the Implementation of the National Action (USD)
		Start Date	End Date	
	Lead: MoE (Climate Change Unit) Others: MoA, Research institutions, Academic institutions, NGOs, International organizations (e.g., UNEP, IUCN), Local municipalities	2026	2028	500,000.00
	Lead: MoE, CNRS Others: MoA, Research institutions, Academic institutions, IUCN, NGOs, International donors.	2026	2029	500,000.00

National Target 9: By 2030, identify ecosystems vulnerable to climate change, minimize the impacts of climate change on biodiversity, and increase its resilience, through mitigation, adaptation, and disaster risk reduction actions. This includes nature-based solutions and/or ecosystem-based approaches, while minimizing negative and fostering positive impacts of climate action on biodiversity.

Relevant GBF Goals and Target	National Action	Indicator	
	National Action 9.3: Develop adaptation plans to mitigate the impact of climate change on at least five vulnerable natural ecosystems identified in NA9.1, with special emphasis on species of high conservation value identified under NA5.1. In addition, implement at least two conservation and restoration projects aimed at enhancing biodiversity resilience in the targeted ecosystems.	Headline Indicator: HI 8.b Lebanon has developed, adopted or implemented policies and/or management plans/action plans to minimize the impact of climate change and ocean acidification on biodiversity, and to minimize negative impacts and foster positive impacts of climate action on biodiversity. Indicator measuring management plans developed and/or other measures taken.	
		National Indicator: <i>quantified [percentage]</i> : Extent of sea-level rise.	
	National Action 9.4: Develop a relative sea level rise prediction model specific for the Lebanese coast to evaluate the effect of sea level rise on the marine coastal zone.	National Indicator: <i>binary</i> : Has a model predicting the effects of relative sea-level rise been developed?	

National Target 10: By 2030, ensure that the management and use of at least 10 wild-used species are sustainable, thereby providing social, economic, and environmental benefits for people—especially those in vulnerable situations and those most dependent on biodiversity. This includes sustainable biodiversity-based activities, products, and services that enhance biodiversity, while protecting and encouraging customary sustainable use by local communities.

Relevant GBF Goals and Target	National Action	Indicator	
Goal A	National Target 10	Headline Indicator: HI 9.1 Benefits from the sustainable use of wild species.	
Goal B		Headline Indicator: HI 9.2 Percentage of the population in traditional occupations.	
Global target 9		National Indicator: Number of wild-used species that are sustainably used.	

	Responsibility (ies) for the Implementation of the National Action	Timeline		Estimated Cost for the Implementation of the National Action (USD)
		Start Date	End Date	
	Lead: MoE (Climate Change Unit) Others: MoA, Municipalities, MoIM, CNRS, Environmental NGOs	2026	2028	5,000,000.00
	Lead: MoE Others: CNRS, Research Institutions, Academic Institutions	2026	2028	300,000.00
	Responsibility (ies) for the Implementation of the National Action	Timeline		Estimated Cost for the Implementation of the National Action (USD)
		Start Date	End Date	

National Target 10: By 2030, ensure that the management and use of at least 10 wild-used species are sustainable, thereby providing social, economic, and environmental benefits for people—especially those in vulnerable situations and those most dependent on biodiversity. This includes sustainable biodiversity-based activities, products, and services that enhance biodiversity, while protecting and encouraging customary sustainable use by local communities.

Relevant GBF Goals and Target	National Action	Indicator	
	National Action 10.1: Identify, map, and prioritize wild-used species of high economic value, including forage species and other valuable species.	National Indicator: Distribution Maps of Wild Species of High Economic Value.	
		National Indicator: This indicator tracks the number of geospatial distribution maps produced for wild species identified as having high economic value. These maps illustrate species' occurrence, range, and habitat characteristics, and serve as essential tools for conservation planning, sustainable use, and policymaking.	
	National Action 10.2: Prioritize populations of representative wild-used species of high economic value and/or species that are endangered or highly exploited, to be designated as Genetic Conservation Units (GCU).	National Indicator: <i>quantified [number]</i> : Number of wild-used species of high economic value for which populations have been prioritized for designation as GCUs.	
	National Action 10.3: Establish a robust knowledge-sharing system on ethnobotanic agrobiodiversity among relevant ministries, research institutes, and major commercial users.	National Indicator: <i>binary</i> : Has a robust official knowledge-sharing system on ethnobotanic agrobiodiversity been established within the MoA?	
		National Indicator: <i>quantified [number]</i> : Number of research institutes and major commercial users using the system.	
	National Action 10.4: Develop and implement sustainable management plans for GCUs.	National Indicator: percentage: Share of GCUs covered by sustainable management plans.	

	Responsibility (ies) for the Implementation of the National Action	Timeline		Estimated Cost for the Implementation of the National Action (USD)
		Start Date	End Date	
	Lead: MoE Others: CNRS, Research centers	2026	2027	300,000.00
	Lead: MoA Others: MoE, CNRS, Research institutions, Academic institutions, NGOs	2026	2027	100,000.00
	Lead: MoE, MoA Others: CNRS, LARI, Research institutions, Academic institutions, Farmers' associations, NGOs	2026	2028	200,000.00
	Lead: MoA Others: MoE, CNRS, LARI, Research institutions, NGOs	2026	2028	500,000.00

National Target 10: By 2030, ensure that the management and use of at least 10 wild-used species are sustainable, thereby providing social, economic, and environmental benefits for people—especially those in vulnerable situations and those most dependent on biodiversity. This includes sustainable biodiversity-based activities, products, and services that enhance biodiversity, while protecting and encouraging customary sustainable use by local communities.

Relevant GBF Goals and Target	National Action	Indicator	
	National Action 10.5: Test ex-situ propagation and/or breeding of wild-used species in MoA nurseries and other nurseries and research institutes, in collaboration with the MoA, universities, and the private sector, and disseminate to local users.	National Indicator: quantitative: Number of wild-used species that have undergone testing for ex-situ propagation or breeding in nurseries and research institutes, in collaboration with the MoA, universities, and the private sector.	

National Target 11: Ensure that areas under agriculture, aquaculture, fisheries, and forestry are managed sustainably—in particular through the sustainable use of biodiversity—thereby contributing to the resilience, long-term efficiency, and productivity of these production systems, as well as to food security, while conserving and restoring biodiversity and maintaining nature’s contributions to people, including ecosystem functions and services.

Relevant GBF Goals and Target	National Action	Indicator	
Goal A Goal B Global target 10	National Target 11	Headline Indicator: HI 10.1 Proportion of agricultural area under productive and sustainable agriculture.	
		Headline indicator: HI 10.2 Share of forest area managed in accordance with the UN’s sustainable forest management (SFM) definition.	
		Component Indicator: Average income of small-scale food producers, by sex and indigenous status.	
		Complementary Indicator: Agrobiodiversity Index.	
	National Action 11.1: Mainstream locally produced released cultivars and local native rootstocks varieties and seeds into national agricultural strategies and action plans and focus on the use of local accessions in breeding programs.	National Indicator: <i>quantitative</i> : Number of locally produced released cultivars and native rootstock varieties and seeds integrated into national agricultural strategies, including breeding programs and action plans.	

National Target 11: Ensure that areas under agriculture, aquaculture, fisheries, and forestry are managed sustainably—in particular through the sustainable use of biodiversity—thereby contributing to the resilience, long-term efficiency, and productivity of these production systems, as well as to food security, while conserving and restoring biodiversity and maintaining nature’s contributions to people, including ecosystem functions and services.

Relevant GBF Goals and Target	National Action	Indicator	
	National Action 11.2: Mainstream sustainable agriculture production systems into national agricultural strategies and action plans, including: organic farming, agroecology, agroforestry, the use of climate smart crops, crop rotation, conservation agriculture, agriculture and forest waste management, terracing, reuse of treated wastewater, efficient irrigation systems, use of rainfed crops, etc.	National Indicator: <i>binary</i> : Have sustainable agriculture production systems been integrated into national agricultural strategies and action plans?	
	National Action 11.3: Mainstream sustainable fisheries and aquaculture—using native, naturalized and acclimatized species—into national agricultural strategies and action plans, based on needs assessment and SWOT analysis.	National Indicator: <i>binary</i> : Have sustainable fisheries and aquaculture developed been integrated into national agricultural strategies and action plans?	
	National Action 11.4: Mainstream biodiversity conservation and sustainable forestry into related national forestry strategies and action plans.	National Indicator: <i>binary</i> : Have national forestry strategies and action plans integrated biodiversity conservation and sustainable forestry?	
	National Action 11.5: Develop sustainably managed national hatcheries for aquaculture species (freshwater and marine).	National Indicator: quantitative: Number of sustainably managed national hatcheries for aquaculture species developed.	
	National Action 11.6: Develop a market for national feedstock production for the aquaculture sector and/or use existing markets.	National Indicator: <i>binary</i> : Has a market for national feedstock production been established?	

	Responsibility (ies) for the Implementation of the National Action	Timeline		Estimated Cost for the Implementation of the National Action (USD)
		Start Date	End Date	
	Lead: MoA Others: MoE, LARI, FAO, Research institutions, Farmers' associations.	2026	2029	300,000.00
	Lead: MoA Others: Research institutions, Fishermen's syndicates,	2026	2028	300,000.00
	Lead: MoE, MoA Others: LARI, Research institutions, Local municipalities	2026	2028	300,000.00
	Lead: MoA Others: CNRS, Research institutions, Fishermen's syndicates	2026	2029	1,000,000.00
	Lead: MoA Others: Fishermen's syndicates, Research institutions	2026	2028	500,000.00

National Target 12: By 2030, restore, maintain and enhance nature's contributions to people, including ecosystem functions and services, such as the regulation of air, water and climate, soil health, pollination and reduction of disease risk, as well as protection from natural hazards and disasters. This should be achieved through nature-based solutions and/or ecosystem-based approaches, for the benefit of all people and nature.

Relevant GBF Goals and Target	National Action	Indicator	
Goal A	National Target 12	Headline Indicator: HI B.1 Ecosystem services.	
Goal B			
Global target 11	National Action 12.1: Assess ecosystem functions and services in representative protected areas across various ecosystems (covering at least three types of ecosystems).	National Indicator: Assessment of ecosystem services. National Indicator: <i>quantitative [percentage]</i> : Share of protected areas in which an ecosystem services assessment has been undertaken. See also HI B.1	
	National Action 12.2: Promote the adoption of nature-based solutions to mitigate natural hazards and enhance ecosystem services through scientifically validated practices (e.g., creation of artificial reefs, artificial ponds and wetlands, restoration of degraded corridors, etc.).	National Indicator: <i>quantitative [number] + description</i> : Number of initiatives promoting nature-based solutions for mitigating natural hazards.	
	National Action 12.3: Collaborate with the MoA, Green Plan, LARI and local NGOs to maintain agrobiodiversity, climate- and hazard-resilient wild-crop relatives and native species in ecosystem restoration, agroforestry, and crop selections in agriculture, targeting at least 50 hectares.	National Indicator: <i>number + descriptive</i> : Actions undertaken by the MoA to mainstream agrobiodiversity, wild-crop relatives and native species (that are resistant to climate change) in ecosystem restoration, agroforestry, crop selections in agriculture, and aquaculture.	

	Responsibility (ies) for the Implementation of the National Action	Timeline		Estimated Cost for the Implementation of the National Action (USD)
		Start Date	End Date	
	Lead: MoE Others: CNRS, Research centers	2026	2027	800,000.00
	Lead: MoE Others: MoA, CNRS, Research centers, NGOs	2026	2028	300,000.00
	Lead: MoA Others: MoE, LARI, CNRS, Academic Institutions, NGOs	2027	2029	300,000.00

National Target 13: Conserve the area, quality, connectivity, and accessibility of—and benefits from—green and blue spaces in urban and densely populated areas (design and conserve urban areas) , by mainstreaming the conservation and sustainable use of biodiversity, and ensuring biodiversity-inclusive urban planning, that enhances native biodiversity, ecological connectivity, and integrity, improves human health and well-being and connection to nature, and contributes to inclusive and sustainable urbanization and the provision of ecosystem functions and services.

Relevant GBF Goals and Target	National Action	Indicator	
Goal A Goal B Goal C	National Target 13	Headline Indicator: HI 12.1 Share of the built-up area of cities that is green/blue space for public use for all.	
Global target 12	National Action 13.1: Update existing legislation to conserve green spaces by reducing the development rate in urban expansion zones.	National Indicator: <i>quantitative [percentage]</i> : Measures the effectiveness of legislation in conserving green spaces by tracking the percentage change in the surface area of green urban spaces within urban expansion zones.	
	National Action 13.2: Establish guidelines for implementing new tested technologies for urban green space in urban areas—such as green rooftops, vertical rooftops, raised beds, green walls, etc.—using native species.	National Indicator: <i>binary</i> : Have guidelines for urban green spaces been established?	
	National Action 13.3: Update urban plans for major cities to incorporate green spaces and parks in urban settings, and to increase shaded areas near buildings and in open spaces by planting trees (native species) and constructing green roofs and walls.	National Indicator: <i>quantitative [percentage]</i> : Share of urban plans that have been updated according to the Urban Green Spaces guidelines.	
		National Indicator: <i>quantitative [ha]</i> : Surface area of urban areas covered by urban plans.	
	National Action 13.4: Adopt new national guidelines for urban forestry/greenery.	National Indicator: <i>binary</i> : Have new national guidelines for urban forestry/greenery been adopted.	
	National Action 13.5: Introduce native plant species in urban forestry, and conserve and expand existing ones.	National Indicator: <i>quantitative [percentage]</i> : Share of native plant species in urban forests.	
		National Indicator: <i>quantitative [number]</i> : Number of native plant species introduced in urban forests.	

	Responsibility (ies) for the Implementation of the National Action	Timeline		Estimated Cost for the Implementation of the National Action (USD)
		Start Date	End Date	
	Lead: MoE Others: Municipalities, DGUP	2026	2027	150,000.00
	Lead: MoPWT Others: MoE, Municipalities, NGOs	2026	2027	100,000.00
	Lead: MoPWT Others: MoE, Municipalities	2026	2030	2,000,000.00
	Lead: MoPWT Others: MoE, Municipalities	2027	2028	200,000.00
	Lead: MoE Others: CNRS, Landscaping companies, MoPWT	2028	2030	100,000.00

National Target 13: Conserve the area, quality, connectivity, and accessibility of—and benefits from—green and blue spaces in urban and densely populated areas (design and conserve urban areas) , by mainstreaming the conservation and sustainable use of biodiversity, and ensuring biodiversity-inclusive urban planning, that enhances native biodiversity, ecological connectivity, and integrity, improves human health and well-being and connection to nature, and contributes to inclusive and sustainable urbanization and the provision of ecosystem functions and services.

Relevant GBF Goals and Target	National Action	Indicator	
	National Action 13.6: Update and adopt the integrated urban plan for coastal areas in accordance with ICZM principles, and in light of current violations.	National Indicator: binary: Are coastal areas covered by an updated integrated urban plan?	

National Target 14: By 2030, traditional knowledge, uses, and practices of local communities relevant to biodiversity and sustainable use of resources are collected, evaluated, documented, preserved, and shared/published, based on their free, prior and informed consent, in accordance with national legislation.

Relevant GBF Goals and Target	National Action	Indicator	
Goal B Goal C Global target 21	National Target 14	National Indicator: <i>quantitative [number]</i> : Number of traditional knowledge information collected, evaluated, documented, preserved, and shared/published. (in short: recorded).	
	National Action 14.1: Conduct extensive surveys and studies to gather traditional knowledge related to biodiversity and sustainable practices.	National Indicator: <i>binary</i> : Have surveys and studies on traditional knowledge related to biodiversity and sustainable practices been undertaken?	
	National Action 14.2: Document and archive traditional knowledge, integrate it into education, and disseminate it through related community events.	National Indicator: <i>quantified</i> : Number of traditional practices integrated into education and related community events.	
	National Action 14.3: Raise awareness and build capacities to preserve local and traditional practices for the sustainable use of biodiversity resources.	National Indicator: <i>quantified</i> : Number of individuals reached through awareness-raising and capacity-building activities.	

	Responsibility (ies) for the Implementation of the National Action	Timeline		Estimated Cost for the Implementation of the National Action (USD)
		Start Date	End Date	
	Lead: DGUP Others: MoE, MoIM, Municipalities, CDR	2028	2029	500,000.00

	Responsibility (ies) for the Implementation of the National Action	Timeline		Estimated Cost for the Implementation of the National Action (USD)
		Start Date	End Date	
	Lead: MoE Others: MoA, CNRS, LARI, Academic Institutions, Local Communities, NGOs	2026	2028	500,000.00
	Lead: MoE Others: MoA, CNRS, LARI, Academic Institutions, Local Communities, NGOs	2026	2028	100,000.00
	Lead: MoE Others: MoA, CNRS, LARI, Academic Institutions, Local Communities, NGOs	2026	2028	500,000.00

National Target 14: By 2030, traditional knowledge, uses, and practices of local communities relevant to biodiversity and sustainable use of resources are collected, evaluated, documented, preserved, and shared/published, based on their free, prior and informed consent, in accordance with national legislation.

Relevant GBF Goals and Target	National Action	Indicator	
	National Action 14.4: Ensure the necessary resources to revive and sustain the Clearing-House Mechanism (CHM) to share documented knowledge widely.	National Indicator: <i>quantitative [percentage]</i> : Share of recorded traditional knowledge published on the Clearing-House Mechanism (CHM).	

National Target 15: By 2030, the Lebanese Government reviews, updates, reinforces, and takes effective legal, policy, administrative and capacity-building measures at all levels, as appropriate, to ensure the fair and equitable sharing of benefits that arise from the utilization of genetic resources and digital sequence information on genetic resources, as well as traditional knowledge associated with genetic resources. This also includes facilitating appropriate access to genetic resources. By 2030, facilitating a significant increase of the benefits shared, in accordance with applicable international access and benefit-sharing (ABS) instruments.

Relevant GBF Goals and Target	National Action	Indicator	
Goal B Goal C Global target 13	National Target 15	Headline Indicator: HI C.1 Monetary benefits received by IPLCs in Lebanon, in accordance with applicable internationally agreed Access and Benefit-sharing instruments.	
		Headline Indicator: HI C.2 Non-monetary benefits received by IPLCs in Lebanon arising from applicable internationally agreed Access and Benefit-sharing instruments.	
		Component Indicator: Number of internationally recognized certificates published in the Access and Benefit-sharing Clearing-House.	
		Complementary Indicator: Number of transfers of crop material received in the country through Multilateral System of the International Treaty on Plant Genetic Resources for Food and Agriculture received.	

	Responsibility (ies) for the Implementation of the National Action	Timeline		Estimated Cost for the Implementation of the National Action (USD)
		Start Date	End Date	
	Lead: MoE Others: CNRS, MoA, Academic Institutions, IT Specialists, NGOs, Media Outlets	2026	2028	100,000.00
	Responsibility (ies) for the Implementation of the National Action	Timeline		Estimated Cost for the Implementation of the National Action (USD)
		Start Date	End Date	

National Target 15: By 2030, the Lebanese Government reviews, updates, reinforces, and takes effective legal, policy, administrative and capacity-building measures at all levels, as appropriate, to ensure the fair and equitable sharing of benefits that arise from the utilization of genetic resources and digital sequence information on genetic resources, as well as traditional knowledge associated with genetic resources. This also includes facilitating appropriate access to genetic resources. By 2030, facilitating a significant increase of the benefits shared, in accordance with applicable international access and benefit-sharing (ABS) instruments.

Relevant GBF Goals and Target	National Action	Indicator	
	National Action 15.1: Raise awareness and conduct capacity-building for concerned law enforcement personnel, including internal security forces, forest guards, PAs rangers, municipal police, and customs employees, on biodiversity legislation related to ABS, to ensure that they can effectively assess situations, understand biodiversity legislation, recognize environmental crimes, and take appropriate action.	National Indicator: <i>quantitative [percentage]</i> : Share of the target audience reached through awareness-raising and capacity-building efforts. (Target audience as described in NA; success of awareness raising measures to be evaluated by survey).	
	National Action 15.2: Develop specific capacity-building training programs and awareness campaigns on “Access and Benefit-Sharing (ABS)” regulations and digital sequence information (DSI), to promote the implementation of related international conventions.	National Indicator: <i>quantitative [percentage]</i> : Share of the target audience reached through awareness-raising and capacity-building efforts. (Target audience as described in NA; success of awareness raising measures to be evaluated by survey).	
	National Action 15.3: Establish clear agreements and mechanisms to facilitate benefit-sharing and technology transfer arising from the utilization of genetic resources and from digital sequence information (DSI) on genetic resources, to promote the implementation of the related international conventions.	National Indicator: <i>quantified [number]</i> : Count of DSI-related agreements and mechanisms established.	

	Responsibility (ies) for the Implementation of the National Action	Timeline		Estimated Cost for the Implementation of the National Action (USD)
		Start Date	End Date	
	Lead: MoE Others: MoIM, MoJ, Municipalities, NGOs, Training Institutes, Environmental Law Experts	2026	2027	500,000.00
	Lead: MoE Others: MoA, MoJ, CNRS, Academic Institutions, NGOs	2026	2027	100,000.00
	Lead: MoE Others: MoA, MoJ, CNRS, Academic Institutions, International Organizations	2027	2028	100,000.00

National Target 15: By 2030, the Lebanese Government reviews, updates, reinforces, and takes effective legal, policy, administrative and capacity-building measures at all levels, as appropriate, to ensure the fair and equitable sharing of benefits that arise from the utilization of genetic resources and digital sequence information on genetic resources, as well as traditional knowledge associated with genetic resources. This also includes facilitating appropriate access to genetic resources. By 2030, facilitating a significant increase of the benefits shared, in accordance with applicable international access and benefit-sharing (ABS) instruments.

Relevant GBF Goals and Target	National Action	Indicator	
	National Action 15.4: Establish a national database of genetic resources from native species.	National Indicator: binary: Has the national database of genetic resources from native species been established?	
		National Indicator: quantified [number]: Number of genetic resource records from native species in the database.	
	National Action 15.5: Conduct advanced research on genetics of native species (e.g., sequencing and barcoding).	National Indicator: quantified [numbers]: Have human and financial resources been invested in advanced research on the genetics of native species?	

National Target 16: By 2030, government entities mainstream biodiversity priorities (conservation, benefit-sharing, pressure alleviation, sustainable management, and sustainable use of natural resources), into their policy making processes and implementation.

Relevant GBF Goals and Target	National Action	Indicator	
Goal A Goal B Goal C Global target 14	National Target 16	Headline Indicator: HI 14.b Inclusion of biodiversity in policies.	
		Headline Indicator: HI 14.b Estimation of the extent in percentage to which Lebanon has integrated biodiversity and its multiple values into national accounts.	
		Component Indicator: Integration of biodiversity values into national accounting and reporting systems, defined as implementation of the System of Environmental-Economic Accounting (SEEA).	

	Responsibility (ies) for the Implementation of the National Action	Timeline		Estimated Cost for the Implementation of the National Action (USD)
		Start Date	End Date	
	Lead: CNRS Others: MoE, MoA, LARI, Academic Institutions, Research Centers, IT Specialists	2027	2029	250,000.00
	Lead: CNRS Others: MoA, LARI, Academic Institutions, Research Centers	2028	2030	500,000.00

	Responsibility (ies) for the Implementation of the National Action	Timeline		Estimated Cost for the Implementation of the National Action (USD)
		Start Date	End Date	

National Target 16: By 2030, government entities mainstream biodiversity priorities (conservation, benefit-sharing, pressure alleviation, sustainable management, and sustainable use of natural resources), into their policy making processes and implementation.

Relevant GBF Goals and Target	National Action	Indicator	
	National Action 16.1: Strengthen the capacity of the MoE to implement the SEA process (including review) by establishing a dedicated unit or expert groups within the ministry.	National Indicator: <i>binary</i> : Has the expert group on SEA been established within the MoE?	
	National Action 16.2: Conduct at least 10 training sessions annually on the SEA Decree (number 8213/2012) for public sector employees at central and local levels.	National Indicator: <i>quantified</i> : Number of training sessions administered in the SEA decree.	
		National Indicator: <i>quantified</i> : Number of officials who have received SEA training.	
	National Action 16.3: Develop and publish comprehensive guidelines for ecological impact assessments as part of SEA and conduct at least 5 sector-specific training sessions annually.	National Indicator: <i>binary</i> : Have the guidelines for ecological impact assessments been published?	
	National Action 16.4: Develop and implement a cross-sectoral planning enhancement program by integrating environmental considerations into at least 7 key sectors (e.g., agriculture, fisheries, forestry, tourism, etc.).	National Indicator: <i>quantified [number]</i> : Participants reached through capacity-building activities for mainstreaming biodiversity.	
	National Action 16.5: Conduct training and capacity-building to raise awareness and build technical skills in public institutions concerned with biodiversity conservation (e.g., MoA, MEHE, DGUP, CDR, MoEW, MoPWT, LARI, etc.).	National Indicator: <i>quantified [number]</i> : Workshops organized to raise awareness and build technical skills in public institutions concerned with biodiversity conservation.	

	Responsibility (ies) for the Implementation of the National Action	Timeline		Estimated Cost for the Implementation of the National Action (USD)
		Start Date	End Date	
	Lead: MoE	2026	2027	50,000.00
	Lead: MoE	2026	2031	300,000.00
	Lead: MoE	2026	2027	300,000.00
	Lead: MoE Others: MoA, MoT, MoPWT, MoEW, MoF, CNRS, Relevant Sectoral Ministries	2027	2029	1,000,000.00
	Lead: MoE	2026	2031	200,000.00

National Target 16: By 2030, government entities mainstream biodiversity priorities (conservation, benefit-sharing, pressure alleviation, sustainable management, and sustainable use of natural resources), into their policy making processes and implementation.

Relevant GBF Goals and Target	National Action	Indicator	
	National Action 16.6: Develop and implement a training program on legislation related to natural resources and its enforcement for internal security forces, forest guards, and municipal police. Train at least 200 officers annually, to increase control of violations by the responsible authorities and help them manage the depletion of natural resources.	National Indicator: <i>quantified [number]</i> : Number of developed training programs and trained officers per year.	
	National Action 16.7: Once the public salary scale is adjusted, recruit and train 50 environmental police officers.	National Indicator: Training of internal security forces, forest guards and municipal police.	
	National Action 16.8: Implement a cross-sectoral environmental violations reporting system.	National Indicator: <i>binary</i> : Has a cross-sectoral environmental violations reporting system been developed?	
	National Action 16.9: Review existing biodiversity-related environmental legislation where needed, make necessary amendments, prepare remaining implementation decrees, and draft missing laws.	National Indicator: <i>quantified [percentage]</i> : Share of existing biodiversity-related environmental legislation reviewed, amended or drafted.	
	National Action 16.10: Build capacity for biodiversity management at the level of governorates, cazas, UoMs, and municipalities, including environmental committees in municipal councils.	National Indicator: Workshops organized to raise awareness and build technical skills in public institutions concerned with biodiversity conservation.	
	National Action 16.11: Integrate biodiversity accounting at MoF.	National Indicator: <i>binary</i> : Has the MoF integrated biodiversity accounting?	
	National Action 16.12: Develop scenario-based standard operating procedures (SOPs) for the operation of the Joint Maritime Operation Chamber, in coordination with relevant governmental bodies for marine and coastal environment management.	National Indicator: <i>binary</i> : Have the SOPs for the operation of the Joint Maritime Operation Chamber been developed in coordination with concerned governmental bodies for marine and coastal environment management?	

	Responsibility (ies) for the Implementation of the National Action	Timeline		Estimated Cost for the Implementation of the National Action (USD)
		Start Date	End Date	
	Lead: MoE Others: MoIM, Internal Security Forces, Municipalities, Environmental Law Experts	2026	2031	300,000.00
	Lead: MoE	2027	2028	200,000.00
	Lead: MoE	2027	2028	200,000.00
	Lead: MoE	2026	2029	1,000,000.00
	Lead: MoE	2026	2029	500,000.00
	Lead: MoE, MoF	2027	2029	200,000.00
	Lead: MoPWT Others: Lebanese Army, MoIM, MoE	2026	2028	300,000.00

National Target 16: By 2030, government entities mainstream biodiversity priorities (conservation, benefit-sharing, pressure alleviation, sustainable management, and sustainable use of natural resources), into their policy making processes and implementation.

Relevant GBF Goals and Target	National Action	Indicator	
	National Action 16.13: Develop a comprehensive environmental law database for the Ministry of Justice that includes all relevant legislation and regulations related to environmental matters and serves as a complete reference for judges.	National Indicator: <i>binary</i> : Has the comprehensive environmental law database been developed?	
	National Action 16.14: Integrate the biodiversity agenda in the National Council for Environment (NCE) to enhance coordination.	National Indicator: <i>binary</i> : Has the biodiversity agenda been integrated into the National Council for Environment (NCE)?	
		National Indicator: <i>quantified [percentage]</i> : Percentage of NCE meetings in which biodiversity was covered.	
	National Action 16.15: Enforce the resolution of forest violations to manage and control tree cutting through national legislation and regulations. This includes proposing (or amending) laws.	National Indicator: <i>quantitative</i> : Number of enforcement actions taken (e.g., fines, penalties, prosecutions) to address forest violations and illegal tree cutting.	
	National Action 16.16: Enforce the resolution of marine and river violations through national legislation and regulations.	National Indicator: <i>binary</i> : Have the national legislation and regulations been updated to facilitate the settlement of marine and river violations?	
	National Action 16.17: Prevent further development on high mountains, maritime and river basin public domains by developing and adopting the necessary national legislation and regulations.	National Indicator: <i>quantitative</i> : Number of new national laws, regulations, or amendments specifically adopted to prevent further development on high mountains and in maritime and river basin public domains.	

	Responsibility (ies) for the Implementation of the National Action	Timeline		Estimated Cost for the Implementation of the National Action (USD)
		Start Date	End Date	
	Lead: MoJ Others: MoE	2026	2028	300,000.00
	Lead: MoE	2026	2031	100,000.00
	Lead: MoA, MoE Others: Ministry of Justice, Internal Security Forces (ISF), Municipalities	2026	2027	100,000.00
	Lead: MoE Others: Internal Security Forces (ISF), Municipalities	2026	2027	100,000.00
	Lead: MoE, MoPWT Others: Ministry of Justice, Urban Planning Authorities, Municipalities,	2026	2028	200,000.00

National Target 16: By 2030, government entities mainstream biodiversity priorities (conservation, benefit-sharing, pressure alleviation, sustainable management, and sustainable use of natural resources), into their policy making processes and implementation.

Relevant GBF Goals and Target	National Action	Indicator	
	National Action 16.18: Develop a sustainable tourism strategy and action plan for areas below 500 m to complement the sustainable tourism strategy and action plan for the mountains of Lebanon.	National Indicator: <i>binary</i> : Has a sustainable tourism strategy and action plan for areas below 500 m been developed?	

National Target 17: By 2030, ensure that 75% of large businesses in Lebanon (defined as those with over 250 employees): a) regularly implement biodiversity impact assessments and publicly disclose results; and b) demonstrate a 30% reduction in negative biodiversity impacts and a 20% increase in positive impacts compared to baselines conducted between 2020 and 2026.

Relevant GBF Goals and Target	National Action	Indicator	
Goal B Goal C	National Target 17	Component Indicator: Corporate biodiversity reporting	
Global target 15	National Action 17.1: Ensure enforcement of Decree 8471/2012 on the Environmental Compliance of Establishments, and set penalties for non-compliance, increasing annually until 2030.	National Indicator: quantitative: Annual number of establishments inspected for compliance with Decree 8471/2012 on the Environmental Compliance of Establishments.	
	National Action 17.2: Hire an environmental expert in large-scale companies to integrate sustainability, including biodiversity, into their core business strategies, enhance their reputation as responsible corporate citizens, and contribute positively to environmental and social well-being: Develop internal sustainability teams or outsource such services for all companies with over 250 employees and keep this as recommendation for companies below 250 employees.	National Indicator: quantitative: Number of large companies that report having dedicated environmental expert(s).	

	Responsibility (ies) for the Implementation of the National Action	Timeline		Estimated Cost for the Implementation of the National Action (USD)
		Start Date	End Date	
	Lead: MoT, MoE Others: MoA, Local municipalities, Research institutions	2026	2028	500,000.00
	Responsibility (ies) for the Implementation of the National Action	Timeline		Estimated Cost for the Implementation of the National Action (USD)
		Start Date	End Date	
	Lead: MoE Others: Ministry of Justice, ISF	2026	2031	300,000.00
	Lead: MoE Others: Large Enterprises Training Institutes, NGOs	2026	2030	400,000.00

National Target 17: By 2030, ensure that 75% of large businesses in Lebanon (defined as those with over 250 employees): a) regularly implement biodiversity impact assessments and publicly disclose results; and b) demonstrate a 30% reduction in negative biodiversity impacts and a 20% increase in positive impacts compared to baselines conducted between 2020 and 2026.

Relevant GBF Goals and Target	National Action	Indicator	
	National Action 17.3: Establish a national Corporate Social Responsibility (CSR) program focused on biodiversity, by encouraging businesses to act in a manner that benefits the well-being of society and the environment: • Create a public CSR registry requiring annual reporting of biodiversity-related activities by all large companies. • Develop a standardized biodiversity impact assessment tool and train representatives from at least 75% of large companies and 25% of medium-sized companies on its use. • Launch a “Biodiversity Leaders” recognition program that annually acknowledges the top 20 companies demonstrating exceptional biodiversity performance.	National Indicator: quantitative: Number of companies that report having adopted Corporate Social Responsibility (CSR) policies and/or the recommendations of the Taskforce on Nature-related Financial Disclosures (TNFD).	
	National Action 17.4: Implement a multi-tiered financial incentive system for environmentally friendly companies, including: • 10-20% reductions in government fees (e.g., municipal fees, customs fees, etc.) for environmentally compliant enterprises. • Priority access to government procurement processes for environmentally compliant enterprises. • Expedited permitting processes for biodiversity-positive development projects.	National Indicator: <i>quantitative</i>: Number of steps undertaken by the government to provide incentives to environmentally friendly companies, including definition of the criteria and requirements. National Indicator: <i>quantified [number]</i>: Number of businesses that receive a corporate tax reduction.	

	Responsibility (ies) for the Implementation of the National Action	Timeline		Estimated Cost for the Implementation of the National Action (USD)
		Start Date	End Date	
	Lead: MoE, MoET Others: Large Enterprises Training Institutes, NGOs, Media Outlets	2026	2029	500,000.00
	Lead: MoF Others: MoE, MoF	2027	2030	300,000.00

National Target 17: By 2030, ensure that 75% of large businesses in Lebanon (defined as those with over 250 employees): a) regularly implement biodiversity impact assessments and publicly disclose results; and b) demonstrate a 30% reduction in negative biodiversity impacts and a 20% increase in positive impacts compared to baselines conducted between 2020 and 2026.

Relevant GBF Goals and Target	National Action	Indicator	
	Annual awards and public recognition for top-performing companies in each major industry sector.		

National Target 18: By 2030, at least 40% of large enterprises (over 250 employees) and 20% of medium enterprises (50-249 employees) have implemented sustainable production plans in key sectors (industrial, agriculture, energy, and tourism) to mitigate or prevent negative impacts on ecosystems from the use of natural resources.

Relevant GBF Goals and Target	National Action	Indicator	
Goal B Goal C Global target 15	National Target 18	National Indicator: Percentage of companies in key sectors implementing sustainable production patterns.	
	National Action 18.1: Implement the National Integrated Solid Waste Management Strategy across the industrial, agriculture, energy, and tourism sectors to support the transition toward a Circular Economy.	National Indicator: Percentage of reduction in waste generation per sector.	
	National Action 18.2: Conduct targeted awareness campaigns on the need to endorse sustainable strategies (e.g., sustainable production, and sustainable consumption targeting consumers, etc.) by: Developing sector-specific educational materials for 4 key industries.	National Indicator: percentage: Share of companies reached through awareness campaigns.	

	Responsibility (ies) for the Implementation of the National Action	Timeline		Estimated Cost for the Implementation of the National Action (USD)
		Start Date	End Date	

	Responsibility (ies) for the Implementation of the National Action	Timeline		Estimated Cost for the Implementation of the National Action (USD)
		Start Date	End Date	
	Lead: MoE, MoIM Others: MoA, MoEW, Municipalities	2026	2031	200,000.00
	Lead: MoE, MoET Others: Media Outlets, NGOs, Marketing Agencies, Consumer Protection Agencies	2026	2027	300,000.00

National Target 18: By 2030, at least 40% of large enterprises (over 250 employees) and 20% of medium enterprises (50-249 employees) have implemented sustainable production plans in key sectors (industrial, agriculture, energy, and tourism) to mitigate or prevent negative impacts on ecosystems from the use of natural resources.

Relevant GBF Goals and Target	National Action	Indicator	
	Launching a public media campaign targeting consumers, with annual surveys to measure impact and behavior change.		

National Target 19: Encourage and enable people to make sustainable consumption choices by establishing supportive policy, legislative or regulatory frameworks, and by improving education and access to relevant and accurate information and alternatives. By 2030, reduce Lebanon's national consumption footprint in an equitable manner, by reducing overconsumption and waste generation (including food waste), so that all people can live well in harmony with nature.

Relevant GBF Goals and Target	National Action	Indicator	
Goal B Global target 16	National Target 19	Headline Indicator: HI 16.b Lebanon has developed, adopted, or implemented policy instruments aimed at encouraging and enabling people to make sustainable consumption choices.	
		National Indicator: quantitative: Number of measures to improve education and access to relevant and accurate information and consumption alternatives.	
		Component Indicator: Food Waste Index.	
		Component Indicator: Material Footprint per Capita.	
		Complementary Indicator: Recycling rate.	

	Responsibility (ies) for the Implementation of the National Action	Timeline		Estimated Cost for the Implementation of the National Action (USD)
		Start Date	End Date	

	Responsibility (ies) for the Implementation of the National Action	Timeline		Estimated Cost for the Implementation of the National Action (USD)
		Start Date	End Date	

National Target 19: Encourage and enable people to make sustainable consumption choices by establishing supportive policy, legislative or regulatory frameworks, and by improving education and access to relevant and accurate information and alternatives. By 2030, reduce Lebanon's national consumption footprint in an equitable manner, by reducing overconsumption and waste generation (including food waste), so that all people can live well in harmony with nature.

Relevant GBF Goals and Target	National Action	Indicator	
	National Action 19.1: Develop consumer tools to encourage sustainable consumption behavior, such as integrating QR codes on sold products to provide a summary of product life cycle, and track consumer's behavior change through tracking sales records.	Headline Indicator: HI 16.b Lebanon has developed, adopted or implemented policy instruments aimed at encouraging and enabling people to make sustainable consumption choices.	
	National Action 19.2: Develop and implement a national strategy to reduce marine litter by encouraging and enabling sustainable consumption choices.	National Indicator: Increase in economic instruments applied as part of the National Integrated Solid Waste Management Strategy.	

National Target 20: By 2030, the implementation mechanism of the Cartagena Protocol on Biosafety is operational.

Relevant GBF Goals and Target	National Action	Indicator	
Goal A Goal B Goal C	National Target 20	Headline Indicator: HI 17.b Implementation mechanism for the Cartagena Protocol in place.	
Global target 17	National Action 20.1: Enforce and operationalize national biosafety legislation through the issuance of implementation mechanisms.	National Indicator: <i>quantitative</i> : Number of pieces of information shared in the Biosafety Clearing-House (BCH) on national activities.	
	National Action 20.2: Assess risks related to Living Modified Organisms (LMOs) and monitor the adequacy of laboratory testing equipment in certified laboratories.	National Indicator: <i>quantitative</i> : Number of risk assessments undertaken in accordance with Article 15 of the Cartagena Protocol.	

	Responsibility (ies) for the Implementation of the National Action	Timeline		Estimated Cost for the Implementation of the National Action (USD)
		Start Date	End Date	
	Lead: MoE Others: UNDP, USAID, NGOs	2026	2028	300,000.00
	Lead: MoE	2026	2028	Budget Allocated under the solid waste strategy
	Responsibility (ies) for the Implementation of the National Action	Timeline		Estimated Cost for the Implementation of the National Action (USD)
		Start Date	End Date	
	Lead: MoE Others: MoA, Other concerned ministries, Academic and Research institutions	2026	2027	300,000.00
	Lead: MoA Others: LARI or other certified laboratories, research centers	2026	2027	500,000.00

National Target 20: By 2030, the implementation mechanism of the Cartagena Protocol on Biosafety is operational.

Relevant GBF Goals and Target	National Action	Indicator	
	National Action 20.3: Develop and implement legislation to control trading and trafficking, especially at national borders.	National Indicator: <i>binary</i> : Controls of transboundary movements are in place (in accordance with the Cartagena Protocol).	
	National Action 20.4: Enforce better control by customs and relevant authorities over import activities involving Living Modified Organisms (LMOs).	National Indicator: <i>descriptive</i> : Number of import controls undertaken to verify LMOs.	
	National Action 20.5: Incentivize and support seed banks preserving genetic diversity for the future, while also promoting public awareness of their importance.	National Indicator: <i>percentage</i> : Share of national plant species recorded in seed bank.	
	National Action 20.6: Promote the use of local and native species and mandate their inclusion as a minimum standard in all government-funded projects.	National Indicator: <i>percentage</i> : Share of local and native species used in government-funded projects.	
	National Action 20.7: Encourage the Orders of Engineers (particularly agriculture engineers) and scientists to adopt and implement a charter, guideline or a mandatory pledge among its members to refrain from using harmful substances and/or activities derived from biotechnology, in order to implement Biosafety measures.	National Indicator: <i>binary</i> : Has a mandatory pledge or other type of commitment been introduced?	

National Target 21: By 2030, identify and phase out harmful incentives, and scale up positive incentives for the conservation and sustainable use of biodiversity.

Relevant GBF Goals and Target	National Action	Indicator	
Goal B Global target 18	National Target 21	Headline Indicator: HI 18.1 Positive incentives in place to promote biodiversity conservation and sustainable use.	

	Responsibility (ies) for the Implementation of the National Action	Timeline		Estimated Cost for the Implementation of the National Action (USD)
		Start Date	End Date	
	Lead: MoA Others: MoJ, Internal Security Forces, Lebanese Customs, MoE	2027	2028	300,000.00
	Lead: Lebanese Customs Others: MoA, MoET	2027	2028	200,000.00
	Lead: MoA, MoE Others: NGOs	2026	2028	200,000.00
	Lead: MoA Others: MoE	2027	2029	200,000.00
	Lead: Order of engineers and architects Others: MoE	2027	2028	50,000.00
	Responsibility (ies) for the Implementation of the National Action	Timeline		Estimated Cost for the Implementation of the National Action (USD)
		Start Date	End Date	

National Target 21: By 2030, identify and phase out harmful incentives, and scale up positive incentives for the conservation and sustainable use of biodiversity.

Relevant GBF Goals and Target	National Action	Indicator	
	National Target 21	Headline Indicator: HI 18.2 Value of subsidies and other incentives harmful to biodiversity.	
	National Action 21.1: Implement and enforce legislation related to IEEs, EIAs and SEAs, and ensure the implementation of the environmental monitoring plans included in the IEEs, EIAs and SEAs.	National Indicator: <i>quantified [percentage]</i> : Share of SEAs, IEEs and EIAs that include considerations regarding the conservation and sustainable use of biodiversity.	
	National Action 21.2: Conduct a comprehensive review of existing incentives affecting biodiversity and ecosystems and develop a clear roadmap to ensure that incentives are aligned with conservation goals and sustainable practices. This will help foster biodiversity resilience and ecosystem health across Lebanon. This includes updating current legislation to incorporate positive incentives.	National Indicator: <i>binary</i> : Has the roadmap for aligning incentives with biodiversity goals been developed?	
	National Action 21.3: Increase fees for construction permits near ecologically sensitive areas (e.g., buffer zones of protected areas, forests, rivers, marine public domains, etc.).	National Indicator: <i>percentage</i> : Increase of fees for construction permits near ecologically sensitive areas.	
	National Action 21.4: Impose fees on imported fresh fish to protect the local fish market.	National Indicator: <i>binary</i> : Have fees on imported fish been imposed to protect the local fresh fish market?	
	National Action 21.5: Improve infrastructure related to the fishing sector, in collaboration with the Directorate General of Cooperatives at the MoA and Directorate General of Land and Maritime Transport. This includes ports, fishing nets, fishing equipment, and other tools, to reduce the need for direct public financial support and rehabilitation costs, and to mitigate unregulated practices.	National Indicator: <i>percentage</i> : Targeted fishing ports where infrastructure improvements have been completed	

	Responsibility (ies) for the Implementation of the National Action	Timeline		Estimated Cost for the Implementation of the National Action (USD)
		Start Date	End Date	
	Lead: MoE	2026	2028	100,000.00
	Lead: MoE, MoF	2026	2028	200,000.00
	Lead: MoE Others: MoF	2026	2027	50,000.00
	Lead: MoA, Directorate General of Land and Maritime Transport Others, MoPWT	2026	2028	500,000.00
	Lead; MoA Others: MoET	2027	2029	100,000.00

National Target 21: By 2030, identify and phase out harmful incentives, and scale up positive incentives for the conservation and sustainable use of biodiversity.

Relevant GBF Goals and Target	National Action	Indicator	
	National Action 21.6: Promote local fish products (wild catch and aquaculture) through national campaigns.	National Indicator: <i>binary</i> : Have national campaigns promoting local fish products been launched or are they ongoing?	
	National Action 21.7: Promote local organic agricultural products through national campaigns.	National Indicator: <i>binary</i> : Have national campaigns for promoting local organic agricultural products been launched or are they ongoing?	
	National Action 21.8: Provide financial incentives or subsidies to farmers who adopt environmentally sustainable practices, such as organic farming, agroforestry, sustainable aquaculture, and conservation agriculture.	National Indicator: <i>quantitative</i> : Number of farmers receiving financial incentives or subsidies for adopting environmentally sustainable practices	
	National Action 21.9: Increase the amount of fines related to forests and fishing violations and illegal logging to promote sustainable forestry management and minimize environmental degradation.	National Indicator: <i>quantitative</i> : Percentage increase in the amount of fines related to forest violations and illegal logging.	
	National Action 21.10: Offer tax credits or other financial incentives for companies and individuals involved in ecosystem restoration and sustainable forest management efforts.	National Indicator: <i>quantitative</i> : Number of companies and individuals who have received tax credits or financial incentives for participating in ecosystem restoration and sustainable forest management efforts.	

	Responsibility (ies) for the Implementation of the National Action	Timeline		Estimated Cost for the Implementation of the National Action (USD)
		Start Date	End Date	
	Lead: MoA Others: MoET	2027	2029	200,000.00
	Lead: MoA Others: MoE	2027	2029	500,000.00
	Lead: MoA, MoE Others: Ministry of Justice, Internal Security Forces (ISF), Municipalities, Fishermen's syndicates	2026	2027	100,000.00
	Lead: MoA, MoE, MoF Others: NGOs	2026	2028	400,000.00

National Target 22: By 2030, substantially and progressively increase the level of financial resources from all sources—including domestic, international, public and private resources— in an effective, timely and easily accessible manner to implement national biodiversity strategies and action plans, mobilizing at least USD 100 million per year.

Relevant GBF Goals and Target	National Action	Indicator	
Goal D Global target 19	National Target 22	Headline Indicator: D.1 International public funding, including official development assistance (ODA), allocated to the conservation and sustainable use of biodiversity and ecosystems.	
		Headline Indicator: HI D.2 Domestic public funding allocated to the conservation and sustainable use of biodiversity and ecosystems.	
		Headline Indicator: D.3 Private funding (domestic and international) allocated to the conservation and sustainable use of biodiversity and ecosystems.	
	National Action 22.1: Operationalize the national environmental fund established through Law No. 444/2002.	National Indicator: numerical: Funds made available through the National Environment Fund from all sources (public, international and private).	
	National Action 22.2: Direct Green Climate Fund financing towards biodiversity projects (e.g., Lebanon Green Investment Facility (LGIF).	National Indicator: numerical: Total funding deployed for Green Climate Funds projects (from all sources).	
	National Action 22.3: Partially increases the nature reserves entrance fee and allocates the additional revenue to the national environmental fund.	National indicator: <i>quantified [percentage]</i> : Increase in nature reserve revenues allocated to the national environmental fund.	
	National Action 22.4: Establish a tracking tool for economic instruments and biodiversity finance (e.g., biodiversity positive taxes and fees, fines, projects, tradeable permits, environmentally motivated subsidies, biodiversity offsets, etc.).	National Indicator: <i>binary</i> : Has the tracking tool for economic instruments and biodiversity finance been established?	

	Responsibility (ies) for the Implementation of the National Action	Timeline		Estimated Cost for the Implementation of the National Action (USD)
		Start Date	End Date	
	Lead: MoE Others: MoF	2026	2027	250,000.00
	Lead: MoE Others: MoF	2026	2028	100,000.00
	Lead: MoE Others: MoF, Nature Reserves Management Bodies	2026	2027	20,000.00
	Lead: MoE, MoF	2026	2027	100,000.00

National Target 22: By 2030, substantially and progressively increase the level of financial resources from all sources—including domestic, international, public and private resources— in an effective, timely and easily accessible manner to implement national biodiversity strategies and action plans, mobilizing at least USD 100 million per year.

Relevant GBF Goals and Target	National Action	Indicator	
	National Action 22.5: Implement tax incentives and funding programs to promote PPPs (private public partnerships) in support of biodiversity conservation and the sustainable use of resources.	National Indicator: <i>new; number and description</i>: Number of PPPs established. See other references to PPPs in this table.	
	National Action 22.6: Develop a national biodiversity finance plan, including the following: • Study innovative sources of financing for biodiversity. • Engage donors in the implementation of the plan. • Engage the private sector in resource mobilization. • Conduct an environmental valuation study to promote the mobilization of internal resources. • Assess and develop mechanisms to facilitate access to funding for vulnerable and low-income population. • Develop guidelines to introduce biodiversity valuation into SEAs and EIAs to assess the economic value, potential loss, and offset measures resulting from project impacts. Develop a national framework for evaluating the economics of ecosystems and biodiversity in Lebanon (TEEB, BIOFIN). This may include payments for ecosystem	National Indicator: <i>binary</i>: Has the national biodiversity finance plan been developed?	

	Responsibility (ies) for the Implementation of the National Action	Timeline		Estimated Cost for the Implementation of the National Action (USD)
		Start Date	End Date	
	Lead: MoE, MoF	2026	2029	100,000.00
	Lead: MoE, MoF Others: Research Institutions	2026	2029	300,000.00

National Target 22: By 2030, substantially and progressively increase the level of financial resources from all sources—including domestic, international, public and private resources— in an effective, timely and easily accessible manner to implement national biodiversity strategies and action plans, mobilizing at least USD 100 million per year.

Relevant GBF Goals and Target	National Action	Indicator	
	services, reforming environmentally harmful subsidies, or introducing fiscal incentives for conservation. • Conduct economic valuation studies for nature reserves and utilize the findings in decision making, seeking internal and external funding, and promoting ecotourism and sustainable tourism practices. • Conduct economic valuation studies for coastal zones, the maritime public domain, high mountains, riparian zones classified as nature sites, and at least 20% of public forests, and utilize the findings in strategic land-use planning, seeking internal and external funding, and promoting sustainable management practices.		
	National Action 22.7: Conduct awareness campaigns and educational seminars to introduce the concept of biodiversity valuation and its importance for conservation and sustainable management to decision-makers, practitioners, and other concerned stakeholders (e.g., the public sector, including deputies, ministers, Directors Generals; the private sector; research institutions; NGOs; etc.).	National Indicator: <i>percentage</i>: Share of stakeholders effectively reached through awareness campaigns.	

[illegible]

National Target 23: Strengthen capacity-building, joint scientific research programs for the conservation and sustainable use of biodiversity, and scientific research and monitoring capacities.

Relevant GBF Goals and Target	National Action	Indicator	
Goal D Global Target 20	National Target 23	Headline Indicator: HI 20.b Capacity-building and joint scientific research programmes were strengthened, as evidenced by an increase in budget.	
	National Action 23.1: Allocate a capacity building and scientific cooperation budget within the national budget.	Headline Indicator: HI 21.1 Indicator on biodiversity information for monitoring the global biodiversity framework.	
		National Indicator: Share of decision-makers, practitioners, and the public who respond in regular surveys that they have sufficient access to biodiversity information.	
	National Action 23.2: Allocate a capacity-building budget for relevant ministries, focusing on GBF, CBD, and NBSAP implementation.	National Indicator: <i>binary</i> : Has a biodiversity capacity-building budget been allocated for relevant ministries?	
	National Action 23.3: Ensure the necessary resources to revive and sustain the Clearing-House Mechanism (CHM) and use it to consolidate biodiversity-related studies and avoid overlap and duplication of work.	National Indicator: <i>binary</i> : Is the CHM fully operational, regularly updated, and actively used to consolidate biodiversity-related studies and reduce duplication of work?	
	National Action 23.4: Develop a spin-off incubation and acceleration program to foster the creation of innovative products and services derived from scientific research that can be utilized by companies. Establish a system to promote collaboration between the private sector and research centers.	National Indicator: <i>binary</i> : Has a biodiversity spin-off incubation and acceleration program been developed?	

	Responsibility (ies) for the Implementation of the National Action	Timeline		Estimated Cost for the Implementation of the National Action (USD)
		Start Date	End Date	
	Lead: MoF Others: MoE	2026	2027	300,000.00
	Lead: MoF Others: MoE	2026	2027	25,000.00
	Lead: MoE Others: MEHE	2026	2027	50,000.00
	Lead: MoE Others: MoET, MEHE	2026	2028	50,000.00

National Target 24: Ensure that the best available data, information, and knowledge are accessible to decision-makers, practitioners, and the public to guide effective and equitable governance and integrated, participatory management of biodiversity. This will also strengthen communication, awareness-raising, education, monitoring, research, and knowledge management.

Relevant GBF Goals and Target	National Action	Indicator	
Goal D Global Target 21	National Target 24	Headline Indicator: HI 21.1 Indicator on biodiversity information for monitoring the Global Biodiversity Framework.	
		National Indicator: Share of decision-makers, practitioners, and the public who respond in regular surveys that they have sufficient access to biodiversity information.	
	National Action 24.1: Develop and implement a survey program with the Central Administration of Statistics (CAS) to assess and monitor public awareness of biodiversity.	Headline Indicator: HI 22.b.	
		National Indicator: <i>binary</i> : Has a survey program been developed with CAS to assess and monitor public awareness of biodiversity?	
	National Action 24.2: Strengthen the awareness unit at the MoE to enhance public outreach and direct communication related to biodiversity.	National Indicator: <i>quantified (number)</i> : Number of outreach activities conducted by the MoE.	
	National Action 24.3: Adopt and implement the “National Strategy on Greening education/Education for Sustainable Development” being developed by the MEHE, integrate environmental education, including biodiversity (fauna and flora), into school curricula under this strategy and implement extracurricular activities related to the environment. Implementation efforts should include comprehensive training and capacity-building for schoolteachers and health educators to ensure effective delivery of environmental education across Lebanon.	National Indicator: <i>binary</i> : Has the National Strategy on Greening Education/Education for Sustainable Development been adopted and implemented?	

	Responsibility (ies) for the Implementation of the National Action	Timeline		Estimated Cost for the Implementation of the National Action (USD)
		Start Date	End Date	
	Lead: MoE, CAS Others: Research Institutions, Academic Institutions	2026	2027	100,000.00
	Lead: MoE Others: Media Organizations	2026	2028	200,000.00
	Lead: MEHE Others: MoE, Academic Institutions	2026	2029	500,000.00

National Target 24: Ensure that the best available data, information, and knowledge are accessible to decision-makers, practitioners, and the public to guide effective and equitable governance and integrated, participatory management of biodiversity. This will also strengthen communication, awareness-raising, education, monitoring, research, and knowledge management.

Relevant GBF Goals and Target	National Action	Indicator	
	National Action 24.4: Organize participatory events to raise awareness of biodiversity among students, youth, and the public, such as national science fairs and guided open-house events at the MoE, etc.	National Indicator: <i>quantified (number)</i> : Participatory events organized by the MoE.	
	National Action 24.5: Support local biodiversity clubs, Health and environment school clubs, and local action groups across the country.	National Indicator: <i>quantitative [number]</i> and descriptive: Support provided to local biodiversity clubs, health and environment school club, and local actions groups provided in monetary and non-monetary terms.	
	National Action 24.6: Build the capacities of NGOs to recognize and collect relevant data on biodiversity awareness.	Headline Indicator: HI 22.b. National Indicator: See indicator for NT 25.	

National Target 25: Ensure the full, equitable, inclusive, effective and gender-responsive representation and participation in decision-making, as well as access to justice and information related to biodiversity, by local communities—while respecting their cultures and their rights over lands, territories, resources, and traditional knowledge. This also includes women and girls, children and youth, and persons with disabilities, and ensures the full protection of environmental human rights defenders.

Relevant GBF Goals and Target	National Action	Indicator	
Goal B Goal D Global Target 22	National Target 25	Headline Indicator: HI 22.b.	
		National Indicator: <i>percentage</i> : Gender representation in decision-making bodies (national level and subnational/municipal parliaments and courts).	

	Responsibility (ies) for the Implementation of the National Action	Timeline		Estimated Cost for the Implementation of the National Action (USD)
		Start Date	End Date	
	Lead: MoE, MEHE Others: NGOs, Academic Institutions, Municipalities	2026	2031	300,000.00
	Lead: MoE, MEHE Others: NGOs, Schools, Universities, Municipalities	2026	2031	100,000.00
	Lead: MoE Others: Research Institutions, NGOs	2026	2028	100,000.00
	Responsibility (ies) for the Implementation of the National Action	Timeline		Estimated Cost for the Implementation of the National Action (USD)
		Start Date	End Date	

National Target 25: Ensure the full, equitable, inclusive, effective and gender-responsive representation and participation in decision-making, as well as access to justice and information related to biodiversity, by local communities—while respecting their cultures and their rights over lands, territories, resources, and traditional knowledge. This also includes women and girls, children and youth, and persons with disabilities, and ensures the full protection of environmental human rights defenders.

Relevant GBF Goals and Target	National Action	Indicator	
	National Action 25.1: Develop and enforce legislation to protect the rights of environmental human rights defenders.	National Indicator: <i>scale</i> : Extent to which legislation to protect the rights of environmental human rights defenders has been developed and enforced.	
	National Action 25.2: Design awareness-raising campaigns to highlight the equal contributions of both men and women in conserving biodiversity, particularly focusing on women serving in local councils and Community Based Organizations (CBOs).	National Indicator: See respective indicators for awareness-raising.	
	National Action 25.3: Ensure the inclusion of needs of local communities, women and girls, children and youth, and persons with disabilities in biodiversity-related decision-making processed at both governmental and local authorities level.	National Indicator: <i>descriptive</i> : Measures the satisfaction of marginalized groups regarding the inclusion of their needs in biodiversity-related decisions, collected through surveys.	
	National Action 25.4: Integrate environmental and biodiversity targets into local development action plans/strategies, in line with existing national and/or regional master plans.	National Indicator: See indicators above.	
	National Action 25.5: Integrate gender considerations into policies, strategies and plans related to biodiversity.	National Indicator: <i>binary</i> : Has the biodiversity and gender action plan been developed?	
	National Action 25.6: Develop, in collaboration with the National Commission for Lebanese Women (NCLW), a biodiversity-focused gender action plan. This plan can promote gender-sensitive cross-ministerial collaboration (including, but not limited to, MoE, MoA, and others) to shape supportive policies and mainstream environmental priorities at all levels.	National Indicator: <i>binary</i> : Has the biodiversity and gender action plan been developed?	

	Responsibility (ies) for the Implementation of the National Action	Timeline		Estimated Cost for the Implementation of the National Action (USD)
		Start Date	End Date	
	Lead: MoE Others: MoJ, Human rights organizations	2026	2027	100,000.00
	Lead: MoE Others: Ministry of Social Affairs, Women's organizations	2026	2028	100,000.00
	Lead: MoE Others: Ministry of Social Affairs	2026	2029	200,000.00
	Lead: MoE Others: Local Authorities	2027	2029	200,000.00
	Lead: MoE Others: NCLW, MoSA	2026	2028	50,000.00
	Lead: MoE Others: NCLW	2027	2028	50,000.00

National Target 26: Ensure gender equity in the implementation of the Global Biodiversity Framework through a gender-responsive approach, ensuring that all women and girls have equal opportunity and capacity to contribute to the three objectives of the Convention. This includes recognizing their equal rights and access to land and natural resources, and their full, equitable, meaningful, and informed participation and leadership at all levels of action, engagement, policy, and decision-making related to biodiversity.

Relevant GBF Goals and Target	National Action	Indicator	
Goal B Goal D	National Target 26	Headline Indicator: HI 23.b Biodiversity in Gender Strategy.	
Global Target 23	National Action 26.1: Ensure the integration of environmental concerns (including biodiversity) in national gender strategies.	Headline Indicator: HI 23.b Biodiversity in Gender Strategy.	
	National Action 26.2: Work with cooperatives, including women-led cooperatives, to direct and encourage women to diversify biodiversity-based activities through awareness-raising, capacity-building, and financial support.	National Indicator: <i>quantified [growth number]</i> : Number of women working in biodiversity projects, compared with previous years.	
	National Action 26.3: Conduct a baseline study on gender contextual analysis related to the biodiversity sector.	National Indicator: <i>binary</i> : Has a baseline study on gender contextual analysis related to the biodiversity sector been conducted?	

	Responsibility (ies) for the Implementation of the National Action	Timeline		Estimated Cost for the Implementation of the National Action (USD)
		Start Date	End Date	
	Lead: MoE Others: Ministry of Social Affairs	2026	2027	50,000.00
	Lead: MoE Others: NCLW	2026	2028	100,000.00
	Lead: MoE Others: Ministry of Social Affairs, research institutions	2026	2027	200,000.00

06

OPERATIONALIZATION PLAN



6.1 Summary of the Operationalization Plan

The legal adoption of the NBSAP through a CoM Decision will serve as a foundation for implementation, reinforcing institutional accountability and encouraging the integration of biodiversity priorities into planning processes. This will prompt responsible institutions to prioritize biodiversity-related projects aligned with the NBSAP when submitting funding proposals or developing annual work plans.

It is recommended to establish a National Coordination Entity, which could be the Steering Committee with expanded mandates to coordinate and monitor the implementation of the NBSAP. If conditions allow (at political, institutional, administrative and economic levels), an Operational Unit may be established, to act as a Secretariat to the National Coordination Entity. This unit would be fully dedicated to monitoring the implementation progress of the NBSAP and reporting progress to the entity.

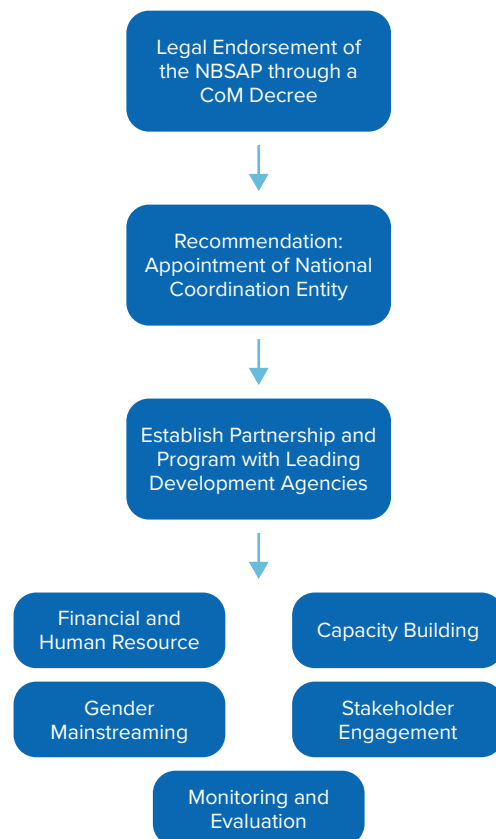
If this recommended approach is applied, the NBSAP will then follow a programmatic approach to achieve its targets, with implementation guided by measurable objectives, supported by monitoring and evaluation, and focused on continuous improvement.

To effectively advance NBSAP implementation, it is essential to establish partnerships with development agencies, develop a comprehensive implementation program, strengthen human and technological capacities, and mobilize financial resources from national, international, and innovative sources. The National Council for Environment will continue to serve as an advisory board and broader coordination platform to mainstream biodiversity into all relevant policies and strategic initiatives of other relevant sectors.

Stakeholder engagement is vital to improving access to knowledge, ensuring communication, and involving

affected communities throughout implementation efforts, aligning activities with stakeholder expectations and securing support. Gender integration is also crucial to addressing the differing ways women and men interact with, and benefit from, biodiversity.

Figure 6.1: Operationalization Plan of the NBSAP



6.2 Enhancing the Enabling Environment for Strategy Implementation

6.2.1 Legal Endorsement and NBSAP Implementation

The first step towards implementing the NBSAP is its adoption through a CoM Decision. With the Government's endorsement, stakeholders will be more engaged in executing the national actions relevant to

their roles and mandates within their respective institutions. Strengthening coordination among these stakeholders is also essential for achieving success and can be facilitated through the National Council for Environment. Additionally, the establishment of a National Coordination Entity (potentially the NBSAP update Steering Committee with expanded mandates) is recommended as part of the implementation framework and would be responsible for leading coordination and monitoring efforts.

6.2.2 Roles and Responsibilities

The recommended National Coordination Entity would effectively oversee NBSAP implementation, and the MoE would take the following steps:

- Prioritize NBSAP projects and activities when requesting Government funding.
- Prioritize NBSAP projects and activities when preparing donor financial proposals.
- Coordinate with existing and upcoming committees and councils to integrate NBSAP considerations into their work, providing guidance on relevant areas.
- Include the NBSAP communication and outreach plan in the MoE's awareness agenda and grant it priority.

1. Establishment of Partnerships:

The MoE may establish strategic partnerships with leading development agencies and organizations to leverage expertise, resources, and funding essential for the successful implementation of the NBSAP.

2. Creation of a Program for NBSAP Implementation:

If conditions permit, it is recommended to establish a comprehensive program at the MoE, in collaboration with partner agencies, to guide NBSAP implementation. This program would organize biodiversity initiatives and projects, with clear procedures for grant requests and resource mobilization, ensuring that all biodiversity

efforts in Lebanon fall within the scope of the Strategy and its targets.

Concerned ministries, public research institutions, academia, experts, NGOs, private sector actors, and civil society organizations will be required to report their ongoing biodiversity initiatives to the MoE/ Recommended Operational Unit, specifying which NBSAP targets will be addressed and the expected outcomes. The recommended Operational Unit would establish a reporting template for use by all contributing institutions.

The recommended Operational Unit (detailed in the next paragraph) may also create a centralized register to document all ongoing and planned biodiversity projects, linking each to specific NBSAP targets. This register should be regularly updated, with project contributions mapped and assessed for alignment with national targets.

Additionally, the party responsible for each proposed NBSAP action is listed in 5-1.

3. Formation of an Operational Unit:

As part of the recommended partnership program, a dedicated Operational Unit may be established. The Unit will facilitate and oversee the day-to-day execution of the NBSAP, serve as the Secretariat to the National Coordination Entity, and provide regular progress reports on implementation.

Potential roles and responsibilities of the Operational Unit include:

- **Planning:** Develop detailed work plans, mobilize resources, and coordinate stakeholder activities to ensure smooth implementation.
- **Resource Mobilization:** Collaborate with the National Coordination Entity and partner agencies to secure funding. This includes identifying funding sources, preparing proposals, and managing resources effectively.

- **Implementation Support:** Draft Terms of Reference (ToRs) and mobilize experts, academia, and consultants to implement national actions.
- **Monitoring and Evaluation:** Establish mechanisms to track progress, assess performance, and evaluate NBSAP effectiveness. Regular reports will monitor achievements and identify areas for improvement, ensuring targets are measured and reported to the CBD.
- **Engagement and Communication:**
 - o Engage a broad range of stakeholders, including government bodies, academia, NGOs, communities, and the private sector.
 - o Implement effective communication strategies and launch public awareness campaigns and educational initiatives to support NBSAP objectives.
- **Review and Adaptation:** Regularly review implementation progress and adjust the program as needed, maintaining flexibility to address new challenges and opportunities.
- **Reporting:** Provide regular updates to the National Coordination Entity on both its activities and overall NBSAP implementation progress.

6.2.3 Capacity Development and Availing Technology Needs

The successful execution of the NBSAP requires both human and technological resources. Among which

the human capacity needed to ensure the Strategy's continuity in terms of database development, monitoring and evaluation; as well as the technology necessary for implementing the identified actions.

Key Capacity-Building Areas are identified below, along with examples of specific actions based on the National Action Plan:

- Human Resources Development:
 - o National Action 3.7.
- Public Institutions Capacity Building:
 - o National Actions 1.8 / 16.2 / 15.1 / 16.6 / 16.10
- Capacity Building Budget Allocation:
 - o National Actions 23.1 / 23.2 / 15.2
- Awareness, Education, Trainings and Public Relations:
 - o National Actions 22.7 / 8.1 / 14.2 / 14.3 / 16.3 / 23.2 / 24.1 / 24.2 / 24.3 / 24.4 / 24.5 / 24.6
- Environmental Legislation and Law Enforcement:
 - o National Actions 1.6 / 3.3 / 6.3 / 8.7 / 16.9 / 16.15 / 16.16 / 16.17 / 20.1 / 20.4 / 21.1
- Access and Benefit Sharing:
 - o National Actions: 23.2 / 23.0 / 23.3 / 23.1
- Ecosystem Assessment and Management:
 - o National Actions: 1.2 / 1.2 / 1.3 / 1.4 / 1.7 / 1.9 / 2.1 / 2.2 / 2.3 / 2.4 / 2.5 / 2.6 / 2.7 / 3.1 / 3.2 / 3.5 / 3.6 / 3.9 / 4.1 / 4.2 / 4.3 / 5.1 / 5.2 / 7.1 / 8.4 / 9.1 / 9.2 / 9.3 / 9.4 / 10.1 / 10.2 / 12.1 / 12.2 / 12.3 / 22.6
- Promoting Women's Roles:
 - o National Actions: 26.2 / 26.2 / 26.1 / 26.1 / 26.1 / 26.3 / 26.2



Tannourine Cedar Forest Nature Reserve



Wadi Al Houjeir Nature Reserve

In order to ensure a holistic approach, capacity building should target the following three levels:

- **Systemic capacity development:** Includes interventions that help create or enhance an enabling environment, including supportive policies, regulations, and incentives, to strengthen individual and institutional capacities. Systemic capacity development also strengthens coordination between various institutions.
- **Institutional capacity development:** Comprises the internal policies, arrangements, procedures, and human resources that allow an institution to operate and deliver on its mandate. Institutions with improved individual capacity will be able to better develop sound policies, regulations, and incentives that enable the delivery of interventions on the ground.
- **Individual capacity development:** includes interventions that generate and improve knowledge, skills, and attitudes through training and workshops, on-the job professional development, continuing education, and/or mentoring, study tours, and networking. Building individual capacities is integral to active biodiversity conservation efforts on the ground, as it directly contributes to the overall performance and effectiveness of institutions.

6.3 Resource Mobilization

6.3.1 Financial Resources

The implementation of the strategy will require dedicated financial resources, assessed to be in the range of USD 60.2 million total, or around USD 10 million per year between 2025 and 2030.



The estimated cost per National Action is detailed in Table 5-1.

A national target (Target 22) has been set to mobilize at least USD 100 million by 2030 to support national biodiversity strategies and action plans, along with seven National actions for its implementation:

- o National Actions: 22.1 / 22.2 / 22.3 / 22.4 / 22.5 / 22.6 / 22.7

The financing strategy developed for the NBSAP centers on three primary sources: (1) National Sources, (2) International Sources, and (3) New Funding Opportunities.

6.3.1.1 National Funding Sources

The Lebanese Central Treasury is the main source of national financing. However, the Government's

budget does not allocate a dedicated share for biodiversity; instead, it provides general funding to the MoE and finances specific programs or projects on a case-by-case basis. Despite the significant resource constraints facing the Lebanese government, the MoE should advocate for an increased budget allocation to partially fund NBSAP's implementation.

6.3.1.2 International Funding Sources

Given Lebanon's geopolitical situation, the country has consistently relied on international funding. Meeting for the needs of the NBSAP will require significantly more resources, necessitating stronger efforts in resource mobilization.

Biodiversity-related international financing is also accessible to institutions such as the MoA, OMSAR,

LARI, CNRS, academic bodies, NGOs, and municipalities for research and project implementation.

The MoE will establish partnerships with leading implementing agencies to develop a comprehensive program for advancing the NBSAP and will seek financial support from various donors.

Positioning the NBSAP as the main framework for biodiversity-related interventions will strengthen international resource mobilization. Donors, especially through Overseas Development Assistance (ODA), are increasingly prioritizing support for overarching

programs rather than fragmented projects. The NBSAP hence provides a structured foundation well-suited for this programmatic funding approach.

The international donors listed in Table 6-1 provide loans, grants, co-financing, or technical assistance for environmental projects in Lebanon, the Mediterranean, and the Middle East, targeting governments, the public and private sectors, and NGOs. This provides a solid foundation for the MoE and the National Coordination Entity to mobilize the required international financial resources.

Table 6-1: Examples of Financing Sources

Multilateral Donors	Bilateral Donors	Funds and Foundations
The Arab Fund for Economic and Social Development (AFESD)	Japan	Finance for Biodiversity Foundation
Adaptation Fund (AF)	Kuwait	Citibank/Citigroup Foundation
Global Environment Facility (GEF)	Italian Cooperation	Critical Ecosystem Partnership Fund (CEPF)
Global Biodiversity Framework Fund - GEF	The Spanish agency for International Cooperation and Development (aecid)	Heinrich Boell Foundation
Green Climate Fund (GCF)	Japan International Cooperation Agency (JICA)	Aga Khan Development Foundation
World Bank (WB)	Swedish International Development Cooperation Agency (SIDA)	MAVA Foundation
Europe Aid– EC	Norwegian Agency for Development Cooperation (Norad)	MedFund
Special Climate Change Fund (SCCF) of GEF	Belgian Development Agency	DIMFE
Carbon Finance Unit (World Bank)	Federal Ministry for Economic Cooperation and Development (BMZ)	
The International Fund for Agricultural Development (IFAD)	Development Bank of Austria	

Multilateral Donors	Bilateral Donors	Funds and Foundations
Private Financing Advisory Network (PFAN)	Global Methane Initiative (USEPA)	
MDG Carbon Facility (UNDP)	International Development Research Center CANADA (IDRC)	
Catastrophic Risk Management (World Bank)	Fonds Francais pour l'Environnement Mondial (FFEM)	
Climate Finance Innovation Facility	International Climate Initiative of the Federal Ministry for the Environment, Nature Conservation and Nuclear Safety	
Global Facility for Disaster Reduction and Recovery (GFDRR)	Belgian Investment Company for Developing Countries	
Mediterranean Investment Facility (MIF)	Center for International Migration and Development	
Small Grants Programme (UNDP)	PROPARCO	
Climate and Development Knowledge Network		
International Climate Fund (UK-ICF)		
Climate Change Technical Assistance Facility		
Public Private Infrastructure Advisory Facility (PPIAF)		



Wadi Al Houjeir Nature Reserve

6.3.1.3 New Funding Opportunities

New funding opportunities include innovative financing sources such as:

- **Polluter Pays Principle:** Implementing punitive fees and fines to penalize and deter environmentally and biodiversity-harmful behavior.
- **Government Revenue Allocation:** Committing a share of existing environmental revenues to biodiversity conservation, such as allocating a portion of entrance fees from Nature Reserves and parks. This should be formalized through legislation to ensure implementation.

Additional new initiatives, proposed in this NBSAP, that can be considered by the Lebanese government include:

- **New Environmental Fiscal Revenues:** Introducing taxes on natural resource extraction.
- **Debt-for-Nature Swaps:** Enabling mechanisms that convert national debt into funding for biodiversity conservation.
- **Innovative Mechanisms:** Promoting tools such as payment for ecosystem services, green bonds, biodiversity offsets and credits, and benefit-sharing mechanisms.
- **Private Sector Involvement:** Encouraging private sector participation in biodiversity financing through:
 - o Public-Private Partnerships (PPPs).
 - o Corporate Social Responsibility (CSR) initiatives.
 - o Environmental subsidies, including:
 - *Explicit subsidies (e.g., direct financial grants).*

- *Implicit subsidies (e.g., tax exemptions or public goods such as energy and water provision).*

6.3.2 Human Resources

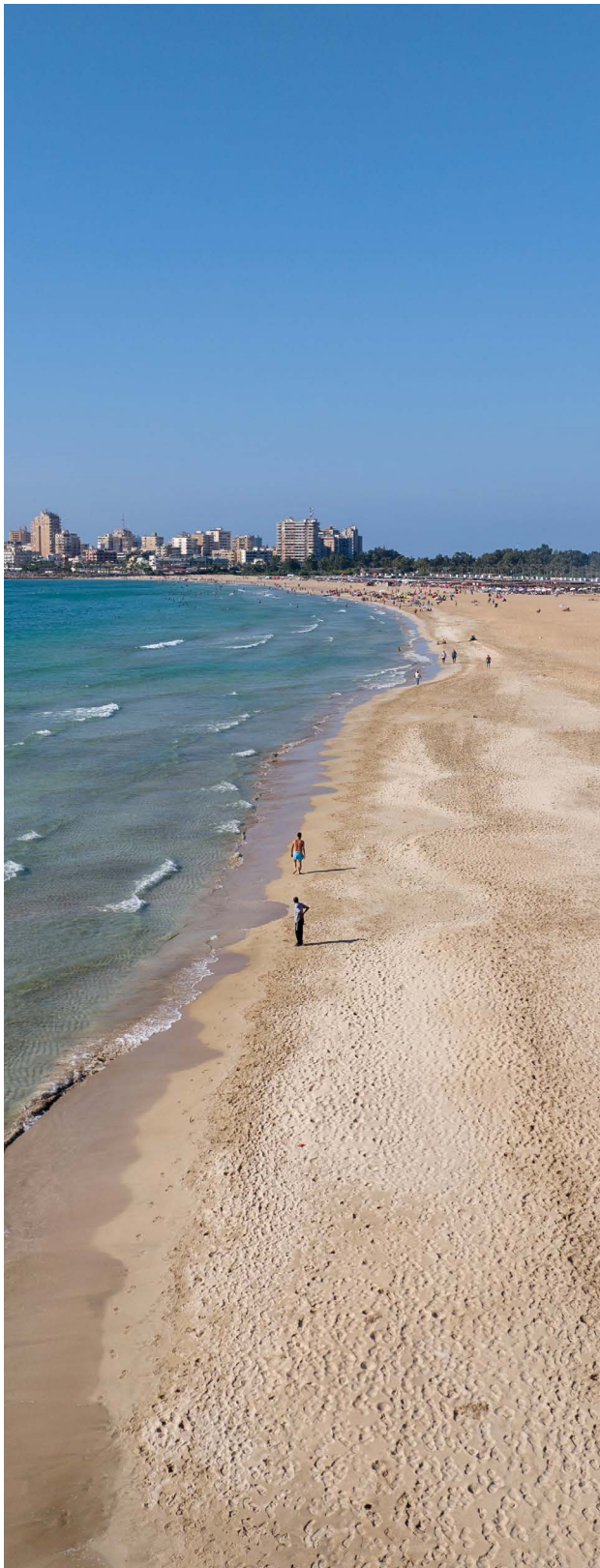
As mentioned in Sections 6.2.2 6.2.2 (paragraph 3), the recommended Operational Unit should have a clear organizational structure, with defined roles for project managers, administrative staff, financial officers, and technical experts. While the key functions of the recommended Operational Unit are outlined in the previous sections, they are summarized here:

- **Appointment of Consultants and Experts:** Engage qualified consultants, biodiversity experts, and specialists to provide technical guidance, conduct assessments, and support strategy and plan development.
- **Planning:** Develop detailed work plans and schedules, outlining specific tasks, timelines, and deliverables to ensure well-coordinated implementation aligned with NBSAP objectives.
- **Reporting:** Generate regular reports to the National Coordination Unit/Steering Committee, detailing progress, consultation outcomes, expert inputs, and overall implementation impacts.

6.4 Challenges and Limitations

Lebanon is grappling with severe challenges across a variety of sectors, among those affecting biodiversity initiatives, stemming majorly from prolonged economic hardship, political instability, and escalating regional tensions.

The economic downturn in particular, has severely limited both financial and human resources in public



Tyre Coast Nature Reserve

institutions, making it difficult for government institutions to secure support for environmental initiatives.

The economic crisis and scarcity of funding, combined with political instability, hamper the organization of biodiversity programs, campaigns, and events, and obstruct progress toward achieving the updated NBSAP targets.

Additional pressures such as urbanization, unregulated development, agriculture, pollution, and climate change further threaten natural habitats and ecosystems.

Addressing such interdependent threats demands a strategic and resilient conservation approach that prioritizes institutional coordination, targeted funding, and locally grounded interventions responsive to Lebanon's current realities.

6.5 NBSAP Timeline

The timeline for the NBSAP is carefully structured to support the effective implementation of each national target and action. The strategy deployment is designed to span from 2025 to 2030 (consistent with CBD recommendations), with specific deadlines set for each action and with the understanding that achieving the set targets will require sustained efforts, flexibility, and adaptive planning.

The detailed timeline for each action, including start and end dates, is presented in Table 5-1.

6.6 Gender Mainstreaming

6.6.1 Situational Analysis

6.6.1.1 Policy and Institutional Framework

The Lebanese Constitution, enacted in 1926 and subsequently amended (Lebanese Parliament, 1990), promotes equality and non-discrimination by guaranteeing

equal civic and political rights to all (Article 7), free education (Article 10), and equal access to public positions (Article 12). However, it does not explicitly prohibit discrimination based on sex or gender, or does it mention gender equality as a formal concept (Amnesty International, 2019).

While women in Lebanon gained the right to vote in 1952, no legal quota currently guarantees their representation in Parliament, despite longstanding advocacy for a 30% quota. The current Lebanese government, formed in February 2025, includes 5 women out of 24 ministers, representing approximately 21% female participation, marking one of the highest levels of women's representation in a Lebanese cabinet to date.

At the municipal level, women's representation remains limited. While the 2016 elections saw only 1,519 women candidates out of a total of 21,932 candidates, and 663 women elected out of 12,139 municipal council members (5.4%), the 2025 municipal elections showed only a modest improvement, with women winning 10.37% of municipal council seats nationwide.

In mukhtar elections, gender gaps remain even wider. Although 57 women (1.9% of mukhtar positions) were elected in 2016, women secured only 2.42% of mukhtar positions in the 2025 cycle, despite a slight increase in female candidacy (Sources: Ministry of Interior; LADE & UNDP election monitoring reports).

Noteworthy barriers to participation, as noted in a 2023 Asfari Foundation report, consist of no gender quotas in municipal elections, a deficit in political will,

and insufficient access to resources such as funding and training. Despite women often lead departments in ministries such as Agriculture and Environment, they remain largely absent from high-level decision-making roles. **While the current government includes women ministers—including the Minister of Environment (the first time a woman has been appointed to this role) and the Minister of Education— women remain largely absent from director general positions and senior executive roles across most ministries.**

6.6.1.2 Performance According to Gender Equality Indices

Lebanon is an active member of the global community in promoting gender equality, though gender inequality remains rampant in the country, particularly in its legal foundations. In 2021, Lebanon's female Human Development Index (HDI) was 0.650, compared to 0.737 for males, yielding a Gender Development Index (GDI)⁹ value of 0.882 (35) and placing the country in Group 5¹⁰. According to the World Economic Forum, Lebanon ranked 132nd out of 146 countries in the 2023 Global Gender Gap Index, having dropped 13 places. While economic collapse and rising poverty affect all, women are often disproportionately impacted and may face increased unpaid domestic labor, higher food insecurity, poverty, and domestic violence.

Although Lebanon has ratified several international conventions affirming gender equality,¹¹ the topic remains a low government priority, compounded by ongoing political, security, and economic crises. In the

⁹ The GDI is a ratio of the female to the male HDI. It measures the levels of gender parity within societies, and it ranges from zero (perfect gender equality) to around one (no gender parity).

¹⁰ Group 5: Countries with absolute deviation from gender parity of more than 10 percent are considered countries with low equality in HDI achievements between women and men.

¹¹ The international conventions ratified by Lebanon:

- The Universal Declaration of Human Rights (ratified in 1948).
- The International Convention on the Political Rights of Women (ratified in 1955).
- The Convention against Discrimination in Education (ratified in 1964).
- The International Covenant on Economic, Social and Cultural Rights (ratified in 1972).
- The International Covenant on Civil and Political Rights (ratified in 1972).
- The International Convention concerning Equal Remuneration for Men and Women Workers for Work of Equal Value (ratified in 1977).
- The International Convention concerning Discrimination in Respect of Employment and Occupation (ratified in 1977).
- The Convention on the Elimination of All Forms of Discrimination against Women (CEDAW) (ratified in 1997).

absence of a Ministry for women affairs¹², the National Commission for Lebanese Women (NCLW) (established under Law 720/1998 and affiliated with the CoM) serves as the official body for promoting women's rights and gender mainstreaming. NCLW advises the government, coordinates with ministries and CSOs, engages with regional and international partners, and monitors gender-related issues.

6.6.1.3 Work, Land and Property

Women represent about one-fourth of the Lebanese workforce, with unemployment rates for women (10%) double those for men (5%). Only 17% of women are self-employed compared to 43% of men, and just 4% of companies have a female top manager. According to the International Labor Organization (ILO), 75.9% of jobs in Lebanon are in services, 20.5% in industry, and 3.6% in agriculture. Women account for 13.3% of the agricultural workforce. Overall, 91.8% of women work in services, 6.7% in industry, and less than 2% in agriculture.

Article 7 of the Lebanese Constitution grants women equal rights to contract, own, and manage property regardless of marital status. In practice, however, many

women are influenced by male relatives in managing assets, and societal norms often result in family property being registered under male names, even when it contradicts inheritance laws (FAO, 2021). The “Improved Livelihoods for Underprivileged Women in North Lebanon” project (2013–2015) implemented by the René Moawad Foundation (RMF) found that women's limited access to credit is linked to their inability to provide collateral, which restricts opportunities for business development (René Moawad Foundation, 2015).

6.6.1.4 Women in Sectoral Policies

In 2023, the National Commission for Lebanese Women (NCLW) launched its multiyear “National Strategy for Women in Lebanon” (2022–2030), in alignment with the 2030 Agenda and Lebanon's 2019 National Action Plan for Security Council Resolution 1325, and in response to CEDAW Committee recommendations following Lebanon's sixth report. While the strategy emphasizes social protection and economic empowerment, it does not address the environmental sector or how gender dynamics influence women's resilience to climate change.



Ammiq Wetlands

¹² A Ministry for Women's Affairs was established twice during 2016 and 2019 cabinet terms, but cancelled during the mandate of the current caretaker cabinet

A 2018 ILO study shows that half of Lebanon's cooperatives operate in agriculture and a quarter in agro-food. Around 125 (9%) of those are women-led cooperatives (UNWomen, 2023). Such cooperatives, mainly focused on traditional food production, play a key role in local economies by supporting farmers and offering sustainable livelihoods for vulnerable women. Many have benefited from international support (e.g., FAO, UNDP, USAID) through equipment, training, and improved market access. However, many remain dependent on external aid and lack true operational independence.

In the forestry sector, gender division of labor persists. Physically demanding tasks are often assigned to men, while women are more engaged in “other wooded lands”¹³ and “other lands”¹⁴, participating in seasonal activities such as olive harvesting, soap production, and gathering plants for oils (El-Iraki, 2015; FAO, 2021). These roles, although vital to natural resource conservation and income generation, often lack income stability.

Lebanon's NDC framework highlights sustainable forest management and gender inclusivity as part of its pathway to carbon neutrality and LEDS 2050 objectives (FAO, 2020). A just, gender-responsive transition is prioritized, especially for vulnerable groups. Climate adaptation in forestry includes restoring degraded land, increasing forest cover, and ensuring gender equity in access and decision-making, supported by international finance and capacity-building.

The MoA's NAS 2020–2025 embeds gender sensitivity throughout its structure. Building on lessons

from the 2015–2019 strategy, it identifies inclusion of women and youth as a core priority and addresses barriers to entrepreneurship, structural inequalities, and the socio-economic marginalization of vulnerable groups through a people-centered, gender-sensitive approach.

6.6.2 Contribution of NBSAP to Gender Sustainability

Perceptions, use, and benefits of biodiversity vary by gender, as women and men interact with the environment differently due to unequal access to resources and income opportunities. Applying a gender lens to biodiversity conservation and sustainable use helps highlight said differences and emphasizes the distinct knowledge and skills that both women and men contribute to these fields.

Mainstreaming gender in the NBSAP is essential to ensure that policies and actions promote gender equality and do not inadvertently reinforce existing disparities. The 2030 Strategy presents a key opportunity to reassess existing projects and improve data collection to better reflect the needs of women, girls, and vulnerable groups in relation to biodiversity. This positions the MoE as a leading entity in integrating gender perspectives into biodiversity policy and encourages it to surpass global commitments by addressing inequality at its root.

Through the national participatory consultation process, two national targets (National Target 25 and National Target 26) were set using a gender-responsive approach to promote equality and enable all women and girls to contribute to the three objectives of the Convention. Achieving these targets requires inclusive

¹³ Other wooded land is the land spanning more than 0.005 km² (0.5 hectares); with trees higher than 5 meters and a canopy cover of 5-10 percent, or trees able to reach these thresholds in situ; or with a combined cover of shrubs, bushes and trees above 10 percent. Mangroves and forests on wetlands according to the above height and canopy should be included. It does not include land that is predominantly under agricultural or urban land use (FAO, n.d.).

¹⁴ All other land is the land not classified as Agricultural land, Forest area and “Other wooded land”. It includes built-up and related land, barren land, etc. (FAO, n.d.).

participatory mechanisms and equitable access to information and justice.

- o National Actions 25.1 / 25.2 / 25.3 / 25.4 / 25.5 / 25.6
- o National Actions 26.1 / 26.2 / 26.3

Gender-sensitive structural platforms will ensure the full and meaningful engagement of all groups in policy-making. Consultations with the NCLW will support gender mainstreaming in biodiversity-related activities. Additionally, existing biodiversity data collection methods will be reviewed to assess the feasibility of incorporating gender-disaggregated data, including the recognition of women's contributions across sectors.

A key focus is the integration of biodiversity and gender perspectives into national priorities, policies, and plans through explicit, gender-responsive approaches.

6.7 Stakeholders Engagement

Lack of public interest and awareness remain significant obstacles to the effective implementation of the NBSAP. To overcome this, it is critical to ensure transparent access to information and provide clear, accessible data that enables the public to take informed action and demand accountability from decision-makers.

A Stakeholders Engagement Plan (SEP) serves to align project activities with stakeholder expectations, gain support, and manage risks. Its primary goal is to ensure that stakeholders, especially local communities and vulnerable groups, understand the Strategy's requirements, environmental and social implications, and justifications for planned actions.

The SEP aims to gather feedback, concerns, and grievances from affected and interested stakeholders, fostering early alignment, ownership, and meaningful participation in implementation. It also serves as a tool to establish transparent and ongoing communication

channels. Stakeholder input may also inform adjustments to the scope of actions.

During NBSAP development, stakeholder engagement was robust, and information was sufficiently disclosed to promote awareness and understanding. The engagement process involved:

- Identifying affected communities and interested parties (e.g., government agencies and NGOs).
- Conducting meaningful consultations on potential impacts.
- Maintaining continuous, constructive engagement during implementation.



Bentael Nature Reserve

6.7.1 Key Stakeholders

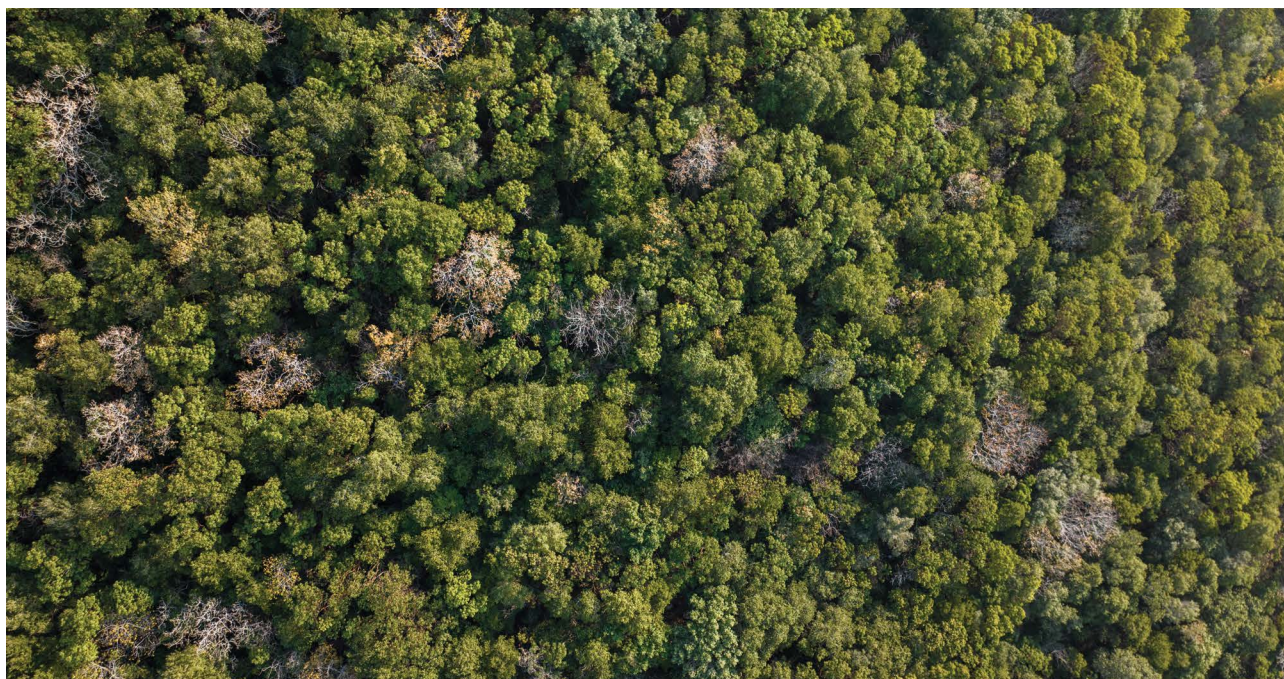
Stakeholders were identified and categorized based on their influence, interest, and impact on biodiversity. Each category requires a tailored engagement approach.

- **Government Agencies:** This group includes both directly and indirectly involved ministries:
 - **Ministry of Environment:** Acts as the lead authority for environmental management and the CBD focal point. It is responsible for placing the NBSAP on the CoM's agenda and promoting its adoption.
 - **Ministry of Agriculture:** Oversees forestry, fisheries, and agriculture.
 - **Ministry of Interior and Municipalities:** Supervises municipalities and law enforcement.
 - **Ministry of Defense – Lebanese Army:** Holds GIS data and engages civil society through CIMIC.
 - **Ministry of Energy and Water:** Manages water, electricity, and extractive industries.
 - **Ministry of Education and Higher Education:** Shapes educational policy and environmental literacy.
 - **Ministry of Public Works and Transport (Urban Planning):** Reviews and updates master plans.

Engagement should highlight the economic costs of biodiversity loss, its health implications, and the economic value of ecosystems to gain decision-maker support.

- **Local Authorities:** Governorates and Municipalities: These local bodies are empowered to development needs. They must be informed of how they can directly contribute to NBSAP goals.

- **Civil Society:** NGOs, Women and Youth Groups: These groups act as intermediaries between communities and government, enhancing outreach and participation.
- **International Organizations and Donors:** Entities such as UN agencies (e.g., FAO, UNDP, UNEP, WHO, WFP), the EU, USAID, GIZ provide the technical and financial support crucial for implementing the Strategy and SEP.
- **Academic and Research Institutions:** Universities (e.g., LU, USJ, AUB, USEK, UoB, NDU), and research institutions (CNRS, LARI) offer essential biodiversity data, knowledge, and technical input.
- **Students:** Students at all education levels must be engaged through the National Strategy for Environmental Education and its curriculum, supported by teacher training and capacity-building.
- **Private Sector:** Businesses and industries—particularly those in natural resource and finance sectors—have a direct impact on biodiversity and should be involved in implementation.
- **Cooperatives:** Agriculture, food processing, and women-led cooperatives play a vital role in biodiversity-linked livelihoods and can support NBSAP efforts.
- **Vulnerable and Disadvantaged Groups:** This includes women, youth, the elderly, persons with disabilities, illiterate individuals, and displaced persons. Their involvement ensures inclusivity and leverages local knowledge.
- **General Public:** Awareness and engagement should be led by an empowered MoE awareness unit. A comprehensive media and outreach plan should use TV, radio, print, social media, and SMS, alongside NGO partnerships, to share biodiversity facts, NBSAP progress, and educational content across platforms and audiences.



Machaa Chnaniir Nature Reserve

6.7.2 Communication and Engagement Methods

Mirroring the approach used during the NBSAP update, the implementation stage will employ communication and engagement methods tailored to specific topics and the required level of engagement for each stakeholder group.

The following methods may be used during the implementation of the NBSAP:

- **Workshops and Consultations:** Organized at the national, regional, and local levels to gather broad stakeholder input.
- **Focus Group Discussions (FGDs):** Held with targeted groups—such as local communities, farmers, or private sector actors—to address specific concerns and contributions.
- **Surveys and Questionnaires:** Distributed to the public and harder-to-reach stakeholders to collect feedback on deliverables. These will be shared via the MoE website, partner platforms, and social media.

- **Online Platforms:** A dedicated portal or social media channels will be used to share information and gather feedback.
- **Community Meetings:** Local public forums designed to allow open dialogue and ensure input from affected communities.
- **One-to-One Meetings:** Direct engagement with key stakeholders (e.g., government officials, industry leaders) to define roles and responsibilities.

6.7.3 Communication/Outreach Strategy

Table 6-2 below proposes the most adapted means of communication and information-sharing for each NBSAP stakeholder group. These mechanisms are recommended for application following the issuance of the NBSAP, during its implementation phase. It should be noted that some of these methods, such as workshops, emails, and focus group discussions, were already utilized during the NBSAP update process.

Table 6-2: Stakeholders Communication Means Used during NBSAP Update Process and Recommended for NBSAP Implementation

Stakeholder Group	Language Needs	Preferred Notification / Engagement / Consultation Methods	Specific Needs
Government Agencies	Arabic/English	Written correspondence in Arabic sent by email and in hard copy, phone calls, one-on-one interview, focus group discussions, and workshops	During official working hours, virtual meetings
Local and International organizations	Arabic/English	Email, phone calls, one-on-one meetings, social media, and workshops	No specific needs
Academia and students	Arabic/English/French	Written correspondence sent by email and/or in hard copy, social media, and workshops	No specific needs
Private sector entities	Arabic/English	Written correspondence sent by email and/or in hard copy, social media, and workshops	During working hours
Cooperatives	Arabic	Written correspondence in Arabic sent by email and in hard copy, phone calls, one-on-one interviews, focus group discussions, and workshops	During working hours
Vulnerable / Disadvantaged Groups	Arabic	Phone calls, direct visit for one-on-one meetings (if possible), focus group discussions, and engagement through relevant and identified NGOs	Daytime meeting in easily accessible locations to accommodate elderly participants, and if possible, equipped with childcare space for women attending with children. Transportation needs should be covered by participants and stakeholders.
General Public	Arabic	Online platforms, social media, surveys, and questionnaires	No specific needs

The MoE will develop outreach materials tailored to nine key audiences: government agencies (national and local), civil society organizations, international donors, academia and students, business/industries, cooperatives, vulnerable groups, and the general public. Outreach materials would include:

- **PowerPoint Presentations:** Customized slide decks explaining biodiversity and NBSAP objectives, adapted to each audience (e.g., national decision-makers vs. students).
- **Visual Tools:** Designed maps, graphics, tables, and animated data visualizations for use across media and presentations.
- **Online Platforms:** Updated, user-friendly MoE and CHM websites featuring multimedia content (videos, podcasts, publications) to facilitate wide-scale knowledge and updates.
- **Periodic E-Publications:** Digital compilations of information generated through NBSAP activities. on the frequency of these publications will be determined by funding availability and ongoing projects.

6.7.4 Coordination of Partnership Communication

MoE information would reach users directly through MoE campaigns, implemented actions, and partner agencies—particularly Local Government Authorities (municipalities, cazas, governorates), the MoA, the Mol, and media councils—aligned with their communication activities and MoE requests.

Additionally, MoE would:

- Collaborate with partners to feature deliverables in their periodic publications.
- Use television channels for regular biodiversity messaging.

- Maintain and update its website (www.moe.gov.lb) and social media accounts, mainly its Facebook page.
- Produce press briefings and releases, leveraging key junctures and opportunities.
- Provide biodiversity literacy training to local government staff.
- Integrate biodiversity literacy into school and university curricula.

The MoE and its partners will coordinate messaging and press releases for biodiversity-related observances (e.g., World Environment Day, International Day for Biodiversity, and National Protected Areas Day). They will also leverage high-profile events, such as natural disasters or major international meetings, to organize press briefings and supply media materials.

6.8 Monitoring and Evaluation

To assess the delivery of this biodiversity strategy and identify further actions required, NBSAP implementation and progress towards its targets will be audited using a set of indicators tailored to the national targets and actions, as presented in the list of Section 5.8. Monitoring will be conducted based on these KPIs, which will serve as a basis for reporting and allow for adjustments if needed. Modifications to the design of certain activities may prove necessary to ensure more effective delivery.

Formulated indicators will help assess the extent of the NBSAP's implementation, highlighting areas of success, as well as areas of failure or delay. The recommended Operational Unit may allocate a specific budget for monitoring.

07

REFERENCES AND APPENDICES



References

- Al Jazeera. (2019, October 17). 'It was like judgment day': Lebanese devastated by wildfires.
<https://www.aljazeera.com/news/2019/10/17/it-was-like-judgment-day-lebanese-devastated-by-wildfires>
- Al Zein, G. (2001). Étude systématique du *Phoxinellus libani*, espèce endémique du Liban.
- American University of Beirut Nature Conservation Center (AUB NCC). (2020). The importance of protecting the Lebanese High Mountains: A preliminary ecosystem services assessment.
<https://aub.edu.lb/natureconservation/Documents/MOUNTAIN%20ECOSYSTEM%20%20DOCUMENT%20APR%2027%202020%20SNT.pdf>
- Amnesty International. (2019). Lebanon: A human rights agenda.
<https://www.amnesty.org/en/wp-content/uploads/2021/05/MDE1898212019ENGLISH.pdf>
- Badreddine, A., Limam, A., & BenNakhla, L. (2020). On the occurrence of the Mediterranean monk seal (*Monachus monachus*) (Hermann, 1779) in the Lebanese waters (Eastern Mediterranean Sea). SPA/RAC–UNEP.
<https://doi.org/10.13140/RG.2.2.23333.32485>
- Bariche, M., & Forcada, A. (2018). The National Action Plan Concerning Marine Species Introduction and Invasive Species in Lebanon. SPA/RAC, Tunis.
- Bariche, M., & Fricke, R. (2020). The marine ichthyofauna of Lebanon: An annotated checklist, history, biogeography, and conservation status. ResearchGate.
https://www.researchgate.net/publication/341322280_The_marine_ichthyofauna_of_Lebanon_an_annotated_checklist_history_biogeography_and_conservation_status
- Bariche, M., & Harmelin, J.-G. (n.d.). Flore et faune marines du Liban (Méditerranée orientale) : Biologie, biodiversité, biogéographie. ResearchGate.
https://www.researchgate.net/publication/303982405_FLORE_ET_FAUNE_MARINES_DU_LIBAN_Mediterranee_Orientale_BIOLOGIE_BIODIVERSITE_BIOGEOGRAPHIE
- Bitar, G., Ramadan-Jaradi, G., Hraoui-Bloquet, S., & Lteif, M. (2018). Coastal ecosystems of the Lebanese coast: Ecological status, conservation, evolution.
https://www.researchgate.net/publication/328116690_Coastal_ecosystems_of_the_Lebanese_coast_ecological_status_conservation_evolution
- Bößneck, U. (2011). New records of freshwater and land molluscs from Lebanon. Zoology in the Middle East.
<https://doi.org/10.1080/09397140.2011.10648879>
- Bou Khzam, R. (2024, August 30). Lebanon's hospitality sector: resilience amid uncertainty. Executive Magazine.
[executive-magazine.com](https://executive-magazine.com/executive-magazine.com)
- Conflict and Environment Observatory. (2024, December). Scoping conflict-linked environmental harm in southern Lebanon.
<https://ceobs.org/conflict-linked-environmental-harm-in-southern-lebanon/>

- Dal, E., Díaz-González, A.M., Morales-Opazo, C., & Vigani, M. (2021). Lebanon's agricultural sector: challenges and opportunities. FAO Agricultural Development Economics Policy Brief 38. Rome: Food and Agriculture Organization (FAO).
- Duffy, J. (2006). Marine Ecosystem Services.
<http://www.eoearth.org/view/article/154472>
- El Zein, H., & Kahale, R. (2022). First comprehensive IUCN Red List assessment of 100 endemic species of the flora of Lebanon. *Flora Mediterranea*, 32: 327–338. International Union for Conservation of Nature (IUCN) / Herbarium Mediterraneum Panormitanum.
<https://doi.org/10.7320/FIMedit32.327>
- European Commission. (2024). C(2024) 5661 final – Annex (Acte autonome NLW), Part 1. European Commission – Enlargement.
enlargement.ec.europa.eu
- FireLab, University of Balamand. (n.d.). Profile Country Annex 5.
<http://ioe-firelab.balamand.edu.lb/pages/ProfileCountryAnnex5.aspx>
- Food and Agriculture Organization of the United Nations (FAO) & Ministry of Agriculture (MoA). (2015). National strategy for conservation and management of plant genetic resources for food and agriculture in Lebanon: 2015–2035 (TCP/SNO/3401). Retrieved from <https://faolex.fao.org/docs/pdf/leb169447.pdf>
- Food and Agriculture Organization (FAO). (2020). Lebanon's nationally determined contribution: Updated 2020 version.
<https://www.fao.org/documents/card/en/c/leb205977E>
- Food and Agriculture Organization (FAO). (2021). Country gender assessment of the agriculture and rural sector – Lebanon.
<https://doi.org/10.4060/cb3025en>
- Food and Agriculture Organization (FAO). (n.d.). Indicators definitions. Food and Agriculture Organization of the United Nations.
<https://www.fao.org/in-action/countrystat/news-and-events/events/training-material/indicators-definitions/en/>
- Jones, S.K., Remans, R., Dulloo, M.E., Estrada Carmona, N., Bailey, A., Grazioli, F., Villani, C. and Bissessur, P. (2022) Agrobiodiversity Index Report 2021: Assessing Mediterranean food systems. Rome, Italy: Bioversity International.
- Global Biodiversity Information Facility (GBIF). (n.d.). Dataset: Lebanese biodiversity records.
<https://www.gbif.org/dataset/100b176f-c442-4cd7-85c7-6503ee216db7#description>
- Global Footprint Network. (2023). National Footprint and Biocapacity Accounts, 2023 Edition. Oakland.
<https://data.footprintnetwork.org/#/>

- Global Forest Watch. (2023). Lebanon deforestation rates & statistics.
<https://www.globalforestwatch.org/dashboards/country/LBN?category=fires>
- Glöer, P., Dia, A., & Falkner, G. (2012). The genus *Pseudobithynia* in Lebanon, with a redescription of three species and additional notes on its ecology (Mollusca: Bithyniidae). ResearchGate.
https://www.researchgate.net/publication/263043060_The_genus_Pseudobithynia_in_Lebanon_with_a_redescription_of_three_species_and_additional_notes_on_its_ecology_Mollusca_Bithyniidae
- iMAP Lebanon. (2019). iMAP Liban. Regional Animal Care – Société Protectrice des Animaux (RACSPA).
https://www.rac-spa.org/sites/default/files/ecap/imap_lebanon/imap_liban_eng_2019.pdf
- International Union for Conservation of Nature. (n.d).
<https://iucn.org/>
- International Union for Conservation of Nature (IUCN). (2021). Lebanon: Biodiversity and ecosystem services assessment.
<https://portals.iucn.org/library/sites/library/files/documents/2021-024-En.pdf>
- Jaafar, H. (2024). Assessment of wildfire extent and intensity in southern Lebanon during the 2023–2024 conflict using Sentinel-2 and MODIS fire radiative power data.
<https://sites.aub.edu.lb/aghive/2024/11/03/the-2024-israeli-war-on-lebanon-a-devastating-blow-to-agriculture-and-the-environment/>
- Jones, S. K., Remans, R., Dulloo, M. E., Estrada-Carmona, N., Bissessur, P., Bailey, A., Grazioli, F., & Villani, C. (2022). Agrobiodiversity Index Report 2021: Assessing Mediterranean food systems. Bioversity International.
https://www.researchgate.net/profile/Sarah-Jones-25/publication/360846082_Agrobiodiversity_Index_Report_2021_Assessing_Mediterranean_food_systems/links/6296029b1117461e03ad3259/Agrobiodiversity-Index-Report-2021-Assessing-Mediterranean-food-systems.pdf
- Khater, C., & El-Hajj, R. (2012). Chapter VII: Terrestrial Biodiversity in Lebanon. Review and Perspectives of Environmental Studies; Kouyoumjian, H., Hamze, M., Eds, 141-169.
- Lakkis, S. 2013. Flore et faune marines du Liban (Méditerranée Orientale). Biologie, biodiversité, biogéographie. Rome. Aracne Publ.
- Lakkis, S. (2018). Biodiversité marine du Liban: Faune et flore marines de la côte libanaise. Lebanese University.
<https://ul.edu.lb/files/epubs/2018-SamiLakkis-Biodiversit%C3%A9.pdf>
- Lebanese Parliament. (1990). Lebanese Constitution (English version).
<https://lp.gov.lb/backoffice/uploads/files/Lebanese%20%20Constitution-%20En.pdf>
- Lebanon's Nationally Determined Contribution Updated 2020 Version.
[lebanon/205977E.pdf](https://fao.org/lebanon/205977E.pdf) (fao.org)
- Mahdi, H. (2025, January 21). The impact of the Israeli war on Lebanon: A “postponed” environmental catastrophe. Daraj.
<https://daraj.media/en/the-impact-of-the-israeli-war-on-lebanon-a-postponed-environmental-catastrophe/>

- Ministry of Agriculture (MoA), United Nations Environment Programme (UNEP), & Global Environment Facility (GEF). (1996). Biodiversity Country Study (BCS). Beirut, Lebanon: Ministry of Agriculture. Retrieved from http://www.agriculture.gov.lb/english_file/bernabio.html
- Ministry of Agriculture (MoA). (2003). National action program to combat desertification. Beirut, Lebanon: Ministry of Agriculture.
- Ministry of Agriculture (MoA), Lebanon. (2020). Lebanon National Agriculture Strategy (NAS) 2020–2025. <http://www.agriculture.gov.lb/getattachment/Ministry/Ministry-Strategy/strategy-2020-2025/NAS-web-Eng-7Sep2020.pdf?lang=ar-LB>
- Ministry of Energy and Water. (2020). Updated National Water Sector Strategy 2020–2035. Republic of Lebanon. https://www.pseau.org/outils/ouvrages/lewap_updated_national_water_sector_strategy_2020_2035_1970.pdf
- Ministry of Energy and Water, Lebanon. (2024). Environmental and Social Audit: Rehabilitation of Litani River Authority Hydropower Plants. Beirut. https://energyandwater.gov.lb/mediafiles/articles/doc-98282-2024_08_26_02_51_45.pdf
- Ministry of Environment (MoE). (2005). Lebanon's third national report to the Convention on Biological Diversity. <https://www.cbd.int/doc/world/lb/lb-nr-03-en.pdf>
- Ministry of Environment (MoE). (2009). Lebanon's fourth national report to the Convention on Biological Diversity. <https://www.cbd.int/doc/world/lb/lb-nr-04-en.pdf>
- Ministry of Environment (MoE). (2011). Lebanon's second national communication to the United Nations Framework Convention on Climate Change. Beirut. https://unfccc.int/sites/default/files/resource/lebanon_snc.pdf
- Ministry of Environment (MoE), United Nations Development Programme (UNDP), & ECODIT. (2011). State and trends of the Lebanese environment 2011. https://www.pseau.org/outils/ouvrages/undp_state_and_trends_of_the_lebanese_environment_2011.pdf
- Ministry of Environment (MoE). (2014). Description of ecologically or biologically significant marine areas (EBSAs) in Lebanon [Submission to CBD]. <https://www.cbd.int/doc/meetings/mar/ebsaws-2014-03/other/ebsaws-2014-03-submission-lebanon-01-en.pdf>
- Ministry of Environment (MoE). (2015). Fifth National Report of Lebanon to the Convention on Biological Diversity.
- Ministry of Environment (MoE), United Nations Environment Programme (UNEP), & Global Environment Facility (GEF). (2016). Lebanon's national biodiversity strategy and action plan 2016–2030. Beirut, Lebanon: Ministry of Environment. Retrieved from <https://www.cbd.int/doc/world/lb/lb-nbsap-v2-en.pdf>

- Ministry of Environment (MoE), United Nations Development Programme (UNDP), United Nations Children's Fund (UNICEF), & United Nations High Commissioner for Refugees (UNHCR). (2021, September). Lebanon state of the environment and future outlook: Turning the crises into opportunities. <https://www.unicef.org/lebanon/reports/lebanon-state-environment-and-future-outlook>
- Ministry of Environment (MoE), United Nations Development Programme (UNDP), & Global Environment Facility (GEF). (2022). Lebanon's fourth national communication to the UNFCCC. Beirut, Lebanon: Ministry of Environment.
Retrieved from <https://www.undp.org/sites/g/files/zskgke326/files/2023-02/Lebanons%20fourth%20National%20Communication%20report.pdf>
- Mitri, G., Nasrallah, G., & Nader, M. (2021). Spatial distribution and landscape impact analysis of quarries and waste dumpsites. *Environment, Development and Sustainability*, 23(8), 12302–12325. <https://doi.org/10.1007/s10668-020-01169-z>
- Nader, M., Nassar, M. B., Indary, S. E., & Abou Dagher, M. (2021). Impact of climate change on the coast of Lebanon: An awareness handbook. International Union for Conservation of Nature (IUCN) and Ministry of Environment, Lebanon.
Available at: <https://portals.iucn.org/library/sites/library/files/documents/2021-024-En.pdf>
- Papazian, A., Abdallah, A., Al Akoury, C., & Al Abdullah, K. (2024). Vanishing Wilderness: the Battle against Deforestation and Habitat Loss in Lebanon. SSRN Working Paper. <https://doi.org/10.2139/ssrn.4887106>
- Power Technology. (2024). Janneh Hydropower Plant, Lebanon. <https://www.power-technology.com/data-insights/power-plant-profile-janneh-lebanon/>
- Ramadan-Jaradi, G., Itani, F., Hogg, J., Serhal, A., & Ramadan-Jaradi, M. (2020). Updated checklist of the birds of Lebanon, with notes on four new breeding species in spring 2020. *Sandgrouse*, 42, 186–193. https://www.birdsoflebanon.com/uploads/1/3/0/5/130560280/updated_checklist_of_the_birds_of_lebanon.pdf
- Regional Activity Centre for Specially Protected Areas (RAC/SPA) & Ministry of Environment (MoE). (2013). Status of the monk seal in Lebanon: Distribution, threats and conservation needs. https://www.rac-spa.org/sites/default/files/doc_monackus/monk_seal_lebanon.pdf
- Regional Activity Centre for Specially Protected Areas (RAC/SPA) & Ministry of Environment (MoE). (2014). Conservation of marine turtles on the Lebanese coast. https://www.rac-spa.org/sites/default/files/doc_turtles_project/conservation_lebanese_coast.pdf
- Regional Activity Centre for Specially Protected Areas (RAC/SPA) & Ministry of Environment (MoE). (2014). Ecological characterization of sites of interest for conservation in Lebanon. UNEP/MAP – RAC/SPA. https://www.rac-spa.org/sites/default/files/doc_medmpanet/ecological_characterization_sites_interest_conservation_lebanon.pdf

- Regional Activity Centre for Specially Protected Areas (RAC/SPA)–UN Environment/MAP. (2016). Ecological characterization of sites of interest for conservation in Lebanon: Enfeh Peninsula, Ras Chekaa cliffs, Raoucheh, Saida, Tyre. Tunis.
https://www.rac-spa.org/sites/default/files/doc_imap/eco_stud_tcnr.pdf
- Regional Activity Centre for Specially Protected Areas (RAC/SPA)–UN Environment/MAP. (2018). National monitoring programme for marine biodiversity in Lebanon (Bitar, G., Ramadan Jaradi, G., Hraoui-Bloquet, S., & Lteif, M., Eds.). SPA/RAC EcAp Med II Project, Tunis.
- Regional Activity Centre for Specially Protected Areas (RAC/SPA)–UN Environment/MAP. 2020. Marine biodiversity monitoring in Lebanon: Status and trends. Beirut.
https://www.rac-spa.org/sites/default/files/doc_deep_sea_lebanon/scientific_report_updated_logo_july2020.pdf
- René Moawad Foundation (RMF). (2015). Improved livelihoods for underprivileged women in North Lebanon.
<https://rmf.org.lb/project/improved-livelihoods-for-underprivileged-women-in-north-lebanon/>
- Samaha Z, Bariche M, Stephan J, Bou Dagher Kharrat M, Talhouk S, Pagad S (2020). Global Register of Introduced and Invasive Species - Lebanon. Version 1.1. Invasive Species Specialist Group ISSG. Checklist dataset <https://doi.org/10.15468/ztw5yn>
- Shaban, A., Faour, G., Stephan, R. M., Khater, C., & Hamzé, M. (2020). Assessment of coastal wetlands in Lebanon. In G. Moran (Ed.), Coastal zones: Management, assessment and current challenges. Nova Science Publishers.
https://www.researchgate.net/publication/344829171_ASSESSMENT_OF_COASTAL_WETLANDS_IN_LEBANON
- Society for the Protection of Nature in Lebanon (SPNL) & Food and Agriculture Organization (FAO). (2024). Reviving Lebanon's Hima: Restoration efforts in war-torn ecosystems.
<https://www.spnl.org/reviving-lebanons-hima-restoration-efforts-in-war-torn-ecosystems/>
- SPNL & FAO. (2024). Reviving Lebanon's Hima: Restoration efforts in war-torn ecosystems. Society for the Protection of Nature in Lebanon.
<https://www.spnl.org/reviving-lebanons-hima-restoration-efforts-in-war-torn-ecosystems/>
- State of Lebanon's Wildfires reports (2015-2023). Department of Ecosystems, Ministry of Environment, and the Land and Natural Resources Program, Institute of the Environment, University of Balamand. Retrieved from <http://ioe-firelab.balamand.edu.lb/pages/ProfileCountryAnnex5.aspx>
- This Is Beirut. (2024). Scorched earth: Israel's war on Lebanon's environment.
<https://thisisbeirut.com.lb/articles/1285100/scorched-earth-israels-war-on-lebanons-environment>
- Tohmé, G & Tohmé, H. 2014. Illustrated Flora of Lebanon. CNRS Publication Beirut.

- United Nations Environment Programme - World Conservation Monitoring Centre (UNEP-WCMC). (2025). Protected Area Profile for Lebanon, World Database on Protected Areas (WDPA 2025). Cambridge, UK: UNEP-WCMC.
<https://www.protectedplanet.net/country/LBN>
- United Nations Entity for Gender Equality and the Empowerment of Women (UN Women). (2022). Women's voices in agriculture and agri-food systems in Lebanon. United Nations Entity for Gender Equality and the Empowerment of Women.
<https://lebanon.unwomen.org/sites/default/files/2022-12/UNW%20WomensVoicesAgri%20A4%20Report%20Web.pdf>
- United Nations Entity for Gender Equality and the Empowerment of Women (UN Women). (2023). Women in the agro-food sector in Lebanon: A review of the legislative framework.
<https://www.unwomen.org/en/digital-library/publications/2023/12/women-in-the-agro-food-sector-in-lebanon-a-review-of-the-legislative-framework>
- United Nations Development Programme (UNDP). (2016). Women in municipal elections 2016.
<https://www.undp.org/lebanon/publications/women-municipal-elections-2016>
- United Nations Development Programme (UNDP), 2024 & 2025. UNDP-“STEPping up Nature Reserves Capacity- Step4Nature” Project, funded by the Ministry of Foreign Affairs and International Cooperation of the Italian Republic through the Italian Agency for Development Cooperation (AICS) and implemented in coordination with the Ministry of Environment of Lebanon (MoE).
- Wojtowicz-Jankowska, D., & Bou Kalfouni, B. (2022). A vision of sustainable design concepts for upgrading vulnerable coastal areas in light of climate change impacts: A case study from Beirut, Lebanon. Sustainability, 14(7), 3986.
<https://doi.org/10.3390/su14073986>
- World Bank. (2024). Lebanon Poverty and Equity Assessment. Washington, DC. <https://documents1.worldbank.org/curated/en/099052224104516741/pdf/P1766511325da10a71ab6b1ae97816dd20c.pdf>
- World Bank. (2025). Community-based Wildfire Risk Management in Lebanon's Vulnerable Landscapes (P500390). Washington, DC: The World Bank. <https://documents1.worldbank.org/curated/en/099070924135542170/pdf/P5003901f3bc060118d951ff4114b8b4d7.pdf>
- World Population Review. (2025). Ecological Footprint by Country 2025.
<https://worldpopulationreview.com/country-rankings/ecological-footprint-by-country>

Appendix A – Steering Committee Members

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Appendix B – Involved Stakeholders – Workshop Participants

Workshop 1 Participants

No.	Full Name	Organization	
1	Lara Samaha	MoE	
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4	Sylva Kotecihe	MoA	
5	Helene Ayoub	MoA	
6	Raymond khoury	Green Plan MoA	
7	Colonel Mazen Sakr	MoIM	
8	Carla Ghaoui	MoT	
9	Zeina Haddad	MoT	
10	Joelle Breidy	LARI	
11	Ali Chehade	LARI	
12	Milad Fakhri	CNRS	
13	Gaby Khalaf	CNRS-L	
14	Myriam Ghsoub	National Center for Marine Sciences-CNRS-L	
15	Myriam Lteif	National Center for Marine Sciences-CNRS-L	
16	Sharif Jemaa	National Centre for Marine Sciences-CNRS-L	
17	Hussein Abou Hamdan	LU-Faculty of Sciences	
18	Jean Stephan	LU	
19	Nabil Nemer	USEK and Committee member of Tannourine and Bentael Nature Reserves	

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22	Manal Nader	IOE-UOB	
23	George Mitri	IOE-UOB	
24	Andre Kammoun	IOE-UOB	
25	Rawan Al Jamal	IOE-UOB	
26	Simon Zabliith	IOE-UOB	
27	Manale Abou Dagher	AUB	
28	Lara Kallas	UNDP	
29	Lea Kai	UNDP	
30	Dominique Choueiter	UNDP	
31	Helen Mounzer	UNDP	
32	Shadi Indary	Diaries of the Ocean	
33	Christina Chit Dirany	GYBN	
34	Karen Gebrayel	GYBN	
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Appendix C – National Biodiversity Monitoring Action Plan - Indicators Specification Sheets

National Target 1: Area Management

NT 1: By 2030, ensure that at least 20% of all natural ecosystems outside Protected Areas (PAs) are under participatory, integrated, and biodiversity-inclusive spatial planning and/or effective management processes, addressing land- and sea-use change, as well as bringing biodiversity loss to zero in areas of high biodiversity importance and ecosystems of high ecological integrity, while respecting the rights of local communities.

Indicator: IUCN Red List Index of Ecosystems

HI A.1; new; quantified [index: 0 highly threatened; 1 least threatened] disaggregated:

- *By realm, biome, and ecosystem functional group [(Global Ecosystem Typology level 2 and 3)].*
 - *By Indigenous and traditional territories.*
 - *By Protected Areas (PAs)/other Effective Area-based Conservation Measures (OECMs).*
 - *By drivers (aligned with the IUCN threats classification scheme).*
- Methodology by IUCN: <https://gbf-indicators.org/metadata/headline/A-1>

Definition: The Red List of Ecosystems framework assesses the relative risk of ecosystem collapse for an ecosystem type. The indicator 'Red List Index of Ecosystems (RLIe)' measures the average risk of ecosystem collapse of a group of ecosystems, and tracks changes over time based on genuine changes in the risk category of each ecosystem.

Unit: Risk Level.

Responsible Agency: MoE, CNRS.

Development Status: Methodology ready.

Frequency: Every 5–10 years, following global IUCN Red List of Ecosystems assessment cycles. Every 2–3 years for priority ecosystems at risk.

Baseline: 2011-2020.

Cost and Funding: Significant; an additional project is needed.

Potential Funding Sources:

- Government budget (MoE, CNRS).
- International donors (GEF, UNDP, EU, World Bank, IUCN ROWA).
- Private sector partnerships (corporate biodiversity initiatives).

Capacity Development Needs: High

- Training local experts in IUCN Red List of Ecosystems methodology.
- Enhancing GIS and remote sensing capacities for ecosystem monitoring.
- Strengthening institutional cooperation for data sharing and ecosystem assessments.
- Developing a national database for ecosystem status and trends.

Data Needed	Source
Map of national ecosystems, with area (ha) per ecosystem.	MoE, MoA, CDR, CNRS, DGUP-MoPWT, research centers and academic Institutions.
Evaluation of each area's need for sustainable management.	MoE, MoA, CDR, DGUP-MoPWT, Research Centers and Academic Institutions.

Indicator: Extent of Natural Ecosystems

HI A.2; new; quantified [percentage] disaggregated:

- By realm, biome, and ecosystem functional group [(Global Ecosystem Typology level 2 and 3)].
- By Indigenous and traditional territories.
- By natural and seminatural ecosystem.
- ☐ Percentage of natural and semi-natural ecosystems as a proportion of total area.
- ☐ Methodology by SEEA: <https://gbf-indicators.org/metadata/headline/A-2>, based on the IUCN Global Ecosystem Typology (IUCN GET.2).

Definition: The extent of natural and semi-natural ecosystems as a proportion of the total area of the country at a particular point in time, expressed as a percentage.

Unit: Percentage.

Responsible Agency: MoE.

Development Status: Methodology ready.

Frequency: Every 5–10 years, aligned with national land cover assessments and SEEA updates. Every 2–3 years for priority ecosystems at risk.

Baseline: 2011-2020.

Cost and Funding: Significant; an additional project is needed.

Potential Funding Sources:

- Government budget (MoE, CNRS, CAS).
- International donors (UNEP, UNDP, EU, World Bank, GEF, IUCN ROWA).
- Private sector (biodiversity conservation projects, environmental CSR initiatives).

Capacity Development needs: High

- Training national experts in IUCN Global Ecosystem Typology (GET.2) and SEEA methodology.
- Strengthening GIS and remote sensing capacity for ecosystem extent monitoring.
- Enhancing institutional coordination among agencies for ecosystem data sharing.
- Developing a national database to track changes in natural and semi-natural ecosystems.

Data Needed	Source
Map of national ecosystems, with area (ha) per ecosystem	MoE, MoA, CDR, CNRS, DGUP-MoPWT, Research Centers and Academic Institutions
Evaluation of each area's need for sustainable management	MoE, MoA, CDR, DGUP-MoPWT, Research Centers and Academic Institutions

Indicator: Biodiversity in Spatial Planning

HI 1.1; new; quantified [Percentage]:

Definition: Percentage of land and sea area covered by biodiversity-inclusive spatial plans.

- Methodology: <https://gbf-indicators.org/metadata/headline/1-1>

Unit: Percentage.

Responsible Agency: MoE, CDR, MoPWT, DGUP, CNRS.

Development Status: Methodology to be adapted to national circumstances.

Frequency: Every 5 years. Interim updates every 2–3 years to monitor implementation at the local level.

Baseline: N/A.

Cost and Funding: Medium to High Cost.

Potential Funding Sources:

- Government budget (MoE, CDR, DGUP, Municipalities).
- International donors (GEF, UNDP, EU, World Bank, UNEP, IUCN ROWA).
- Private sector partnerships (sustainable urban development, CSR initiatives).

Capacity Development Needs: High

- Training for policymakers and urban planners on biodiversity-inclusive spatial planning methodologies.
- Development of national biodiversity-inclusive spatial planning guidelines.
- Strengthening GIS and remote sensing capacity for monitoring land- and sea-use change.
- Enhancing institutional coordination between environmental and planning agencies.
- Promoting participatory planning processes with local communities.
- Establishing data-sharing mechanisms for spatial planning and ecosystem management.

NA 1.1: Establish clear criteria for identifying and mapping areas under sustainable forestry, fisheries, artificial reefs, grazing, agriculture, as well as areas in need of sustainable management.

Indicator: Criteria for Identifying Areas in Need for Sustainable Management

Definition: *National indicator; binary:* Criteria for identifying and mapping areas in need of sustainable management established.

Question: Has Lebanon established clear criteria for identifying and mapping areas in need of sustainable management?

Unit: Binary (Yes/No).

Responsible Agency: MoE, MoA, CNRS, Ministry of Public Works and Transport, Ministry of Economy and Trade (Fisheries Department).

Development Status: Methodology ready.

Frequency: Every 5 years. Interim reviews every 2–3 years to assess progress in developing and applying criteria.

Baseline: N/A.

Cost and Funding: Medium Cost.

Potential Funding Sources:

- Government budget (MoE, MoA, CNRS, Municipalities).
- International donors (GEF, UNDP, FAO, UNEP, IUCN ROWA, World Bank, EU).
- Private sector partnerships (sustainable resource management projects, CSR initiatives).

Capacity Development Needs:

- Develop national criteria for identifying and mapping areas in need of sustainable forestry, fisheries, artificial reefs, grazing, and agriculture.
- Strengthen GIS and remote sensing capacity for mapping and monitoring sustainable land and sea use.
- Enhance institutional coordination among the MoE, MoA, MoPW, CNRS, and local authorities.
- Train stakeholders (government officials, researchers, local communities) on applying biodiversity-inclusive criteria.
- Develop data-sharing mechanisms for integrated spatial planning.

NA 1.2: Based on Land Use/Land Cover and Marine Spatial Plan (MSP) databases, alongside other sources, and in accordance with the criteria identified under NA 1.1, identify and map the extent and spatial distribution of areas under sustainable forestry, fisheries, artificial reefs, grazing, agriculture, as well as areas in need of sustainable management.

Indicator: Area in Need of Sustainable Management

Definition: *National indicator; percentage:* Proportion of Lebanon's total ecosystem area—derived from Land Use/Land Cover (LULC) and Marine Spatial Plan (MSP) databases—that is identified as requiring sustainable management interventions.

Unit: Percentage.

Calculation Method: (Area in need for sustainable management) / (Total ecosystem area) * 100.

Responsible Agency: MoE, MoA, CNRS, Ministry of Public Works and Transport.

Development Status: Methodology to be developed.

Frequency: Every 5 years. Interim reviews every 2–3 years for critical ecosystems or areas where rapid land- and sea-use changes are observed.

Baseline: N/A.

Cost and Funding: Medium to High Cost.

Potential Funding Sources:

- National government budgets (across relevant ministries).
- International donors and development partners (e.g., GEF, UNDP, EU, World Bank, UNEP).
- Public–private partnerships and research grants.

Capacity Development Needs:

- **Technical Training:** Enhance skills in GIS, remote sensing, and spatial data analysis for mapping and monitoring.
- **Methodology Adoption:** Provide training and capacity-building on applying the criteria identified under NA 1.1 for sustainable management.
- **Data Management:** Develop and maintain a national database that consolidates relevant datasets to support periodic assessments.

Data Needed	Source
Map of national ecosystems, with area (ha) per ecosystem	MoE, MoA, CDR, DGUP-MoPWT, Research Centers and Academic Institutions
Evaluation of each area's need for sustainable management	MoE, MoA, CDR, DGUP-MoPWT, Research Centers and Academic Institutions
Total ecosystem area	MoE, MoA, CDR, DGUP-MoPWT, Research Centers and Academic Institutions

NA 1.3: Develop a Marine Spatial Plan (MSP) for Lebanese territorial waters based on scientific assessments and participatory approaches.

Indicator: Marine Spatial Planning

Definition: *HI 1.b adapted for Lebanon; new; binary descriptive:* Has Lebanon developed a Marine Spatial Plan?

Unit: Binary (Yes/No).

Responsible Agency: MoE.

NA 1.4: Identify marine areas of high biodiversity importance, including ecosystems of high ecological integrity outside protected areas.

Indicator: Marine Areas of High Biodiversity Importance

Definition: *National indicator; percentage:* Share of marine area with high biodiversity importance outside protected areas.

Unit: Percentage.

Calculation Method: (Marine area with high biodiversity importance**) / (Total area of marine ecosystems evaluated**) * 100.

- ☐ Disaggregate per ecosystem type (see HI A.1).
- ☐ ** for this calculation, only use area data outside protected areas.

Responsible Agency: MoE.

Development Status: Marine areas of high biodiversity importance to be determined.

Frequency: Every 5 years.

Baseline: 2024.

Cost and Funding: TBD.

Capacity Development Needs: None.

Data Needed	Source
Map of national ecosystems (see also HI A.1 und HI A.2 above)	MoE, MoA, CDR, DGUP-MoPWT, Research Centers and Academic Institutions
Map of marine protected areas	MoE, MoA, CDR, DGUP-MoPWT, Research Centers and Academic Institutions
Evaluation of each area in terms of biodiversity importance	MoE, MoA, CDR, DGUP-MoPWT, Research Centers and Academic Institutions

NA 1.5: Inform concerned municipalities and their federations hosting identified areas of high biodiversity importance (such as KBAs and potential areas for conservation) to integrate these areas into existing or future Master Plans for each relevant municipality/region, while ensuring the participation of relevant stakeholders.

Indicator: Village Master Plans with Identified Areas of High Biodiversity Importance

Definition: *National indicator; percentage:* Share of village master plans that include identified areas of high biodiversity importance (such as KBAs and potential areas for conservation).

Unit: Percentage.

Calculation Method: (Number of village master plans including identified areas of high biodiversity importance) / (Total number of village master plans) * 100.

Responsible Agency: MoE

Development Status: Methodology ready.

Frequency: Every 5 years.

Baseline: 2024.

Cost and Funding: No additional cost needed. Covered through existing staff resources (staff time).

Capacity Development Needs: None.

Data Needed	Source
List of village master plans	MoIM, MoPWT, Municipalities, Union of Municipalities, Research Centers and Academic Institutions, Specialized NGOs
Village master plans including identified areas of high biodiversity importance	MoIM, MoPWT, MoE Municipalities, Union of Municipalities, Research Centers and Academic Institutions, Specialized NGOs

NA 1.6: Properly enforce, and where needed, update the legal framework related to the sustainable use of biodiversity resources outside Nature Reserves under the MoA mandate (e.g., forests, grasslands, fisheries, edible and medicinal plants, agrobiodiversity, etc.).

Indicator: Updated and Enforced Legal Instruments Related to the Sustainable Use of Biodiversity

Definition: *National indicator; number:* Number of legal instruments related to the sustainable use of biodiversity resources under the MoA mandate that have been updated, enforced, or effectively implemented, disaggregated by resource type (e.g., forests, grasslands, fisheries, edible and medicinal plants, agrobiodiversity, etc.).

Unit: Number.

Calculation Method: Total number of updated/enforced/implemented legal instruments (categorized by type).

Responsible Agency: MoA.

Development Status: Methodology to be developed.

Frequency: Yearly.

Baseline: 2024.

Cost and Funding: Costs include legal reviews and stakeholder consultations.

Capacity Development Needs:

- **Legal and Regulatory Training:** Enhance the capacity of MoA staff and related legal experts in modern legal drafting and regulatory enforcement for biodiversity resources.
- **Monitoring and Evaluation Systems:** Develop robust systems and tools for tracking the status of legal instruments and their enforcement.

Data Needed	Source
List of legal instruments related to the sustainable use of biodiversity resources under the MoA mandate	MoA, MoE, Research Centers and Academic Institutions, Specialized NGOs
Status of each legal instrument (updated, enforced, implemented)	MoA, MoE, Research Centers and Academic Institutions, Specialized NGOs
Classification of legal instruments by resource type (forests, grasslands, fisheries, edible and medicinal plants, agrobiodiversity, etc.)	MoA, MoE, Research Centers and Academic Institutions, Specialized NGOs

NA 1.7: Develop and/or update monitoring programs for areas of high biodiversity importance (Forest fires, land changes, violation, land degradation, etc.), and ecosystems of high ecological integrity outside of PAs, while using a participatory approach.

Indicator: Monitoring Programs for Natural Areas Outside PAs

Definition: *National indicator; percentage:* Share of unprotected areas of high biodiversity importance and ecosystems of high ecological integrity that have monitoring programs outside PAs.

Unit: Percentage.

Calculation Method:

(Number of areas of high biodiversity importance, and ecosystems of high ecological integrity with monitoring programs outside of PAs) / (Total number of unprotected areas of high biodiversity importance, and ecosystems of high ecological integrity) * 100.

Responsible Agency: MoE.

Development Status: Methodology ready.

Frequency: Yearly.

Baseline: 2024.

Cost and Funding: No additional cost needed. Covered through existing staff resources (staff time).

Capacity Development Needs: None.

Data Needed	Source
List of unprotected areas of high biodiversity importance with and without monitoring programs	MoA, MoE, Research Centers and Academic Institutions, Specialized NGOs
List of ecosystems of high ecological integrity with and without monitoring programs outside PAs	MoA, MoE, Research Centers and Academic Institutions, Specialized NGOs

NA 1.8: Disseminate existing guidelines on forest and rangeland management and conduct the necessary capacity-building for at least 30 technicians from the MoA, NGOs and municipalities to implement management plans for their forests and rangeland resources.

Indicator: Dissemination of Guidelines and Capacity Building on Forest and Rangeland Management

Definition: *National indicator; quantitative [count]:* Total number of technicians from the MoA, NGOs, and municipalities who have received capacity building on forest and rangeland management and on the implementation of management plans.

Unit: Number.

Calculation Method: Total number of technicians trained, and number of stakeholders who received guidelines.

Responsible Agency: MoA.

Development Status: N/A.

Frequency: Yearly.

Baseline: 2024.

Cost and Funding: No additional cost needed. Covered through existing staff resources (staff time).

Capacity Development Needs: None.

Data Needed	Source
Number of technicians from the MoA, NGOs, and municipalities trained on forest and rangeland management	MoA; NGOs and Municipalities
Records of guidelines disseminated (number of copies or downloads and recipient details)	MoA; MoE; Implementing agencies

NA 1.9: Map changes in land cover/land use and MSPs to track anthropogenic pressures and disturbances affecting adjacent natural ecosystems.

Indicator: Changes in Land Cover/Land Use and MSPs Mapped

Definition: *National indicator; binary:* Have changes in land cover/land use and Marine Spatial Plans (MSPs) been mapped?

Unit: Yes/No.

Calculation Method: Have maps been developed and/or updated within the reporting period?

Responsible Agency: MoE.

Baseline: 2024.

Data Needed	Source
Update status for land cover/land use	MoE, MoA, CDR, MoIM, MoPWT, Municipalities, Unions of Municipalities, Research Centers and Academic Institutions, Specialized NGOs
MSP mapping and integration with land use data	MoE, MoA, CDR, MoIM, MoPWT, Municipalities, Unions of Municipalities, Research Centers and Academic Institutions, Specialized NGOs

NA 110: Develop and implement sustainable forest and rangeland management in at least 10 communal lands outside PAs, in close collaboration between MoA and the local authorities.

Indicator: Development of Sustainable Forest and Rangeland Management Plans

Definition: *National indicator; quantitative [count]:* Number of communal lands outside PAs where sustainable forest and rangeland management plans have been developed.

Unit: Number.

Calculation Method: Total number of communal lands where sustainable forest and rangeland management plans have been developed.

Responsible Agency: MoA.

Development Status: Methodology ready.

Frequency: Every 3-5 years.

Baseline: 2024.

Cost and Funding: No additional cost needed. Covered through existing staff resources (staff time).

Capacity Development Needs: None.

Indicator: Implementation of Sustainable Forest and Rangeland Management Plan

Definition: *National indicator; percentage [percentage]:* Share of communal lands where sustainable forest and rangeland management plans have been implemented.

Unit: Percentage.

Calculation Method: (Number of communal lands where sustainable forest and rangeland management plans were implemented) / (Total number of communal lands where sustainable forest and rangeland management plans have been developed) * 100.

Responsible Agency: MoA.

Development Status: Methodology ready.

Frequency: Every 3-5 years.

Baseline: 2024.

Cost and Funding: No additional cost needed. Covered through existing staff resources (staff time).

Capacity Development Needs: None.

Data Needed	Source
List of communal lands targeted for sustainable management	MoA, MoE, Municipalities
List of communal lands where management plans have been developed	MoA, Project implementing bodies, Municipalities
Records confirming the implementation of sustainable management practices (e.g., management plans, activities, or monitoring reports)	MoA, Project implementing bodies, Municipalities

NA 111: Create and/or update bathymetry maps of the Lebanese marine environment within territorial waters.

Indicator: Bathymetry Maps

Definition: *National indicator; quantified [percentage]:* Share of Lebanese territorial waters covered by bathymetry maps.

Unit: Percentage.

Calculation Method:

$(\text{Area covered by bathymetry maps}) / (\text{Total area of territorial waters}) * 100.$

Responsible Agency: MoE.

Development Status: Methodology ready.

Frequency: Every 2 years.

Baseline: 2024.

Cost and Funding: TBD.

Capacity Development Needs: TBD.

Data Needed	Source
Bathymetry maps	MoE, Ministry of Defense, Lebanese Army, CNRS (NCMS), Research Centers, Academic Institutions

National Target 2: Ecosystem Restoration

NT 2: By 2030, rehabilitation plans are implemented in at least 20% of degraded terrestrial, inland water, and ma-rine and coastal ecosystems (including areas affected by the 2024 war) so that these ecosystems can safeguard the sustained delivery of ecosystem services and enhance ecological integrity and connectivity.

Indicator: Surface Area Under Restoration

HI 2.1; new; quantified [ha for a) areas planned to be restored; b) areas currently under restoration c) areas already restored].

- ☐ Global data will be compiled by FAO. National information will be submitted through national reporting.
- ☐ Detailed methodology: <https://gbf-indicators.org/metadata/headline/2-2>

Definition: Total area of land or water ecosystems that are actively being restored to improve biodiversity, ecosystem functions, and services.

Unit: Ha

Responsible Agency: MoE.

Development Status: Methodology ready.

Frequency: Every 3 years.

Baseline: 2011-2020.

Cost and Funding: No additional cost needed. Covered through existing staff resources (staff time).

Capacity Development Needs: Moderate; cooperation with FAO focal points is advised.

Data Needed	Source
Global FAO Data (recorded in FAO's FERM registry)	FAO, MoA, MoE, CDR, Research Centers and Academic Institutions

NA 2.1: Prepare a national inventory of degraded sites by type and location (including areas affected by the 2024 war), and update and complete existing inventories.

Indicator: Degraded Land

Component indicator, adapted for Lebanon; corresponds to SDG indicator 15.3.1; quantified [percentage]:

- ☐ Check whether this indicator has already been calculated by Lebanon for SDG and/or UNCCD reporting. Metadata sheet for SDG indicator 15.3.1 by the UN: <https://unstats.un.org/sdgs/metadata/files/Metadata-15-03-01.pdf>

Definition: Proportion of land area degraded over total land area.

Unit: Percentage.

Responsible Agency: MoE,CNRS.

Development Status: Methodology ready. The indicator could be reported under SDG monitoring in the context of Lebanon's Voluntary National Review. Cooperation with UNCCD is advised, and some of the data may be obtained by global data providers.

Frequency: Every 3-5 years.

Baseline: 2011-2020.

Cost and Funding: Synergies with the VNR and UNCCD national reporting.

Capacity Development Needs: Moderate; Cooperation with UNCCD is advised.

Indicator: Rehabilitation Plans

Definition: *National indicator, quantified [percentage]:*

Share of degraded areas covered by [updated] rehabilitation plans.

Unit: Percentage.

Calculation Method: (Number of updated rehabilitation plans) / (Number of degraded areas) * 100.

Responsible Agency: MoE.

Development Status: Methodology ready.

Frequency: Every 3 years.

Baseline: 2024.

Cost and Funding: No additional cost needed. Covered through existing staff resources (staff time).

Capacity Development Needs: None.

Data Needed	Source
National inventory of degraded sites	MoE, MoA, CDR, MoIM, MoPWT, Municipalities, CNRS and Academic Institutions, Specialized NGOs
List of rehabilitation plans (indicate if updated as per NA or not)	MoE, MoA, CDR, MoIM, MoPWT, Municipalities, Research Centers and Academic Institutions, Specialized NGOs

NA 2.2: Develop a prioritization scheme based on socio-environmental criteria to identify sites in need of immediate intervention.

Indicator: Sites in Need of Immediate Intervention

Definition: *National indicator, quantified [percentage]:*

Share of sites in the inventory that has been prioritized.

- The prioritization scheme should be developed, e.g., "high priority" vs. "low priority".

Unit: Percentage.

Calculation Method: (Prioritized sites in the national inventory) / (Number of sites in the national inventory) * 100.

Responsible Agency: MoE.

Development Status: Methodology ready.

Frequency: Yearly.

Baseline: 2024/start date of prioritization of sites.

Cost and Funding: No additional cost needed. Covered through existing staff resources (staff time).

Capacity Development Needs: Development of a prioritization scheme is necessary.

Data Needed	Source
National inventory of degraded sites, including indication of priority (e.g. "low"/"high") based on socio-environmental criteria	MoE, MoA, CDR, CAS, MoIM, MoPWT, Municipalities, Research Centers and Academic Institutions, Specialized NGOs

NA 2.3: Develop technical guidelines for the rehabilitation of different types of degraded sites and give them legally binding status.

Indicator: Rehabilitation Guidelines

Definition: *National indicator, binary:* Technical guidelines for the rehabilitation of different types of degraded sites developed.

Unit: Yes/No (per type of degraded sites).

Responsible Agency: MoE.

NA 2.4: Develop new rehabilitation plans where they do not exist or review, and update existing ones, while ensuring that they align with the newly developed guidelines specified in NA 2.3.

HI 2.1; Indicator: Area Under Restoration

The use of indicator for NA 2.1.

NA 2.5: Develop a master plan for the rehabilitation of different types of degraded sites that builds on existing master plans (e.g., quarry and dumpsite rehabilitation), ensuring that separate plans are clearly highlighted for terrestrial and marine degraded sites.

Indicator: Rehabilitation Action

Definition: *National indicator, share of prioritized degraded sites included in the national rehabilitation master plan for different types of degraded sites, for which funding has been secured.*

Unit: Percentage.

Calculation Method: (Prioritized sites in the national inventory included in the master plan with secured funding) / (Prioritized sites in the national inventory) * 100.

Responsible Agency: MoE.

Development Status: Methodology ready.

Frequency: Every 3 years.

Baseline: N/A.

Cost and Funding: No additional cost needed. Covered through existing staff resources (staff time).

Capacity Development Needs: None.

Data Needed	Source
National inventory of degraded sites with information on priority, funding, and master plan.	MoE, MoA, CDR, MoPWT, Municipalities, Research Centers and Academic Institutions, Specialized NGOs

NA 2.6: Designate selected degraded sites as pilot sites for research and development of effective rehabilitation methods.

Indicator: Pilot Rehabilitation (see NA 2.7).

NA 2.7: Undertake pilot rehabilitation in key sites based on the developed prioritization scheme. This should cover at least one of each type, using scientifically validated, nature-based and sustainable practices, including: dumpsites, degraded forest, rangeland, riverbed, wetlands, old terraces, submarine canyons, vermetid reefs, seagrass meadows, ports, artificial lakes, dam sites, sea-filled coastal areas and aquaculture sites.

Indicator: Pilot Rehabilitation

Definition: *National indicator, numerical:* Number of pilot rehabilitation activities in key sites.

Unit: Number.

Calculation Method: Number (To complement numerical information with description).

Responsible Agency: MoE.

Development Status: Methodology ready.

Frequency: Yearly.

Baseline: N/A.

Cost and Funding: No additional cost needed. Covered through existing staff resources (staff time).

Capacity Development Needs: None.

Data Needed	Source
List of pilot rehabilitation sites with information on type (based on National inventory of degraded sites with high priority)	MoE, MoA, CDR, MoPWT, Municipalities, Research Centers and Academic Institutions, Specialized NGOs

National Target 3: Protected Areas

NT 3: By 2030, at least 30% of natural terrestrial and inland water areas, and marine and coastal areas—especially areas of particular importance for biodiversity—are conserved and managed through ecologically representative, well-connected, and equitably governed systems of protected areas and other effective area-based conservation measures, while recognizing and respecting the rights of local communities, including over their traditional territories.

Indicator: Protected Area and OECM Coverage

HI 3.1.; new; quantified [percentage].

- *by protected areas and OECMs.*
- *by realm, biome, and ecosystem functional group [(Global Ecosystem Typology level 2 and 3)].*
- *By areas of importance for biodiversity (existing Sustainable Development Goal indicators 4.5.1, 15.1.2, 15.4.1).*
- *By effectiveness (Protected Area Management Effectiveness).*
- *By governance type.*
- *By Indigenous and traditional territories:*

□ Methodology: <https://qbf-indicators.org/metadata/headline/3-1>

Definition: Measures the percentage of area covered by protected areas and/or OECMs.

Unit: Percentage.

Responsible Agency: MoE.

Development Status: Data are collected in the World Database on Protected Area (WDPA). It is important to verify this data regularly. Direct coordination with UNEP-WCMC to clarify data and address potential data gaps is advised.

Frequency: Continuous WDPA is regularly updated: <https://www.protectedplanet.net/en/thematic-areas/wdpa?tab=WDPA>

Baseline: N/A.

Cost and Funding: Depending on the needs to complete local datasets.

Capacity Development Needs: Unclear.

Component indicator; new; quantified [percentage]: **Percentage of a Country or Region Covered by Connected Protected Lands.**

- Methodology is available: <https://www.bipindicators.net/indicators/protected-connected> This is a global indicator that can be used at the national level.

Unit: Percentage.

Responsible agency: MoE.

Development Status: Methods for calculating the ProtConn indicator are described in detail in specific papers (Saura et al. 2017, 2018). ProtConn has already been assessed globally for all countries, meaning national-level information are available through completed assessments, using the information on protected areas from the WDPA.

Frequency: Not yet established.

Baseline: N/A.

Cost and Funding: Data are freely available for non-commercial use from the European Commission.

Capacity Development Needs: Unclear.

Component indicator; new; quantified [percentage]: **Protected Area Connectedness Index (PARC-Connectedness).**

- Methodology and global data that can be disaggregated for Lebanon is available on the BIP [website](#). Also to check the metadata factsheet: <https://www.gbf-indicators.org/metadata/other/A-5-C>

Definition: Measures how well protected areas are connected to each other within a given region. This index is crucial for assessing the effectiveness of protected area networks in maintaining ecological processes and supporting species movement.

Unit: Percentage.

Responsible Agency: MoE.

Development Status: Methodology available: <https://www.gbf-indicators.org/metadata/other/A-5-C>.

Frequency: Not yet established.

Baseline: N/A.

Cost and Funding: None; data are freely available for non-commercial use from CSIRO.

Capacity Development Needs: Unclear.

Component indicator; new; index [percentage]: **Species Protection Index**

- Methodology (<https://mol.org/indicators/protection/background>) and global data that can be disaggregated for Lebanon is available on the Map of Life website: <https://mol.org/indicators/> <https://geobon.org/ebvs/indicators/species-protection-index/>

Definition: The Species Protection Index (SPI) measures the extent to which suitable habitat for single species is under protection. It also estimates the regional or global biodiversity representativeness of terrestrial and marine protected areas.

Unit: Percentage.

Responsible Agency: MoE.

Development Status: Developed.

Frequency: Not yet established.

Baseline: To be established.

Cost and Funding: TBD. Data access for Lebanon may require additional permissions. If needed, it is recommended to contact Map of Life directly through the contact option on their website.

Capacity Development Needs: Unclear.

Complementary indicator, adapted for Lebanon; new; quantified [number]: **Number of Sites of Lebanon on the IUCN Green List of Protected and Conserved Areas**

- Link to list: <https://iucngreenlist.org/explore/>

Unit: Number

Responsible Agency: MoE.

Development Status: In place.

Frequency: Not yet established.

Baseline: 2018.

Cost and Funding: No additional cost needed. Covered through existing staff resources (staff time).

Capacity Development Needs: Unclear.

NA 3.1: Develop clear and standardized criteria for identifying natural and semi-natural areas of high biodiversity importance and high ecological value across the country that are suitable for conservation, based on international criteria where appropriate. These criteria should specifically focus on identifying ecosystems suitable for designation as PAs and OECMs.

Indicator: Criteria for PA and OECM Classification

Definition: *National indicator; binary*: Have clear and standardized criteria for identifying natural and semi-natural areas of high biodiversity importance and high ecological value been developed?

Unit: Yes/No.

Responsible Agency: MoE.

NA 3.2: Identify and map natural and semi-natural areas of high biodiversity importance and high ecological value based on clear criteria (according to NA 3.1), to produce a tool for identifying the most suitable areas for the establishment of new PAs and for the declaration of OECMs.

Indicator: Mapping natural and semi-natural areas of high biodiversity importance and high ecological value, to produce a tool for identifying the most suitable areas for new PAs and/or OECMs

Definition: National indicator, surface area:

- Surface area of sites that have been identified based on criteria (NA 3.1).
- Surface area of identified potential OECMs and new PAs.

Unit: Surface area.

Responsible Agency: MoE.

Development Status: To be developed. It is recommended to fine-tune this indicator once the criteria under NA 3.1 have been developed.

Frequency: Every 5 years.

Baseline: For marine “Marine and Coastal Baseline Map”; for terrestrial, Land cover/Land use maps

Cost and Funding: No additional cost needed. Covered through existing staff resources (staff time).

Capacity Development Needs: Government staff working on PAs and OECMs could collaborate to refine this indicator, ensuring it is developed in a way that effectively supports its intended purpose.

Indicator: Production of National Map of Potential OECMs and New PAs

Definition: *National indicator; binary:* Has a map of natural and semi-natural areas of high biodiversity importance and high ecological value, and potential OECMs and new PAs based on NA 3.1 been produced?

Unit: Yes/No.

Responsible Agency: MoE, MoA, MoPWT, CDR, CNRS.

Frequency: Every 5 years.

Baseline: MoE Marine Protected Area Strategy of 2012; Key Biodiversity report of 2016, SDATL.

NA 3.3: Enforce regulations related to the management of Nature Reserves and increase the level of fines related to goods and services that are illegally harvested or extracted.

Indicator: Enforcement of Regulations

Definition: *National indicator; qualified [index]:* Level of enforcement of regulations in Nature Reserves.

Unit: index.

Calculation Method: Expert assessment based on survey results and an overview of fines.

Responsible Agency: MoE.

Development Status: NA.

Frequency: Yearly.

Baseline: 2019.

Cost and Funding: Some funding is required, as the survey must be developed and implemented across Nature Reserves.

Capacity Development Needs: It may be beneficial to accompany the survey with a brief online training for Nature Reserve managers to ensure proper implementation and understanding.

Data Needed	Source
Survey among managers of Nature Reserves to get information on enforcement measures necessary	MoE, Appointed Protected Areas Committee
Overview of fines related to illegally harvested or extracted goods and services (baseline year and reporting year)	MoE, MoA, MoIM Municipalities

NA 3.4: Engage with local communities and stakeholders to ensure that their rights, opinions (where relevant), and knowledge are integrated into the classification process for new PAs and OECMs.

Indicator: Coverage of Local Rights and Knowledge in the Classification Process

Definition: *National indicator; binary:* Have the rights, opinions (where relevant), and knowledge of local communities and stakeholders been integrated into the classification process of new PAs and OECMs?

Unit: Yes/No.

Responsible Agency: MoE.

NA 3.5: Develop and regularly update management plans for all existing Nature Reserves, incorporating biodiversity conservation, community engagement, and sustainable use-strategies (in accordance with the NRs legislation). The management plans should be developed by the NRs committees and MoE, involving local communities and relevant stakeholders.

Indicator: Nature Reserve with New or Updated Management Plans

Definition: *National indicator; quantified [percentage]:* Share of Nature Reserves with new or updated management plans.

Unit: Percentage.

Calculation Method: (Number of new or revised management plans) / (Number of Nature Reserves) * 100.

Responsible Agency: MoE.

Development Status: NA.

Frequency: Every 2 years.

Baseline: 1992.

Cost and Funding: None.

Capacity Development Needs: None.

Data Needed	Source
List of all Nature Reserves	MoE
List of all new or revised management plans	MoE, Nature Reserves management

NA 3.6: Require each existing Nature Reserve to complete the Management Effectiveness Tracking Tool (METT) Yearly to assess and improve management effectiveness.

Indicator: Application of Management Effectiveness Tracking Tool (METT)

Definition: *National indicator; quantified [percentage]:* Share of Nature Reserves that complete the METT.

Unit: Percentage.

Calculation Method: (Number of completed METTs) / (Number of Nature Reserves) * 100.

Responsible Agency: MoE.

Development Status: NA.

Frequency: Yearly.

Baseline: 2018.

Cost and Funding: None.

Capacity Development Needs: None.

Data Needed	Source
List of all Nature Reserves	MoE
List of completed METTs	MoE, Nature Reserves management

NA 3.7: Recruit and train dedicated management teams for each Nature Reserve, focusing on biodiversity conservation and community engagement.

Indicator: Management Teams Recruited and Trained

Definition: *National indicator; quantified [number]:* Number of NRs teams trained in biodiversity conservation and community engagement.

Unit: Count.

Calculation Method: Count of NRs teams trained.

Responsible Agency: MoE.

Development Status: NA.

Frequency: Yearly.

Baseline: 1992.

Cost and Funding: None.

Capacity Development Needs: None.

Data Needed	Source
List of Nature Reserves and their personnel	MoE

NA 3.8: Secure the necessary equipment and infrastructure to support effective management and monitoring of NRs.

Indicator: Equipment and infrastructure to support effective management and monitoring of NRs in Place

Definition: *National indicator; quantified [percentage]:* NRs reporting that the necessary equipment and infrastructure are in place.

Unit: Percentage.

Calculation Method: (Number of NRs reporting that the necessary equipment and infrastructure are in place) / (Number of all NRs) * 100.

Responsible Agency: MoE.

Development Status: NA.

Frequency: Yearly.

Baseline: 1992.

Cost and Funding: None.

Capacity Development Needs: None.

Data Needed	Source
List of all NRs	MoE
List of NRs that report having the necessary equipment and infrastructure	MoE, Nature Reserves management

NA 3.9: Identify and establish ecological corridors and connectivity between PAs.

Indicator: Number of Established and Legally Recognized Ecological Corridors between PAs

- Please also refer to the Component indicator above: Protected Area Connectedness Index (PARC-Connectedness).

Definition: *National indicator; number:* Number of officially designated corridors between PAs.

Unit: Number.

Calculation Method: Count.

Responsible agency: MoE.

Development status: NA.

Frequency: Every 3 years.

Baseline: 2007.

Cost and Funding: None.

Capacity Development Needs: None.

National Target 4: Species Conservation

NT 4: By 2030, the status of 25% of known flora and fauna species is identified and conservation actions are implemented for at least 10 threatened species to significantly reduce extinction risk

Indicator: Red List Index

HI A.3.; new; Index Value [1: all species “Least Concern”; 0: all species “extinct”], disaggregated:

- *By realm, biome, and ecosystem functional group [(Global Ecosystem Typology level 2 and 3)].*
- *By protected area.*
- *By migratory species.*
- *By drivers (IUCN threats classification scheme):*

Metadata is available on UNEP-WCMC’s GBF indicator website: <https://www.gbf-indicators.org/metadata/headline/A-3>

- In addition, key sources include the National Actions Progress Validation (e.g., El Zein & Kahale, 2022), lebanon-flora.org, the 2020 Atlas for Marine and Coastal Birds of Lebanon, and SPA/RAC reports on the ecological characterization of nine coastal sites.

Definition: The indicator “Red List Index” measures change in aggregate extinction risk across groups of species.

Unit: Index value.

Responsible Agency: MoE.

Development Status: Methodology available and developed by IUCN.

Frequency: Yearly.

Baseline: 1993.

Cost and Funding: Potentially extensive.

Capacity Development Needs: Capacity development could be planned as part of the overall planning of this indicator.

Indicator: Threatened Species Under Conservation Actions

Definition: Measures the number of threatened species (as defined by IUCN criteria) for which conservation actions have been implemented.

Unit: Number.

Calculation Method: Count of threatened species with documented and implemented conservation actions.

Responsible Agency: MoE, MoA, CNRS.

Development Status: Early Stage. Initial assessments of threatened species exist but are not yet comprehensively linked to implemented conservation actions.

Frequency: Every 2–3 Years.

Baseline: TBD.

Cost and Funding: Medium to High Cost.

Funding Sources:

- **National Government Budgets:** Allocations from the MoE and related ministries.
- **International Donors:** Agencies such as UNDP, UNEP, GEF, World Bank, and the EU.
- **Public–Private Partnerships:** Engagement with private sector entities through corporate social responsibility initiatives.
- **NGO and Research Grants:** Support from conservation organizations and academic institutions.

Capacity Development Needs:

- **Institutional Coordination:** Strengthen collaboration among governmental agencies, research institutions, and NGOs.
- **Data Management:** Develop robust systems for tracking conservation actions and species status over time.
- **Community Engagement:** Build local capacity for community-led conservation initiatives and awareness campaigns.
- **Resource Mobilization:** Improve skills in securing funding and managing conservation projects.

Component indicator; new; number: **Number of (a) plant and (b) animal genetic resources for food and agriculture secured in either medium- or long-term conservation facilities**

- FAO is collecting such data (SDG indicator 2.5.1). See also the relevant page on FAO's SDG Indicators Data Portal: <https://www.fao.org/sustainable-development-goals-data-portal/data/indicators/number-of-animal-genetic-resources-for-food-and-agriculture-secured-in-medium-or-long-term-conservation-facilities/en>

Definition: This indicator measures the number of distinct genetic resource accessions—comprising plant and animal genetic materials essential for food and agriculture—that are conserved ex situ in medium- or long-term conservation facilities (such as gene banks, seed banks, cryopreservation facilities, or other specialized repositories).

Unit: Number.

Responsible Agency: MoE / Lebanese Agricultural Research Institute (LARI).

Development Status: Ready.

Frequency: Yearly.

Baseline: 2025.

Cost and Funding: No additional cost needed. Covered through existing staff resources (staff time).

Capacity Development Needs: None.

Component indicator; new; quantified [percentage]: **Proportion of local breeds classified as being at risk of extinction**

- FAO is collecting such data (SDG indicator 2.5.2). See also the relevant page on FAO's SDG Indicators Data Portal: <https://www.fao.org/sustainable-development-goals-data-portal/data/indicators/proportion-of-local-breeds-classified-as-being-at-risk-of-extinction/en#:~:text=In%20situ%2C%20the%20risk%20status,are%20at%20risk%20of%20extinction>
- Please also refer to the Indicator for NA 5.1: Action on Species.

Definition: Measures the percentage of local livestock breeds that are at risk of extinction. This indicator helps track the genetic diversity of domesticated animals and the effectiveness of conservation efforts.

Unit: Percentage.

Responsible agency: MoA / LARI.

Development Status: Methodology ready.

Frequency: Check with Lebanese focal points—Mona Siblini at MoA.

Baseline: Check with Lebanese focal points.

Cost and Funding: No additional cost needed. Covered through existing staff resources (staff time).

Capacity Development Needs: None.

NA 4.1: Update the biodiversity national inventory (Biodiversity Country Study) prepared by the Ministry of Agriculture (MoA), based on field surveys of fauna and flora and recently completed studies, with separate sections for marine and terrestrial lists

Indicator: Biodiversity national inventory of species of fauna and flora

Definition: *National indicator; percentage:* Share of flora and fauna species in the updated species inventory whose conservation status has been evaluated according to the new global criteria of evaluation.

Unit: Percentage.

Calculation Method:

(Evaluated status of species of flora and fauna) / (Total number of species of flora and fauna) * 100.

Responsible Agency: MoE.

Development Status: Methodology ready.

Frequency: Every 3 years.

Baseline: 1996.

Cost and Funding: No additional cost needed. Covered through existing staff resources (staff time).

Capacity Development Needs: None.

Data Needed	Source
List of species of fauna and flora	MoE, MoA, Research Centers, Academic Institutions, Specialized NGOs
List of evaluated species of fauna and flora	MoE, MoA, Research Centers, Academic Institutions, Specialized NGOs

NA 4.2: Apply IUCN Red Listing to the identified species in the updated species inventory.

Indicator: IUCN Red List of Species

Definition: *National indicator; quantitative + percentage:* This indicator measures the conservation status of species in the updated national species inventory by applying the IUCN Red List criteria. It documents the threat level (e.g., Critically Endangered, Endangered, Vulnerable, etc.) assigned to each species based on standardized assessment protocols. The goal is to provide a comprehensive and transparent evaluation of species' extinction risks to inform conservation priorities and policy actions.

N.B. Data and methodology available at: <https://www.bipindicators.net/indicators/red-list-index>.

Unit:

- Number of species assessed.
- Percentage of the total species inventory that has been evaluated.

Calculation Method:

- Compile the updated species inventory from national databases.
- Apply the IUCN Red List assessment process to each species using the established criteria.
- Count the total number of species evaluated and classify them into the appropriate Red List categories.
- Calculate the percentage as:
 - o $\text{Percentage of species assessed} = (\text{Total number of species in the inventory} / \text{Number of species assessed}) \times 100.$

Responsible Agency: MoE.

Development Status: Indicator is currently under active development and implementation.

Frequency: Assessments should be updated periodically. A common approach is to review and update the Red List status every 2–3 years, depending on resource availability and emerging data.

Baseline: TBD.

Cost and Funding: Costs include field surveys, data collection and analysis, training workshops, and expert consultations. Funding can be sourced from national government budgets, international biodiversity grants, and partnerships with conservation organizations.

Capacity Development Needs:

- Training in IUCN Red List assessment methodologies for national biologists and data managers.
- Development of data management systems to track species assessments.
- Technical support and collaboration with international IUCN experts.
- Investment in research infrastructure to gather high-quality, up-to-date species data.

Data Needed	Source
List of species of fauna and flora	MoE, MoA, Research Centers, Academic Institutions, Specialized NGOs
Population Trends	Research Centers, Academic Institutions, Specialized NGOs
Distribution Data	
Threat Assessments	
IUCN Criteria Documentation	Official IUCN Red List guidelines and assessment protocols

NA 4.3: Update and ensure the sustainability of the Flora of Lebanon platform for data storage and dissemination, including information on species distribution, uses, IUCN Red List status and other relevant information.

Indicator: Update of the Flora of Lebanon Platform

Definition: *National indicator; binary:* Has the Flora of Lebanon platform (<http://www.lebanon-flora.org/>) been updated and sustained, ensuring that it provides comprehensive data on species distribution, uses, IUCN Red List status, and other relevant information?

Unit: Yes/No.

Responsible Agency: Département Sciences de la Vie et de la Terre Faculté des sciences Université Saint-Joseph.

Frequency: Every 5 years.

Baseline: 2024.

NA 4.4: Develop guidelines and implement action plans to minimize human-wildlife interactions to reduce risk to, and restore and maintain the genetic diversity of, at least 10 threatened species.

Indicator: Guidelines/action plans for human-wildlife conflicts

Definition: *National indicator; number:* Number of guidelines and/or action plans developed to minimize human-wildlife conflicts in Lebanon.

Unit: Number.

Calculation Method:

Total number of guidelines and action plans developed and officially adopted to address human-wildlife.

Responsible Agency: MoE.

Development Status: Methodology ready.

Frequency: TBD.

Baseline: TBD.

Cost and Funding: None.

Capacity Development Needs: None.

Data Needed	Source
List of developed guidelines and action plans on human-wildlife conflicts	MoE, MoA, MoPWT, Research Centers and Academic Institutions, Specialized NGOs

Indicator: Human-wildlife conflict management

Definition: *National indicator; index:* Number of conservation actions implemented aiming at minimizing human-wildlife conflicts and threats and reducing risks to threatened species.

Unit: Index [no implementation: 0; full implementation: 10].

Calculation Method: The index number is established based on an expert assessment.

Responsible Agency: MoE.

Development Status: Index needs to be developed at national level.

Frequency: TBD.

Baseline: TBD.

Cost and Funding: Certain costs expected.

Capacity Development Needs: Training for personnel working on this index.

Data Needed	Source
List of human-wildlife conflict management plans	MoE, MoA, MoPWT, Research Centers and Academic Institutions, Specialized NGOs

National Target 5: Genetic Diversity

NT 5: By 2030, the genetic diversity of 40% of native fauna and flora is conserved in-situ and ex-situ through sustainable management practices, to maintain their adaptive potential.

HI A.3.; Indicator: Red List Index (also NT 4)

- ☐ Check the respective information under NT 4.

Component indicator; new; quantified [percentage]: Proportion of local breeds classified as being at risk of extinction.

- ☐ FAO is collecting such data (SDG indicator 2.5.2)
- ☐ Check the respective information under NT 4.

HI A.4.: Indicator: The proportion of populations within species with an effective population size > 500.

Factsheet: <https://www.gbf-indicators.org/metadata/headline/A-4>

- ☐ This indicator was selected because it has proven to be a suitable metric for measuring healthy genetic diversity. The advantage is that the indicator can be measured with or without DNA data. To measure it, the indicator could be calculated for:
 - All species within certain taxonomic groups (e.g. birds, gymnosperms, mammals) in a country, and thus presented as, for example, “the Ne 500 indicator for gymnosperms”.
 - A randomly selected subset of all known species in a country.
 - A systematically selected set of all known species in a country.
- ☐ It could be good practice to calculate this indicator whenever the population size of species is being assessed. Document CBD/SBSTTA/26/INF/14 (<https://www.cbd.int/doc/c/92cf/b458/18519b4c0b487bf9bfc23988/sbstta-26-inf-14-en.pdf>) provides more background for this indicator (p.73).

Unit: Proportion.

Responsible Agency: MoE.

Development Status: This indicator needs to be developed for national level application. This will also require adapting some procedures.

Frequency: TBD.

Baseline: TBD.

Cost and Funding: Cost for adapting the indicator methodology to the national level.

Capacity Development Needs: Training for staff working on this indicator.

NA 5.1: Identify native species of high conservation value including economically important species in the updated national species inventory referenced in National Action 4.1.

Indicator: Identification of native species of high conservation value including economically important species.

Definition: *National indicator; binary:* Native species of high conservation value including economically important species have been identified and added to the updated national species inventory (referenced in National Action 4.1.).

Unit: Yes/No.

Responsible Agency: MoE.

NA 5.2: Develop national conservation strategies and regulations for at least 100 native species of high conservation value, prioritizing endemic species.

Indicator: Action on species of high conservation value

Definition: *National indicator; count:* Number of native species of high conservation value covered by national conservation strategies and regulations.

Unit: Number.

Calculation Method: Total number of native species with developed and adopted conservation strategies or regulations.

Responsible Agency: MoE, MoA.

Development Status: The indicator can be applied once the respective lists have been developed.

Frequency: Yearly.

Baseline: 1998.

Cost and Funding: No additional cost needed. Covered through existing staff resources (staff time).

Capacity Development Needs: None.

Data Needed	Source
List of native species of high conservation value, including endemic species	MoE, MoA, Research Centers, Academic Institutions, Specialized NGOs
Records of developed conservation strategies and regulations.	MoE, MoA, Research Centers, Academic Institutions, Specialized NGOs

NA 5.3: Conduct monetary valuations for at least 30 native species of high conservation value.

Indicator: Monetary valuations of species of high conservation value.

Definition: *National indicator; count:* Number of native species of high conservation value for which monetary valuations have been conducted.

Unit: Number.

Calculation Method: Number of native species with completed monetary valuations.

Responsible Agency: MoE, MoA.

Development Status: The indicator can be applied once the respective lists have been developed.

Frequency: Every 3 years.

Baseline: TBD.

Cost and Funding: No additional cost needed - Covered through existing staff resources (staff time)

Capacity Development Needs: None.

Data Needed	Source
List of native species of high conservation value	MoE, MoA, Research Centers, Academic Institutions, Specialized NGOs
List of monetary valuations	MoE, MoA, MoF

National Target 6: Use of Wild Species

NT 6: Ensure that the use, harvesting, and trade of wild species are sustainable, safe and legal, preventing overexploitation, minimizing impacts on non-target species and ecosystems, and reducing the risk of pathogen spillover by applying the ecosystem approach, while respecting and protecting customary sustainable use by indigenous peoples and local communities.

Indicator: Status of fish stocks

HI 5.1; new; percentage: Proportion of fish stocks within biologically sustainable levels.

- A dedicated page for this indicator is available on FAO's SDG Indicators Data Portal.

Definition: Measures the sustainability of the world's marine capture fisheries based on their abundance.

Unit: Percentage.

Responsible Agency: MoA.

Development Status: Globally available, not yet applied at the national level.

Frequency: Every 5 years.

Baseline: 2003.

Cost and Funding: To be estimated, in cooperation with MoA.

Capacity Development Needs: Likely needed.

Complementary indicator; new; score [between 0 and 1]: **Progress by Lebanon in implementing international instruments to combat illegal, unreported, and unregulated fishing.**

Unit: Score.

Responsible Agency: MoA, MoPWT, MoIM, MoD, Lebanese Army.

Development Status: Globally under development by FAO. Indicator development at the national level is possible. Cooperation with FAO could be considered.

Frequency: Yearly.

Baseline: TBD.

Cost and Funding: To be estimated, in cooperation with MoA.

Capacity Development Needs: Likely needed.

Complementary indicator; new:

Biodiversity-based trade, growth rates

- Data collected by UNCTAD BioTrade in the TraBio statistical tool and CITES.

Definition: This indicator measures the annual percentage change in trade of products derived from biodiversity. It reflects growth or decline in the trade value and/or volume of biodiversity-based products—such as those sourced from wild species—using data collected by UNCTAD BioTrade (TraBio statistical tool), together with CITES trade records. The indicator provides insight into the performance and sustainability of biodiversity-based trade and helps assess whether the trade in wild species and related products is expanding in a sustainable, safe, and legal manner.

Unit: Percentage.

Responsible Agency: MoE, MoA, MoF, in cooperation with Ministry of Economy & Trade (MoET).

Development status: Cooperation with the UNCTAD BioTrade team is recommended: biotrade@unctad.org

Frequency: Yearly.

Baseline: TBD.

Cost and Funding: Low.

Capacity Development Needs: Likely needed, possibly in cooperation with UNCTAD BioTrade.

NA 6.1: Develop and implement mechanisms and enact legislation to reduce the risk of pathogen spillovers from farming activities.

Indicator: Pathogen spillover risk

Definition: *National indicator; descriptive:* Description of legal and other measures taken to reduce the risk of pathogen spillovers from farming activities.

Responsible Agency: MoE, MoA, MoPH.

Development Status: Indicators could be developed once this NA is being implemented.

Frequency: Yearly.

Baseline: TBD.

Cost and Funding: TBD.

Capacity Development Needs: TBD.

NA 6.2: Develop and enact laws aimed at implementing CITES and other international conventions related to the harvesting and trade of wild species.

Indicator: Enactment of legislation regulating harvesting and trade of wild species

Definition: *National indicator; binary:* Is legislation regulating the harvesting and trade of wild species in force?

Unit: Yes/No.

Responsible Agency: MoE, MoA, MoF, MoIM, in coordination with MoET.

NA 6.3: Develop, based on scientific assessments, “Fishing Year” guidelines for the fisheries sector, that include a set of regulations and/or recommendations defining seasons and practices for a particular year.

Indicator: Guidelines for fisheries sector

Definition: *National indicator; binary:* Have the guidelines for the fisheries sector been developed?

Unit: Yes/No.

Responsible Agency: MoA.

NA 6.4: Conduct capacity-building for relevant public institutions (MoA forest guards and quarantine services, PA rangers, custom services, border security forces, municipal police, etc.) on national and international regulations related to the harvesting and trade of wild species, as well as on concerned species protected or regulated nationally and internationally (IUCN Red List, CITES and other international conventions), in order to strengthen enforcement of related laws and guidelines.

Indicator: Capacity Building on Species Identification for Law Enforcement

Definition: *National indicator; count:* Number of staff from relevant public institutions trained on national and international regulations related to the harvesting and trade of wild species, to enhance enforcement of related laws and guidelines.

Unit: Number.

Calculation Method: Total number of individuals trained on regulations related to harvesting and trade of wild species.

Responsible agency: MoE, MoA, MoF, MoIM, in coordination with MoET.

Development status: Methodology ready.

Frequency: Every 3 years.

Baseline: 2024.

Cost and Funding: No additional cost needed. Covered through existing staff resources (staff time).

Capacity Development Needs: None.

Data Needed	Source
List of targeted institutions and personnel for training	MoE, MoA, MoF, MoIM, in coordination with MoET
Training records, including participant attendance and topics covered	MoE, MoA
Post-training evaluation reports (optional, for assessing effectiveness)	MoE, MoA

NA 6.5: Conduct assessments of current harvesting practices of terrestrial wild species to identify unsustainable methods and species overexploitation, and establish guidelines—endorsed by the MoA for the sustainable harvesting and trade of terrestrial wild species. These guidelines should focus on maintaining population viability and minimizing impacts on non-target species and ecosystems.

Indicator: Assessment of harvesting practices

Definition: *National indicator; quantified [percentage]+descriptive:* The percentage of assessed harvesting practices identified as unsustainable based on scientific assessment.

Unit: Percentage.

Calculation Method:

A scientific assessment must underpin this indicator.

$(\text{Number of unsustainable harvesting practices identified}) / (\text{Total number of harvesting practices assessed}) * 100.$

Responsible Agency: MoA.

Development Status: Assessment methodology to be developed.

Frequency: Every 2 years.

Baseline: TBD.

Cost and funding: Low.

Capacity development needs: None.

Data Needed	Source
Overview of harvesting practices	MoA

Indicator: Guidelines for the sustainable harvesting and trade of terrestrial wild species

Definition: *National indicator; binary:* Have guidelines for the sustainable harvesting and trade of targeted terrestrial wild species been developed? Have these guidelines been endorsed by the MoA?

Unit: Yes/No.

Responsible Agency: MoE, MoA, MoF, MoIM, in coordination with MoET.

NA 6.6: Develop protocols for sustainable use for endemic species affected by overexploitation, based on the most recent list of endemic species

Indicator: Development of Sustainable Use Protocols for Endemic Species Affected by Overexploitation

Definition: *National indicator; count:* Number of protocols developed for the sustainable use of endemic species affected by overexploitation, based on the most recent list of endemic species.

Unit: Number.

Calculation Method: Total number of developed and approved sustainable use protocols for endemic species.

Responsible Agency: MoE.

Development Status: TBD.

Frequency: Five years.

Baseline: 2024.

Cost and Funding: No additional cost needed. Covered through existing staff resources (staff time).

Capacity Development Needs: None.

Data Needed	Source
Most recent list of endemic species	MoE, MoA, Research and Academic Institutions, Specialized NGOs
Records of developed sustainable use protocols	MoE, MoA
Documentation of protocol approval and dissemination	MoE, MoA

National Target 7: Invasive Alien Species

NT 7: By 2030, effective measures are in place to limit the introduction and diffusion of Invasive Alien Species (IAS).

Indicator: Invasive alien species establishment

HI 6.1; quantified [percentage by taxonomic group and by pathway]: **Rate of invasive alien species establishment.**

- ☐ Unit of measurement: Number of IAS/year.
- ☐ Indicator is calculated at the global level based on Global Biodiversity Information Facility (GBIF) data. See: <https://gbif-indicators.org/metadata/headline/6-1>
- ☐ Reviewing the global GBIF datasets used for this indicator is advised.

Definition: Measures the number of invasive alien species expected to have established compared with a reference period, based on modelled trends in IAS observations.

Unit: Number/Year.

Responsible agency: MoE, MoA.

Development status: Direct contact with GBIF is advised: asia_support@gbif.org

Frequency: Every 2 years.

Baseline: For marine 1956; for terrestrial 2020.

Cost and Funding: No additional cost needed. Covered through existing staff resources (staff time).

Capacity Development Needs: None.

Contribution to HI 6.b; binary + description: Lebanon has adopted relevant regulations, processes and measures to limit the introduction and diffusion of invasive alien species and reduce their impact.

Unit: Yes/No.

Responsible Agency: MoE, MoA.

NA 7.1: Support ongoing efforts to establish a register of IAS reported in the terrestrial and aquatic ecosystems in Lebanon. This register should be considered a live document and to be updated whenever new IAS are identified.

Use HI6.1 under NT 7 for this NA.

NA 7.2: Develop an awareness campaign about invasive species to educate on the proliferation and impacts of identified IAS.

Indicator: Implementation of Awareness Campaign on Invasive Alien Species (IAS)

Definition: *National indicator; binary:* Has an awareness campaign been developed and implemented to educate stakeholders on the proliferation and impacts of identified IAS?

Unit: Yes/No.

Responsible Agency: MoE, MoA.

Frequency: Every 2 Years.

NA 7.3: Provide technical, operational, and financial support to quarantine, customs, and border security forces to regulate the import of species for crops, landscape, aquaculture, domesticated animals, and aquarium trade sectors to avoid genetic pollution of local species and genotypes.

Indicator: Support for Quarantine, Customs, and Border Security Forces to Regulate Species Imports

Definition: *National indicator; descriptive:* This indicator describes the technical, operational, and financial support provided to quarantine, customs, and border security forces to regulate the import of species in the agricultural, landscape, reforestation, aquaculture, and aquarium trade sectors. It focuses on measures taken to prevent genetic pollution of local species and genotypes (qualitative assessment based on the measures implemented and support provided, as well as outcomes in terms of improved regulation and enforcement).

Responsible Agency: MoE, MoA, MoF, MoIM, in coordination with MoET.

Development Status: TBD.

Frequency: Yearly.

Baseline: TBD.

Cost and Funding: TBD.

Capacity Development Needs: TBD.

National Target 8: Pollution

NT 8: By 2030, reduce pollution and the negative impacts of pollution, to levels that are not harmful to biodiversity and ecosystem functions and services, considering cumulative effects, including:

- (a) reducing excess nutrients lost to the environment;**
- (b) reducing the overall risk from pesticides and highly hazardous chemicals; and**
- (c) reducing, and better management of plastic pollution.**

Indicator: Index of coastal eutrophication potential

HI 7.1; new; index [By type of nutrient and by sub-basin]

A global methodology is available:

- This indicator is a subset of the indicators used for SDG 14.1.1. It aims to measure the both the country's contribution to coastal eutrophication and the state of coastal eutrophication.

See: <https://gbf-indicators.org/metadata/headline/7-1>

Definition: This indicator measures the country's contribution to coastal eutrophication and the state of coastal eutrophication.

Unit: Kilograms of carbon (from algae biomass) per square kilometer of river basin area per day (kg C km⁻² day⁻¹)

Responsible Agency: MoE, MoA.

Development Status: Ready at the global level.

Frequency: Seasonal.

Baseline: Nitrogen and Phosphorous measurements taken monthly by CNRS.

Cost and Funding: TBD.

Capacity Development Needs: Adapt the global methodology to the national level.

Indicator: Aggregated Total Applied Toxicity (TAT)

HI 7.2; new;

- TAT values are calculated for individual species or species groups and must be aggregated into (ATAT).
- Each country can calculate yearly ATAT values using national statistics on pesticides sales or use, together with open-source information on pesticide properties, including toxicity values for a range of species.
- A global methodology is available, see: <https://gbf-indicators.org/metadata/headline/7-2>.
- Cooperation with FAO on this indicator is recommended.

Definition: **This indicator measures** the risk to ecological communities based on the combined risks to key species groups from the annual outdoor use of pesticides in active ingredients in agricultural, forestry, and public health.

Unit: TBD.

Responsible Agency: MoA, in cooperation with MoE and MoPH.

Development Status: Ready at the global level.

Frequency: Yearly.

Baseline: TBD.

Cost and Funding: TBD.

Capacity Development Needs: Adapt the global methodology to the national level.

Component indicator; new: **Cropland Nutrient Budget.**

Methodology available; See: <https://www.fao.org/faostat/en/#data/ESB/metadata>

- ☐ Cooperation with FAO on this indicator is recommended.

Definition: This indicator measures the balance of nutrients—such as nitrogen (N), phosphorus (P), and potassium (K)—applied to and removed from cropland. It helps assess the sustainability of agricultural practices by tracking nutrient inputs and outputs.

Unit: kg/ha.

Responsible Agency: MoE, in cooperation with MoA.

Development Status: Ready at the global level.

Frequency: TBD.

Baseline: TBD.

Cost and Funding: TBD.

Capacity Development Needs: Adapt the global methodology to the national level.

Complementary indicator; new: **Pesticide Use Per Area of Cropland.**

Methodology available; See: <https://www.fao.org/faostat/en/#data/RP>

- ☐ Cooperation with FAO on this indicator is recommended.

Definition: This indicator measures the intensity of pesticide application on cropland by quantifying the amount of pesticide active ingredient used per unit area. It provides insight into agricultural practices and the potential environmental impact of pesticide use, and helps assess whether reductions in pesticide use are being achieved to minimize harm to biodiversity, ecosystem functions, and services.

Unit: Kilograms per hectare (kg/ha).

Responsible Agency: MoE, in cooperation with MoA.

Development Status: Ready at the global level.

Frequency: TBD.

Baseline: TBD.

Cost and Funding: Potentially required.

Capacity Development Needs: Adapt the global methodology to the national level.

NA 8.1: Enhance knowledge on nutrient management and integrated pest management through public awareness and targeted training. These activities should emphasize the impacts of nutrient use on surrounding environments, the consequences of pesticides misuse, and the use of biopesticides and safer alternatives.

Indicator: Knowledge about Nutrient Management and Integrated Pest Management

Definition: *National indicator; percentage:* Percentage of surveyed stakeholders reporting increased knowledge about nutrient management and integrated pest management and use.

Unit: Percentage.

Calculation Method: Conduct survey with stakeholders (e.g., farmers, general public), including questions on: a) nutrient management, and b) integrated pest management.

$$(\text{Number of stakeholders reporting increased knowledge}) / (\text{Total number of surveyed stakeholders}) * 100.$$

Responsible Agency: MoA.

Development Status: Survey to be developed.

Frequency: Every 3 years.

Baseline: TBD.

Cost and Funding: Potential costs for developing the survey.

Capacity Development Needs: Yes, for survey respondents.

Data Needed	Source
Trainings on nutrient management and subsequent survey on knowledge gained	MoE, MoA, Research Centers, Academic Institutions, Specialized NGOs
Trainings on integrated pest management and subsequent survey on knowledge gained	MoE, MoA, Research Centers, Academic Institutions, Specialized NGOs
Stakeholder survey on knowledge about nutrient management and integrated pest management and use	MoE, MoA, Research Centers, Academic Institutions, Specialized NGOs

NA 8.2: Develop and implement a national strategy related to nutrient management to prevent excess loss into the environment. This should consider both point and non-point sources of excess nutrients (e.g., fertilizers, lost feed in aquaculture, etc)

Indicator: Development of the nutrient management strategy

Definition: *National indicator; binary:* Has a nutrient management strategy been developed?

Unit: Yes/No.

Responsible Agency: MoA.

Indicator: Implementation of the nutrient management strategy.

Definition: *National indicator; descriptive:* Describes the implementation of the national nutrient management strategy to reduce excess nutrient loss into the environment. Focuses on actions targeting both point and non-point sources.

Unit: Descriptive.

Calculation Method: Qualitative assessment based on:

- ☐ Progress in implementing strategy components (e.g., regulatory measures, guidelines, or pilot projects);
- ☐ Actions addressing specific sources of nutrient loss (e.g., fertilizers, aquaculture feed);
- ☐ Monitoring reports on nutrient levels in key ecosystems.

Responsible Agency: MoA.

Development Status: NA.

Frequency: Yearly.

Baseline: TBD.

Cost and Funding: No additional cost needed. Covered through existing staff resources (staff time).

Capacity Development Needs: None.

Data Needed	Source
Details of the national nutrient management strategy	MoA
Documentation of implemented measures and programs	MoA
Monitoring and evaluation reports on nutrient levels and mitigation impacts	MoA, MoE

NA 8.3: Develop and implement a national strategy related to managing pesticides, fungicides, herbicides, and antibiotics, to prevent their excess introduction into the environment. This should consider both the point and non-point sources of pollution.

Indicator: Development of the pesticide and chemical management strategy

Definition: *National indicator; binary:* Has a pesticide and chemical management strategy been developed?

Unit: Yes/No.

Responsible Agency: MoA.

Indicator: Implementation of the Pesticide and Chemical Management Strategy

Definition: *National indicator; descriptive:* This indicator describes the implementation of the national strategy to manage pesticides, fungicides, herbicides, and antibiotics and prevent their excessive introduction into the environment. It focuses on actions targeting both point and non-point sources.

Unit: Descriptive.

Calculation Method: Qualitative assessment based on:

- ☐ Progress in implementing strategy components (e.g., regulatory measures, guidelines, or pilot projects)
- ☐ Actions targeting point sources (e.g., direct discharge from facilities) and non-point sources (e.g., agricultural runoff).
- ☐ Monitoring reports on chemical levels in soil, water, and other environmental matrices.

Responsible Agency: MoA.

Development Status: NA.

Frequency: Yearly.

Baseline: TBD.

Cost and Funding: No additional cost needed. Covered through existing staff resources (staff time).

Capacity Development Needs: None.

Data Needed	Source
Details of the strategy's planned actions and objectives	MoA
Documentation of implemented measures and programs	MoA
Monitoring data on chemical concentrations.	MoA, MoE, MoPWT Research Centers and Academic Institutions, Specialized NGOs

NA 8.4: Monitor of pollutants levels in ecosystems of high conservation value (coastal areas, river mouths, rivers, wetlands, water springs) to identify areas that require priority action.

Indicator: Monitoring Pollutant Levels in Ecosystems of High Conservation Value

Definition: *National indicator; count:* Number of high conservation value ecosystems where pollutant levels have been monitored.

Unit: Number.

Calculation Method:

Count of ecosystems monitored for pollutants.

Responsible Agency: MoE, MoA, MoEW.

Development Status: Methodology to be developed.

Frequency: Monthly.

Baseline: TBD.

Cost and Funding: No additional cost needed. Covered through existing staff resources (staff time).

Capacity Development Needs: None.

Data Needed	Source
List of ecosystems to be monitored	MoE, MoA, MoEW
Pollutant monitoring data (e.g., concentration levels, types of pollutants)	MoE, MoA, MoEW, MoPWT Research Centers and Academic Institutions

NA 8.5: In areas of priority action identified under NA 8.4, conduct capacity-building for polluters and local authorities to define measures to mitigate, reduce, or, where possible, eliminate pollution levels.

Number of Stakeholders Trained in Pollution Mitigation

Definition: *National indicator; count:* Number of polluters and local authority representatives trained on pollution mitigation measures in areas of priority action identified under NA 8.4.

Unit: Number.

Calculation Method: Count of individuals trained.

Responsible Agency: MoE, MoA, MoPWT, MoEW, LPA.

Development Status: NA.

Frequency: Every 3 Years.

Baseline: 2024.

Cost and Funding: No additional cost needed. Covered through existing staff resources (staff time).

Capacity Development: None.

NA 8.6: Improve the technical infrastructure of the MoA, CNRS and LARI to support the monitoring of pollution and chemical imports.

Technical Infrastructure for Pollution and Chemical Monitoring

Definition: *National indicator; binary:* Has the technical infrastructure of the MoA, CNRS, and LARI been improved to enable effective monitoring of pollution and chemical imports.

Unit: Yes/No.

Responsible Agency: MoA, CNRS, LARI.

NA 8.7: Update pesticide regulations and strengthen enforcement by banning hazardous chemicals from entering the market.

Indicator: Enhancement and enforcement of pesticide regulations

Definition: *National indicator; number:* Increase in the number of hazardous chemicals/pesticides that are banned.

Unit: Number of hazardous chemicals/pesticides banned.

Calculation Method: (Number of hazardous chemicals banned in year X) – (Number of hazardous chemicals banned in the baseline year) = (Increase in number of banned hazardous chemicals).

Responsible Agency: MoA.

Development Status: Parameters for the required data to be specified.

Frequency: Yearly.

Baseline: TBD.

Cost and Funding: Low.

Capacity Development Needs: Application of this indicator.

Data Needed	Source
Pesticide regulation	MoA
Data on pesticide regulation enforcement	MoA
Hazardous chemicals/pesticides banned	MoA

NA 8.8: Reduce and prevent plastic pollution through the implementation of the National Integrated Solid Waste Management Strategy, while raising awareness of the impacts of plastic pollution on surrounding habitats.

Indicator: Plastic Pollution

Definition: *National indicator; number + description:* Percentage increase in the economic instruments applied as part of the National Integrated Solid Waste Management Strategy.

Unit: Percentage increase.

Calculation Method:

(Number of economic instruments active in year X) – (Number of economic instruments applied in baseline year) / (Number of economic instruments applied in baseline year) * 100 = Percentage increase in number of economic instruments applied.

X: reporting year.

Responsible Agency: MoE.

Development Status: Ready, pending data availability.

Frequency: Yearly.

Baseline: TBD.

Cost and Funding: No additional cost needed. Covered through existing staff resources (staff time).

Capacity Development Needs: None.

Data Needed	Source
economic instruments active in year (baseline)	MoE, MoF
economic instruments active in year (X)	MoE, MoF
List of economic instruments	MoE, MoF

NA 8.9: Assess the impact of pollution, with emphasis on phosphorus, resulting from the 2024 war on natural (terrestrial, fresh water, and marine) and agricultural areas affected by the 2024 war.

Pollution from the 2024 War

Definition: *National indicator; quantitative:* Number of assessments conducted to evaluate the impact of pollution, with an emphasis on phosphorus, on natural (terrestrial, freshwater, and marine) and agricultural areas affected by the 2024 war.

Unit: Number.

Calculation Method: Count of completed impact assessment reports.

Responsible Agency: MoE, CNRS.

Development Status: Methodology to be developed.

Frequency: Once.

Baseline: 2024.

Cost and Funding: No additional cost needed. Covered through existing staff resources (staff time).

Capacity Development Needs: None.

Data Needed	Source
Assessment reports covering different ecosystems and agricultural areas	MoE, MoA, Research Centers and Academic Institutions, Specialized NGOs
Detailed pollutant data, particularly phosphorus levels	MoE, MoA, Research Centers and Academic Institutions, Specialized NGOs
Maps and descriptions of assessed areas	MoE, MoA, Research Centers and Academic Institutions, Specialized NGOs

NA 8.10: Identify and map sources of marine litter in coastal and marine environments and develop management plans.

Indicator: Plastic Pollution (also NA 8.8)

Definition: *National indicator; binary:* Have management plans for marine litter in coastal and marine environments been developed?

Unit: Yes/No.

Responsible Agency: MoE.

National Target 9: Climate Change and Biodiversity

NT 9: By 2030, identify ecosystems vulnerable to climate change, minimize the impacts of climate change on biodiversity, and increase its resilience, through mitigation, adaptation, and disaster risk reduction actions. This includes nature-based solutions and/or ecosystem-based approaches, while minimizing negative and fostering positive impacts of climate action on biodiversity.

Indicator: Action on Impact of Climate Change

Definition: *Contributing to HI 8.b.; quantified [if possible disaggregated by ecosystem type]:* Lebanon has developed, adopted, or implemented policies, management plans, action plans, and adaptation plans to minimize the impact of climate change and ocean acidification on biodiversity. It also aims to minimize negative impacts and foster positive impacts of climate action on biodiversity.

- Indicator to measure management plans, action plans, adaptation plans that have been developed (or other measures taken), versus those that have been implemented.

Unit: Percentage of implemented measures among the management plans/action plans/adaptation plans developed.

Calculation Method:

(Number of implemented management plans, action plans, adaptation plans) / (Number of developed management plans, action plans, adaptation plans) * 100.

Responsible Agency: MoE.

Development Status: NA.

Frequency: Yearly.

Baseline: TBD.

Cost and Funding: No additional cost needed. Covered through existing staff resources (staff time).

Capacity Development Needs: None.

Data Needed	Source
List of developed and Implemented managements plans, action plans, adaptation plans, and measures to minimize the impact of climate change on biodiversity	MoE, MoA, International Climate Change and Environment Organizations (UN, FAO, IUCN ...) Research Centers and Academic Institutions, Specialized NGOs

NA 9.1: Conduct comprehensive assessments of the vulnerabilities of terrestrial, coastal, and marine ecosystems to climate change, identifying key risks and adaptation needs.

Indicator: Assessments of the Vulnerabilities of Terrestrial, Coastal and Marine Ecosystems

Definition: *National indicator; binary:*

Have comprehensive assessments of the vulnerabilities of terrestrial, coastal and marine ecosystems to climate change—identifying key risks and adaptation needs—been conducted?

Unit: binary (Yes/No).

Responsible Agency: MoE.

NA 9.2: Monitor, assess and document the impact of climate change on species and their habitats, by generating species prediction distribution models under future climate scenarios for at least 50 native species with a focus on species of high conservation and economic value.

Indicator: Number of Species with Prediction Distribution Models under Future Climate Scenarios

Definition: *National indicator; quantitative:*

Number of native species for which prediction distribution models have been generated under future climate scenarios, with a focus on species of high conservation and economic value.

Unit: Number.

Calculation Method: Count of native species with completed prediction distribution models.

Responsible Agency: MoE, MoA.

Development Status: NA.

Frequency: Every 5 years.

Baseline: 2024.

Cost and Funding: No additional cost needed. Covered through existing staff resources (staff time).

Capacity Development Needs: None.

Data Needed	Source
List of native species	MoE, MoA, Research Centers and Academic Institutions, Specialized NGOs
Habitat and species-specific data inputs (e.g., ecological variables, species occurrences)	MoE, MoA, Research Centers and Academic Institutions, Specialized NGOs
Completed prediction distribution models, including climate scenario details	MoE, MoA, Research Centers and Academic Institutions, Specialized NGOs

NA 9.3: Develop adaptation plans to mitigate the impact of climate change on at least 5 vulnerable natural ecosystems identified in NA9.1, with special emphasis on species of high conservation value identified under NA5.1. In addition, implement at least 2 conservation and restoration projects aimed at enhancing biodiversity resilience in the targeted ecosystems.

- ☐ The indicator for NT 9 covers also NA 9.3.

NA 9.4: Develop a relative sea level rise prediction model specific for the Lebanese coast to evaluate the effects of sea level rise on the marine coastal zone.

Indicator: Sea Level Rise Predictions

Definition: *National indicator; binary:* Has a prediction model for the effects relative sea level rise been developed?

Unit: Yes/No.

Responsible agency: MoE, MoPWT.

Frequency: Every 5 years.

Indicator: Extent of Sea Level Rise

Definition: *National indicator; quantified [percentage]:* This indicator measures the extent of sea level rise.

Unit: Percentage.

Calculation Method:

$(\text{Sea level on year X} - \text{Sea level in the baseline year}) / (\text{Sea level in the baseline year}) * 100.$

Responsible Agency: MoE, MoPWT.

Development Status: To be established.

Frequency: Every 5 years.

Baseline: TBD.

Cost and Funding: TBD.

Capacity Development Needs: TBD.

Data Needed	Source
Sea level for different years (incl. year X and baseline year), including model data for future years	MoE, MoPWT, Research Centers and Academic Institutions, Specialized NGOs

National Target 10: Sustainable Management of Wild Species

NT 10: By 2030, ensure that the management and use of at least 10 wild-used species are sustainable, thereby providing social, economic, and environmental benefits for people—especially those in vulnerable situations and those most dependent on biodiversity. This includes sustainable biodiversity-based activities, products, and services that enhance biodiversity, while protecting and encouraging customary sustainable use by local communities.

Indicator: Benefits from the Sustainable Use of Wild Species

HI 9.1; new; percentage: Benefits from the sustainable use of wild species.

- Factsheet is available <https://gbf-indicators.org/metadata/headline/9-1>, however this indicator cannot yet be applied at the national level.

Definition: This indicator measures the positive outcomes derived from the sustainable use of wild species. It includes economic, social, and ecological benefits that contribute to conservation and sustainable development goals.

Unit: Descriptive.

Responsible Agency: MoE.

Development Status: Methodology for this HI is not yet available; keep under review.

Frequency: TBD.

Baseline: TBD.

Cost and Funding: No additional cost needed. Covered through existing staff resources (staff time).

Capacity Development Needs: None.

Indicator: Population in Traditional Occupation

HI 9.2; new; percentage: Percentage of the population in traditional occupations.

Global metadata are available: <https://gbf-indicators.org/metadata/headline/9-2>. However, the metadata are not yet final, and countries need to adapt the indicator to their national circumstances.

Definition: This indicator measures activities undertaken by traditional communities to meet subsistence needs and livelihoods.

Unit: Percentage.

Responsible Agency: MoA, MoL, Municipalities.

Development Status: National methodology needs to be developed.

Frequency: Yearly.

Baseline: TBD.

Cost and Funding: TBD.

Capacity Development Needs: None.

Data Needed	Source
Percentage of the population in traditional occupations	MoL, MoPWT, MoF, MoI, MoIM, MoA, CAS
Indicator: Sustainable Management of Wild Species <u>Definition:</u> <i>National Indicator; Number:</i> Number of wild used species that are sustainably used. <u>Unit:</u> Number. <u>Calculation Method:</u> List of wild used species that are classified as Lower Risk according to the IUCN Red List criteria. <u>Responsible Agency:</u> MoE. <u>Development Status:</u> Ready. <u>Frequency:</u> Yearly. <u>Baseline:</u> TBD. <u>Cost and Funding:</u> None, provided lists are available. <u>Capacity Development Needs:</u> None.	
Data Needed	Source
List of wild used species	MoE, MoA
Red List data (□ refer to Global Target 4 and the respective national targets)	IUCN Red List, MoE, MoA

NA 10.1: Identify, prioritize and map wild-used species of high economic value, including forage and other values.

Indicator: Number of Wild Species of High Economic Value

Definition: *National Indicator; Number:* This indicator measures the number of wild species that have been identified as having high economic value, including those valued for forage, medicinal properties, food, fiber, or other economic uses. It reflects the scope of species assessments and prioritization for sustainable use and conservation.

Unit: Number.

Calculation Method:

- Compile a comprehensive list of wild species from national biodiversity databases and field surveys.
- Apply economic valuation criteria (e.g., market demand, traditional use, forage potential) to classify species as high economic value.
- Calculate the total number of species meeting these criteria.

Responsible Agency: MoE, MoA, research institutions.

Development Status: In progress/ Early implementation phase.

Frequency: Yearly (or aligned with national biodiversity assessment cycles).

Baseline: TBD.

Cost and Funding:

Cost includes resources for field surveys, expert workshops, data analysis, and stakeholder consultations. Potential funding may come from national budgets, international conservation grants, and public–private partnerships.

Capacity Development Needs:

- Training for field teams and taxonomists in species identification and economic valuation.
- Strengthening data management and biodiversity information systems.
- Enhancing collaboration between governmental, academic, and local stakeholders.

Data Needed	Source
National and regional species inventories	MoE, CNRS
Field survey reports and expert assessments	MoE, NGOs, Research institutions
Economic and ethnobotanical studies	MoF, MoA
Academic and research publications	Research institutions

Indicator: Distribution Maps of Wild Species of High Economic Value

Definition: *National Indicator; Number:* This indicator tracks the number of geospatial distribution maps produced for wild species identified as having high economic value. These maps illustrate species' occurrence, range, and habitat characteristics, and serve as essential tools for conservation planning, sustainable use, and policy-making.

Unit: Number of maps produced.

Calculation Method:

- Identify the list of wild species of high economic value from the species inventory. (see related Indicator above)
- For each species, compile geospatial data from field surveys, remote sensing, and existing biodiversity databases.
- Develop and verify distribution maps using GIS tools.
- Calculate the total number of unique species for which distribution maps have been successfully produced.

Responsible Agency: MoE, CNRS, CDR.

Development Status: In progress / Early implementation phase.

Frequency: Yearly, with updates aligned with new field data and assessment cycles.

Baseline: TBD.

Cost and Funding: Costs include investments in GIS software, field surveys, technical training, and data acquisition. Funding may be sourced from national environmental budgets, donor agencies, and international conservation projects.

Capacity Development Needs:

- Training in GIS and remote sensing techniques for biodiversity mapping.
- Development of standardized mapping protocols and data validation methods.
- Building technical infrastructure for data storage, analysis, and sharing.

Data Needed	Source
Geospatial and remote sensing data (satellite imagery, aerial surveys)	CNRS, CDR
Field survey data and species occurrence records	MoE
National biodiversity databases and existing distribution datasets	MoE, MoA, Research Centers and Academic Institutions, Specialized NGOs

NA 10.2: Prioritize populations of representative wild-used species of high economic value and/or endangered or highly exploited species, to be designated as Genetic Conservation Units (GCU).

Indicator: Number of High Economic Value Species with Identified GCU Populations

Definition: *National indicator; quantified [number]:* Number of wild-used species of high economic value for which populations have been prioritized for designation as GCUs.

Unit: Number.

Calculation Method: Count of wild-used species of high economic value for which populations have been prioritized for designation as GCUs.

Responsible Agency: MoE, MoA.

Development Status: Ready.

Frequency: Yearly.

Baseline: TBD.

Cost and Funding: None, provided lists are available.

Capacity Development Needs: None.

Data Needed	Source
List of wild-used species of high economic value	MoE, MoA, Research Centers and Academic Institutions, Specialized NGOs
Prioritization criteria and decisions	MoE, MoA
Reports on the populations of these species	MoE, MoA, Research Centers and Academic Institutions, Specialized NGOs

NA 10.3 Establish a robust knowledge-sharing system on ethnobotanic agrobiodiversity among relevant ministries, research institutes and major commercial users.

Indicator: system of knowledge sharing in ethnobotanic agrobiodiversity

Definition: *National indicator; binary:* Has a robust official knowledge-sharing system on ethnobotanic agrobiodiversity been established within the MoA?

Unit: Yes/No.

Responsible Agency: MoA.

Indicator: Users of Ethnobotanic Knowledge Sharing System

Definition: *National indicator; quantified [number]:* Number of research institutes and major commercial users using the system.

Unit: Number.

Calculation Method: Count of users using the knowledge-sharing system.

Responsible Agency: MoA.

Development Status: NA.

Frequency: TBD.

Baseline: 2024.

Cost and Funding: None, provided lists are available.

Capacity Development Needs: None.

Data Needed	Source
List of research institutes and major commercial users using the ethnobotanic knowledge-sharing system	MoA, MoE

NA 10.4: Develop and implement sustainable management plans for GCUs.

Indicator: Sustainable management plans for GCUs

Definition: *National indicator; percentage:* Share of GCUs that are covered by sustainable management plans.

Unit: Percentage.

Calculation Method: (Number of GCUs with developed sustainable management plans) / (Total number of designated GCUs) * 100.

Responsible Agency: MoE, MoA.

Development Status: NA.

Frequency: Five years.

Baseline: 2024.

Cost and Funding: No additional cost needed. Covered through existing staff resources (staff time).

Capacity Development Needs: None.

Data Needed	Source
List of wild used species designated as GCUs	MoE, MoA, Research Centers, Academic Institutions, Specialized NGOs

NA 10.5: Test ex-situ propagation and/or breeding of wild-used species in MoA and other nurseries and research institutes, in collaboration with the MoA, universities, and the private sector, and disseminate to local users.

Indicator: Number of Wild-Used Species Tested for Ex-Situ Propagation/Breeding

Definition: *National indicator; quantitative:* Number of wild-used species that have undergone testing for ex-situ propagation and/or breeding in nurseries and research institutes, in collaboration with the MoA, universities, and the private sector.

Unit: Number.

Calculation Method: Count of wild-used species tested for ex-situ propagation and/or breeding.

Responsible agency: MoA, MoE.

Development status: NA.

Frequency: Every 2 years.

Baseline: TBD.

Cost and Funding: No additional cost needed. Covered through existing staff resources (staff time).

Capacity Development Needs: None.

Data Needed	Source
List of species tested for ex-situ propagation and/or breeding	MoE, MoA Research Centers and Academic Institutions, Specialized NGOs
Collaboration agreements or reports with the MoA, nurseries, research institutes, and private sector partners	MoE, MoA, Research Centers and Academic Institutions, Specialized NGOs

National Target 11: Sustainable Management of Productive Areas

NT 11: Ensure that areas under agriculture, aquaculture, fisheries, and forestry are managed sustainably—in particular through the sustainable use of biodiversity— thereby contributing to the resilience, long-term efficiency, and productivity of these production systems, as well as to food security, while conserving and restoring biodiversity and maintaining nature’s contributions to people, including ecosystem functions and services.

Indicator: Sustainable agriculture

Definition: *HI 10.1; new; percentage:* Proportion of agricultural area under productive and sustainable agriculture.

- ☐ To be disaggregated by household and non-household sector farms, and by crops and livestock.
- ☐ See metadata factsheet: <https://gbf-indicators.org/metadata/headline/10-1>
- ☐ Cooperation with FAO is recommended.

Unit: Percentage.

Responsible Agency: MoA.

Development Status: The methodology needs to be prepared for national-level application.

Frequency: TBD.

Baseline: TBD.

Cost and Funding: Low.

Capacity Development Needs: None.

Indicator: Sustainable Forest Management

Definition: *HI 10.2; new; percentage:* Share of forest area managed in accordance with the UN definition of Sustainable Forest Management (SFM).

- ☐ See metadata factsheet: <https://gbf-indicators.org/metadata/headline/10-2>
- ☐ Cooperation with FAO is recommended.

Unit: Percentage.

Calculation Method: (Area of forest under SFM) / (Total forest area) * 100.

Responsible Agency: MoE and MoA.

Development Status: The methodology needs to be prepared for national-level application.

Frequency: Every 5 years.

Baseline: TBD.

Cost and Funding: Low.

Capacity Development Needs: None.

Data Needed	Source
Surface of total forest area	MoA
List of sustainably managed forests and their surface area	MoA
Indicator: Income of Small-Scale Food Procedures <i>Component indicator; new; quantitative:</i> Average income of small-scale food producers, by sex and indigenous status. ☐ Methodology and metadata are not yet available (checked December 2024). <u>Definition:</u> Average annual income of small-scale food producers, disaggregated by sex and indigenous status, reflecting the economic benefits derived from sustainable agricultural, aquaculture, fisheries, and forestry practices under National Target 11. <u>Unit:</u> Currency per Year. <u>Responsible Agency:</u> MoA, MoE, Central Administration of Statistics (CAS), Local Authorities and Rural Development Agencies. <u>Development Status:</u> Early Stage: Initial frameworks and pilot surveys exist, but comprehensive and routine data collection systems for disaggregated income information are still being established. <u>Frequency:</u> Yearly. <u>Baseline:</u> Data from 2018-2020. <u>Cost and Funding:</u> Moderate cost. <u>Funding Sources:</u> • National government budgets (e.g., through the MoA and CAS). • International donors and development partners (e.g., FAO, UNDP, World Bank). • Public–private partnerships and research grants. <u>Capacity Development Needs</u> • Technical Training: Enhance the skills of statisticians and survey enumerators in collecting disaggregated data, including gender and indigenous markers. • Institutional Coordination: Strengthen collaboration between the MoA, MoE, CAS, and local authorities to harmonize data collection and reporting. • Data Management: Develop robust databases and analytical tools to track income trends over time. • Community Engagement: Build capacity at the local level to ensure accurate and culturally sensitive data collection among small-scale food producers.	
Indicator: Agrobiodiversity Index <i>Complementary indicator; new; index:</i> Agrobiodiversity Index. ☐ Work with FAO to determine this indicator for Lebanon. ☐ Methodology and metadata are not yet available (checked December 2024).	

Definition: The Agrobiodiversity Index is a composite measure that evaluates the status and management of agricultural biodiversity within a country's food system.

Unit: The Agrobiodiversity Index is expressed on a scale from 0 to 100, where a higher score indicates greater integration and effective management of agrobiodiversity within the food system.

Responsible Agency: MoA, CAS, FAO.

Frequency: Every 2 to 3 years.

Baseline: The baseline is established based on the most recent assessment, with Lebanon's current score at 54.8.

Cost and Funding:

- **Estimated Cost:** Moderate investment required.
- **Funding Sources:** National government allocations, international grants, and partnerships with organizations such as FAO.

Capacity Development Needs:

- **Technical Training:** Enhance skills in data collection, analysis, and interpretation related to agrobiodiversity.
- **Policy Development:** Strengthen the ability to formulate and implement policies that promote agrobiodiversity.
- **Stakeholder Engagement:** Foster collaboration among farmers, researchers, policymakers, and international organizations to support agrobiodiversity initiatives.
- **Awareness Programs:** Educate communities and stakeholders about the benefits of agrobiodiversity for food security and ecosystem resilience.

NA 11.1: Mainstream locally produced released cultivars and local native rootstocks varieties and seeds into national agricultural strategies and action plans, and focus on the use of local accessions in breeding programs.

Indicator: Number of Local Cultivars and Native Varieties Integrated into National Agricultural Strategies

Definition: *National indicator; quantitative:* Number of locally produced released cultivars and native rootstock varieties and seeds that are integrated into national agricultural strategies, including breeding programs and action plans.

Unit: Number.

Calculation Method: Number of local cultivars and native varieties integrated into national strategies and action plans.

Responsible Agency: MoA.

Development Status: NA.

Frequency: TBD.

Baseline: TBD.

Cost and Funding: None.

Capacity Development Needs: None.

Data Needed	Source
List of locally produced cultivars and native varieties	LARI, MoA
Documentation of integration into national agricultural strategies	LARI, MoA

NA 11.2: Mainstream sustainable agriculture production systems into national agricultural strategies and action plans, including: organic farming, agroecology, agroforestry, the use of climate smart crops, crop rotation, conservation agriculture, agriculture and forest waste management, terracing, reuse of treated wastewater, efficient irrigation systems, use of rainfed crops, etc.

Indicator: Sustainable Agriculture Production Systems Mainstreamed into National Agricultural Strategies and Action Plans

Definition: *National indicator; binary:* Have sustainable agriculture production systems developed been integrated into national agricultural strategies and action plans?

Unit: Yes/No.

Responsible Agency: MoA.

NA 11.3: Mainstream sustainable fisheries and aquaculture—using native, naturalized and acclimatized species—into national agricultural strategies and action plans, based on needs assessment and SWOT analysis.

Indicator: Sustainable Fisheries and Aquaculture integrated into National Agricultural Strategies and Action Plans

Definition: *National indicator; binary:* Have sustainable fisheries and aquaculture developed been integrated into national agricultural strategies and action plans?

Unit: Yes/No.

Responsible Agency: MoA.

NA 11.4: Mainstream biodiversity conservation and sustainable forestry into related national forestry strategies and action plans.

Indicator: Biodiversity Conservation and Sustainable Forestry Integrated into Related National Forestry Strategies and Action Plans.

Definition: *National indicator; binary:* Have national forestry strategies and action plans integrated biodiversity conservation and sustainable forestry?

Unit: Yes/No.

Responsible Agency: MoA.

NA 11.5: Develop sustainably managed national hatcheries for aquaculture species (freshwater and marine).

Indicator: Number of Sustainable Hatcheries Developed

Definition: *National indicator; quantitative:* Number of sustainably managed national hatcheries for aquaculture species.

Unit: Number.

Calculation Method: Number of national hatcheries for aquaculture species that are managed sustainably.

Responsible Agency: MoA.

Development Status: NA.

Frequency: Every 5 years.

Baseline: 2002.

Cost and Funding: None.

Capacity Development Needs: None.

Data Needed	Source
List of established national hatcheries for freshwater and marine species	MoA
Documentation of sustainable management practices implemented (e.g., water management, species conservation, waste management).	MoA, MoE, MoPWT, MoEW

NA 11.6: Develop a market for national feedstock production for the aquaculture sector and/or use existing markets.

Indicator: Market for National Feedstock Production

Definition: *National indicator; binary:* Has a market for national feedstock production been established?

Unit: Yes/No.

Responsible Agency: MoA.

National Target 12: Nature's Contributions to People

NT 12: By 2030, restore, maintain and enhance nature's contributions to people, including ecosystem functions and services, such as the regulation of air, water and climate, soil health, pollination and reduction of disease risk, as well as protection from natural hazards and disasters. This should be achieved through nature-based solutions and/or ecosystem-based approaches, for the benefit of all people and nature.

Indicator: Ecosystem services

HI B.1; new; descriptive: Services provided by ecosystems, by ecosystem type and by realm, biome, and ecosystem functional group [(Global Ecosystem Typology level 2 and 3)]

- See metadata factsheet: <https://gbf-indicators.org/metadata/headline/11-1>

Definition: The average rate of change in the provision of a set of ecosystem services over a given time period, compared to a baseline year.

Unit: Descriptive.

Responsible Agency: MoE, MoA.

Development Status: To be developed.

Frequency: Every 5 years.

Baseline: TBD.

Cost and Funding: Required.

Capacity Development Needs: Required; application of the SEEA Accounting framework. E-learning resources are available.

NA 12.1: Assess ecosystem functions and services in representative protected areas across various ecosystems (covering at least three types of ecosystems).

Indicator: Assessment of Ecosystem Services

Definition: *National indicator; quantitative [percentage]:* Share of protected areas in which an ecosystem services assessment has been undertaken.

- See also HI B.1.

Unit: Percentage.

Calculation Method: (Number of protected areas with ecosystem services assessments) / (Total number of protected areas) * 100.

Responsible Agency: MoE, MoA.

Development Status: Adaptation of HI B.1 to the national level is a precondition.

Frequency: Every 3 years.

Baseline: TBD.

Cost and Funding: TBD.

Capacity Development Needs: Required, in line with HI B.1.

Data Needed	Source
List of protected areas	MoE, MoA
List of protected areas with ecosystem assessments	MoE, MoA, Municipalities

NA 12.2: Promote the adoption of nature-based solutions to mitigate natural hazards and enhance ecosystem services through scientifically validated practices (e.g. creation of artificial reefs, artificial ponds and wetlands, restoration of degraded corridors, etc.).

Indicator: Nature-Based Solutions

Definition: *National indicator; quantitative [number] + description:* Number of initiatives promoting nature-based solutions for mitigating natural hazards.

Unit: Number.

Calculation Method: Count of cases where nature-based solutions have been applied.

Responsible agency: MoE, MoPWT, MoEW.

Development status: NA.

Frequency: Yearly.

Baseline: TBD.

Cost and Funding: None.

Capacity Development Needs: None.

NA 12.3: Collaborate with the MoA, Green Plan, LARI and local NGOs to mainstream agrobiodiversity, wild-crop relatives, and native species (that are resistant to climate change) in ecosystem restoration, agro-forestry, and crop selections in agriculture, targeting at least 50 hectares.

Indicator: Agrobiodiversity

Definition: *National indicator; number + descriptive:* Actions undertaken by the MoA to mainstream agrobiodiversity, wild-crop relatives, and native species (that are resistant to climate change) in ecosystem restoration, agro-forestry, crop selections in agriculture, and aquaculture.

Unit: Number.

Calculation Method: Count of cases in which agroecological practices have been applied.

Responsible agency: MoA.

Development status: To be developed.

Frequency: Yearly.

Baseline: TBD.

Cost and Funding: None.

Capacity Development Needs: None.

National Target 13: Connectivity and Urban Areas

NT 13: Conserve the area, quality, connectivity, and accessibility of—and benefits from—green and blue spaces in urban and densely populated areas (design and conserve for urban areas) , by mainstreaming the conservation and sustainable use of biodiversity and ensuring biodiversity-inclusive urban planning, that enhances native biodiversity, ecological connectivity, and integrity, improves human health and well-being and connection to nature, and contributes to inclusive and sustainable urbanization and the provision of ecosystem functions and services.

Indicator: Green/Blue Spaces in Cities

Definition: *HI 12.1.; new; quantitative [percentage; per Global Ecosystem Typology level 2 and 3]:* Share of the built- up area of cities that is green/blue space for public use.

- The metadata factsheet is available: <https://gbf-indicators.org/metadata/headline/12-1>.

Unit: Surface area (ha).

Calculation Method: (Surface of green/blue areas in cities) / (Total surface area of cities) * 100.

Responsible Agency: MoE.

Development Status: Global methodology is available but needs to be adapted to the national level. For the time being, the calculation method proposed above provides a pragmatic approach.

Frequency: Every 3 years.

Baseline: TBD.

Cost and Funding: Adapting the global methodology to the national level and Establishing the necessary surface information. An additional project may be needed.

Capacity Development Needs: None.

Data Needed	Source
Surface area of built-up areas of cities	DGUP, CDR, Research Centers and Academic Institutions, Specialized NGOs
Surface area of green/blue areas in cities	DGUP, CDR, Research Centers and Academic Institutions, Specialized NGOs

NA 13.1: Update existing legislation to conserve green spaces by reducing the development rate in urban expansion zones.

Indicator: Percentage Change in Green Urban Spaces in Urban Development Zones

Definition: *National indicator; quantitative [percentage]:* This indicator measures the effectiveness of legislation in conserving green spaces by tracking the percentage change in the surface area of green urban spaces within urban expansion zones.

Unit: Percentage increase.

Calculation Method: (Surface area of green spaces in year X) - (Surface area of green spaces (baseline)) / (Surface of green spaces (baseline)) * 100.

- This indicator should be developed in conjunction with the one for NT13.

Responsible Agency: DGUP.

Development Status: See indicator for NT13.

Frequency: Every 5 years.

Baseline: TBD.

Cost and Funding: No additional costs beyond those required for the NT13.

Capacity Development Needs: None.

NA 13.2: Establish guidelines for implementing new tested technologies for urban green space in urban areas—such as green rooftops, vertical rooftops, raised beds, green walls, etc.—using native species.

Indicator: Guidelines for Urban Green Spaces

Definition: *National indicator; binary:* Have the guidelines for urban green spaces been established?

Unit: Yes/No.

Responsible Agency: MoE, DGUP, MoA.

NA 13.3: Update urban plans for major cities to incorporate green spaces and parks in urban settings, and to increase shaded areas near buildings and in open spaces by plantings trees (native species) and constructing green roofs and walls.

Indicator: Urban plans updated

Definition: *National indicator; quantitative [percentage]:* Share of urban plans that have been updated according to the Urban Green Spaces guidelines.

Unit: Percentage.

Calculation Method: (Number of updated urban plans) / (Total number of urban plans) * 100.

Responsible Agency: DGUP, Municipalities.

Development Status: NA.

Frequency: Every 2 years.

Baseline: TBD.

Cost and Funding: None, provided that the required lists are available.

Capacity Development Needs: None.

Data Needed	Source
List of urban plans	DGUP, Municipalities
Indicator: Area Covered by Urban Plans <i>National indicator; quantitative [ha]:</i> Surface area of urban areas that are covered by urban plans. <u>Unit:</u> Surface area (ha). <u>Calculation Method:</u> Sum of area covered by urban plans. <u>Responsible Agency:</u> DGUP, CDR. <u>Development Status:</u> Ready. <u>Frequency:</u> Every 5 years. <u>Baseline:</u> TBD. <u>Cost and Funding:</u> None, provided that the required lists are available. <u>Capacity Development Needs:</u> None.	
Data Needed	Source
List of urban plans with ha of the respective areas covered	DGUP, CDR, Municipalities

NA 13.4: Adopt new national guidelines for urban forestry/greenery.

Indicator: Adoption of New Guidelines

Definition: *National indicator; binary:* Have new national guidelines for urban forestry/greenery been adopted.

Unit: Yes/No.

Responsible Agency: MoE, DGUP.

NA 13.5: Introduce native plant species in urban forestry.

Indicator: Native Plants in Urban Forests

Definition: *National indicator; quantitative [percentage]:* Share of native plant species in urban forests.

Unit: Percentage.

Calculation Method: (Surface area with native plant species) / (Total Surface area of green urban spaces in urban development zones) * 100.

Responsible Agency: MoE.

Development Status: NA.

Frequency: Every 3 years.

Baseline: 2024.

Cost and Funding: No additional cost needed. Covered through existing staff resources (staff time).

Capacity Development Needs: None.

Data Needed	Source
Surface area of green urban spaces in urban development zones (□ see above)	MoE, MoA, CNRS
Estimated total surface area of urban forests with dominance of native plant species	MoE, MoA, CNRS

Indicator: Number of Native Plant Species Introduced in Urban Forests

Definition: *National indicator; quantitative [number]:* Number of native plant species introduced in urban forests.

Unit: Number.

Calculation Method: Sum of native plant species introduced in urban forests.

Responsible Agency: MoE.

Development Status: NA.

Frequency: Every 3 years.

Baseline: 2024.

Cost and Funding: None, provided that the list is available.

Capacity Development Needs: None.

Data Needed	Source
List of native plant species introduced in urban forests	MoA

NA 13.6: Update and adopt the integrated urban plan for coastal areas in light of current violations.

Indicator: Integrated Urban Coastal Plan

Definition: *National indicator; binary:* Are coastal areas covered by an updated integrated urban plan?

Unit: Yes/No.

Responsible Agency: MoE, DGUP, CDR, MoPWT.

National Target 14: Traditional Knowledge

NT 14: By 2030, traditional knowledge, uses, and practices of local communities relevant to biodiversity and sustainable use of resources are collected, evaluated, documented, preserved, and shared/published, based on their free, prior and informed consent, in accordance with national legislation.

Indicator: Traditional Knowledge Recorded

Definition: *National indicator; quantitative [number]:* Number of traditional knowledge information collected, evaluated, documented, preserved, and shared/published (in short: recorded).

Unit: Number.

Calculation Method:

Sum of recorded traditional knowledge information, uses, and practices.

Responsible Agency: MoE, MoA, MoC.

Development Status: To be developed.

Frequency: Every 5 years.

Baseline: TBD.

Cost and Funding: TBD.

Capacity Development Needs: TBD.

Data Needed	Source
List with traditional knowledge information, uses and practices of local communities	MoE, MoA, MoC, Municipalities, Research Centers, Academic Institutions, Specialized NGOs

NA 14.1: Conduct extensive surveys and studies to gather traditional knowledge related to biodiversity and sustainable practices. Document and archive traditional knowledge and integrate it into education and related community events.

Indicator: Information on Traditional Knowledge on Biodiversity and Sustainable Practices

Definition: *National indicator; binary:* Have surveys and studies for traditional knowledge related to biodiversity and sustainable practices been undertaken?

Unit: Yes/No.

Responsible Agency: MoE, MoA, MoC.

NA 14.2: Document and archive traditional knowledge, integrate it into education, and disseminate it through related community events.

Indicator: Traditional Practices in Education and Community

Definition: *National indicator; quantified:* Number of traditional practices integrated into education and related community events.

Unit: Number

Calculation Method: Sum of traditional practices integrated into education and related community events.

Responsible agency: MoE, MoA, MoC, MEHE.

Development status: TBD.

Frequency: Every 5 years.

Baseline: TBD.

Cost and Funding: TBD.

Capacity Development Needs: TBD.

Data Needed	Source
List of education and related community events	MoE, MoA, MoC, MEHE, Academic Institutions, Specialized NGOs, Municipalities

NA 14.3: Raise awareness and build capacities to preserve local and traditional practices for the sustainable use of biodiversity resources.

Indicator: Awareness of Traditional Practices

Definition: *National indicator; quantified:* Number of individuals reached through awareness-raising and capacity-building activities.

Unit: Number.

Calculation Method: Number of individuals reached through awareness-raising and capacity-building activities.

Responsible agency: MoE, MoA, MoC, MEHE.

Development status: Methodology to be developed.

Frequency: Yearly.

Baseline: TBD.

Cost and Funding: No additional cost needed. Covered through existing staff resources (staff time).

Capacity Development Needs: None.

Data Needed	Source
List and surveys of awareness-raising and capacity-building activities, aimed at preserving local and traditional practices for the sustainable use of biodiversity resources	MoE, MoA, MoC, MEHE, Academic Institutions, Specialized NGOs, Municipalities

NA 14.4: Ensure the necessary resources to revive and sustain the Clearing-House Mechanism (CHM) to share documented knowledge widely.

Indicator: Traditional Knowledge Shared

Definition: *National indicator; quantitative [percentage]*: Share of recorded traditional knowledge that is published on the Clearing-House Mechanism (CHM).

Unit: Percentage.

Calculation Method: (Total traditional knowledge published on CHM) / (Total recorded traditional knowledge) * 100.

Responsible Agency: MoE, MoA,

Development Status: Methodology to be developed.

Frequency: Yearly.

Baseline: TBD.

Cost and Funding: TBD.

Capacity Development Needs: TBD.

Data Needed	Source
List of recorded traditional knowledge, uses, and practices of local communities. (see related indicator above)	MoE, MoA, MoC, MEHE, Academic Institutions, Specialized NGOs, Municipalities
List of published traditional knowledge, uses and practices of local communities	MoE, MoA, MoC, MEHE, Academic Institutions, Specialized NGOs, Municipalities

National Target 15: ABS and DSI

NT 15: By 2030, the Lebanese Government reviews, updates reinforces, and takes effective legal, policy, administrative and capacity-building measures at all levels, as appropriate, to ensure the fair and equitable sharing of benefits that arise from the utilization of genetic resources and digital sequence information on genetic resources, as well as traditional knowledge associated with genetic resources. This also includes facilitating appropriate access to genetic resources. By 2030, facilitating a significant increase of the benefits shared, in accordance with applicable international access and benefit-sharing instruments.

Indicator: Access and benefit-sharing

Component Indicator; quantitative [Number]: Number of internationally recognized certificates published in the Access and Benefit-Sharing Clearing-House: <https://www.cbd.int/abs/gbf.shtml>

Responsible Agency: MoE.

Development status: Lebanon's national information in the Nagoya Protocol CHM needs to be completed: <https://absch.cbd.int/en/countries/LB>

Frequency: Yearly.

Baseline: TBD.

Cost and Funding: Required to complete the national information.

Capacity Development Needs: None.

Complementary indicator; quantitative; [Number]: Number of transfers of crop material received in the country through Multilateral System of the International Treaty on Plant Genetic Resources for Food and Agriculture:

<https://www.fao.org/plant-treaty/areas-of-work/the-multilateral-system/landingmls/en>

Responsible Agency: LARI.

Development Status: NA.

Frequency: Yearly (Global information system) and every 5 years (Compliance report).

Baseline: December 2022.

Cost and Funding: No additional cost needed. Covered through existing staff resources (staff time).

Capacity Development Needs: None.

HI C.1; new; quantitative: Monetary benefits received by IPLCs in Lebanon in accordance with applicable internationally agreed Access and Benefit-Sharing instruments.

☐ Metadata for this indicator: <https://gbf-indicators.org/metadata/headline/C-1>

☐ More information is available here: <https://www.cbd.int/doc/c/6920/4e1e/8a6ba925279ea19033eb8ed2/sbstta-26-inf-12-en.pdf>

Responsible Agency: MoE.

Development Status: Lebanon's national information in the Nagoya Protocol CHM needs to be completed: <https://absch.cbd.int/en/countries/LB>

Frequency: Yearly.

Baseline: TBD.

Cost and Funding: Required to complete the national information.

Capacity Development Needs: Recommended, in conjunction with completing the NP CHM information for Lebanon.

HI C.2.; new; descriptive: Non-monetary benefits received by IPLCs in Lebanon arising from applicable internationally agreed Access and Benefit-Sharing instruments.

□ Metadata for this indicator: <https://gbf-indicators.org/metadata/headline/C-2>

Responsible Agency: MoE.

Development Status: Lebanon's national information in the Nagoya Protocol CHM needs to be completed: <https://absch.cbd.int/en/countries/LB>

Frequency: Yearly.

Baseline: TBD.

Cost and Funding: Required to complete the national information.

Capacity Development Needs: Recommended, in conjunction with completing the NP CHM information for Lebanon.

NA 15.1: Raise awareness and conduct capacity-building for concerned law enforcement personnel, including internal security forces, forest guards, PA rangers, municipal police, and customs employees on biodiversity legislation related to "Access and Benefit-Sharing (ABS), to ensure that they can effectively assess situations, understand biodiversity legislation, recognize environmental crimes, and take appropriate action.

Indicator: Awareness for Access and Benefit-Sharing

Definition: *National indicator; quantitative [percentage]:* Share of target audience reached through awareness-raising and capacity-building efforts. (Target audience as described in NA; success of awareness-raising measures to be evaluated by survey).

Unit: Percentage.

Calculation Method: (Individuals reporting positively in survey after awareness-raising and capacity-building activities) / (Total number of individuals included by awareness-raising and capacity-building activities) * 100.

Responsible Agency: MoE, MoA, MoIM, LARI.

Development Status: Ready; survey needs to be developed.

Frequency: Yearly.

Baseline: TBD.

Cost and Funding: None.

Capacity Development Needs: None.

Data Needed	Source
List of institutions that will be targeted through awareness-raising activities	MoE, MoA, MoIM, LARI
Survey after awareness-raising activities	MoE, MoA, MoIM, LARI

NA 15.2: Develop specific capacity-building training programs and awareness campaigns and programs on “Access and Benefit-Sharing (ABS)” regulations and the digital sequence information (DSI), to promote the implementation of the related international conventions.

Indicator: Digital Sequence Information

Definition: *National indicator; quantitative [percentage]:* Share of target audience reached with awareness-raising and capacity-building efforts. (□ Target audience as described in NA; success of awareness-raising measures to be evaluated by survey)

Unit: Percentage.

Calculation Method:

(Individuals reporting positively in survey after awareness-raising or capacity-building activities) / (Total number of individuals included by awareness-raising or capacity-building activities) * 100.

Responsible Agency: MoE.

Development Status: Ready; survey needs to be developed.

Frequency: Yearly.

Baseline: TBD.

Cost and Funding: None.

Capacity Development Needs: None.

Data Needed	Source
List of institutions that will be targeted through awareness-raising and/or capacity-building activities	MoE
Survey after awareness-raising and/or capacity-building activities	MoE

NA 15.3: Establish clear agreements and mechanisms to facilitate benefit-sharing and technology transfer arising from the utilization of genetic resources and from digital sequence information (DSI) of genetic resources, to promote the implementation of the related international conventions.

Indicator: DSI Related Agreements

Definition: National indicator; quantified [number]: Number of agreements and mechanisms related to DSI.

Unit: Number.

Calculation Method: Sum of items on the list of agreements and mechanisms related to DSI.

Responsible Agency: MoE.

Development Status: Ready.

Frequency: Yearly.

Baseline: 2013.

Cost and Funding: None; provided that the required list is available.

Capacity Development Needs: None.

Data Needed	Source
List of agreements and mechanisms related to DSI	MoE, LARI

NA 15.4: Establish a national database of genetic resources from native species.

Indicator: National Database of Genetic Resources from Native Species

Definition: *National indicator; binary:* Has the national database of genetic resources from native species been established?

Unit: Yes/No.

Responsible Agency: MoE, MoA, LARI.

Indicator: Genetic Resources Database Size

Definition: *National indicator; quantified [number]:* Number of genetic resources data from native species.

Unit: Number.

Calculation Method: Sum of items in the database related to genetic resources from native species.

Responsible Agency: MoE, MoA, LARI.

Development Status: Ready.

Frequency: Yearly.

Baseline: TBD.

Cost and Funding: None.

Capacity Development: None.

Data Needed	Source
National genetic resources database	MoE, MoA, LARI, Academic Institutions, Specialized NGOs, Municipalities

NA 15.5: Conduct advanced research on genetics of native species (e.g. sequencing and barcoding).

Indicator: Genetic Research

Definition: *National indicator; quantified [numbers]:* Have human and financial resources been invested in advanced research on the genetics of native species?

Unit: Yes/No.

Responsible Agency: MoE, MoA, LARI.

National Target 16: Mainstreaming

NT 16: By 2030, government entities mainstream biodiversity priorities, including conservation, benefit-sharing, pressure alleviation, sustainable management, and sustainable use of natural resources, into their policy-making processes and implementation.

Indicator: Inclusion of Biodiversity in Policies

Definition: *Adapted HI 14.b.; binary:* Has Lebanon integrated biodiversity and its multiple values into sectoral policies, regulations, plans, or strategies, including in agriculture, tourism, urban planning, water management, forestry, fisheries, and other relevant sectors, as well as in planning, development processes, and poverty eradication strategies at all levels of government?

☐ HI 14b is a binary indicator, no metadata is available.

Unit: Yes/No.

Responsible Agency: MoE, MoA.

Development Status: Further development of this indicator is required. An assessment by a national expert group to assess the inclusion of biodiversity in these policies is recommended.

Data Needed	Source
List of national policies, regulations, planning, development processes, and poverty eradication strategies	COM, Lebanese Parliament

Indicator: Inclusion of Biodiversity in National Accounts

Definition: *Adapted HI 14.b.; percentage:* Estimation of the extent in percentage to which Lebanon has integrated biodiversity and its multiple values in national accounts.

Unit: Percentage.

Calculation Method:

(Positions with biodiversity references where relevant) / (Total positions in national accounts) * 100.

Responsible Agency: MoE, MoA, MoF .

Development Status: Further development of this indicator is required. An assessment by a national expert group is recommended.

Frequency: Yearly.

Baseline: TBD.

Cost and Funding: Cost of convening an expert group.

Capacity Development Needs: None.

Data Needed	Source
National accounts	COM, MoF

NA 16.1: Strengthen the capacity of the MoE to implement the SEA process (including review) by establishing a dedicated unit or expert groups within the ministry.

Indicator: SEA Expert Group

Definition: National indicator; binary: Has the expert group on SEA been established within the MoE?

Unit: Yes/No.

Responsible Agency: MoE.

NA 16.2: Conduct at least 10 training sessions annually on the SEA Decree (number 8213/2012) for public sector employees at central and local levels.

Indicator: Administered Training Sessions

Definition: *National indicator; quantified:* Number of training sessions administered on the SEA decree.

Unit: Number.

Calculation Method: Count of training sessions administered on the SEA decree.

Responsible Agency: MoE.

Development Status: NA.

Cost and Funding: None.

Capacity Development Needs: None.

Data Needed	Source
List of SEA decree training sessions	MoE

Indicator: Number of SEA-Trained Officials

Definition: *National indicator; quantified:* Number of officials that have received SEA training.

Unit: Number.

Calculation Method: Count of officials who have received SEA training.

Responsible Agency: MoE.

Development Status: NA.

Cost and Funding: None.

Capacity Development Needs: None.

Data Needed	Source
List of participants in SEA decree training sessions	MoE

NA 16.3: Develop and publish comprehensive guidelines for ecological impact assessments as part of SEA and conduct at least 5 sector-specific training sessions annually.

Indicator: Guidelines for Ecological Impact Assessments

Definition: *National indicator; binary:* Have the guidelines for ecological impact assessments been published?

Unit: Yes/No.

Responsible Agency: MoE.

NA 16.4: Develop and implement a cross-sectoral planning enhancement program by integrating environmental considerations into at least 7 key sectors (e.g., agriculture, fisheries, forestry, tourism, etc.).

Indicator: Capacity-Building for Mainstreaming

Definition: *National indicator; quantified [number]:* Participants reached through capacity-building activities for mainstreaming biodiversity.

Unit: Number.

Calculation Method: Count the number of participant lists.

Responsible Agency: MoE.

Development Status: NA.

Frequency: Yearly.

Baseline: 2024.

Cost and Funding: None, provided that the list is available.

Capacity Development Needs: None.

Data Needed	Source
List of mainstreaming training sessions and respective number of participants	MoE

NA 16.5: Conduct training and capacity-building to raise awareness and build technical skills in public institutions concerned with biodiversity conservation (e.g., MoA, MoEHE, DGUP, CDR, MoEW, MoPWT, etc.).

Indicator: Workshops Per Year

Definition: *National indicator; quantified [number]:* Workshops organized to raise awareness and build technical skills in public institutions concerned with biodiversity conservation.

Unit: Number per year.

Calculation Method: Number of biodiversity-related training organized per year with the involvement of one or more public institutions.

Responsible Agency: MoE.

Development Status: None.

Frequency: Yearly.

Baseline: 2024.

Cost and funding: None, provided that the list is available.

Capacity Development Needs: None.

Data Needed	Source
List of biodiversity trainings	MoE

NA 16.6: Develop and implement a training program on legislation related to natural resources and its enforcement for internal security forces, forest guards, and municipal police. Train at least 200 officers annually from 2025 onwards, to increase control of violations by the responsible authorities and help them manage the depletion of natural resources.

Indicator: Training of Internal Security Forces, Forest Guards, and Municipal Police

Definition: *National indicator; quantified [number]:* Number of training programs developed and trained officers per year.

Unit: Number per year.

Calculation Method:

Number of training programs organized per year involving one or more public institutions.

Responsible Agency: MoE, MoA, MoIM.

Development Status: None.

Frequency: Yearly.

Baseline: 2024.

Cost and Funding: None, provided that the list is available.

Capacity Development Needs: None.

Data Needed	Source
List of members of internal security forces, forest guards, and municipality police officers trained	MoE, MoA, MoIM

NA 16.7: Once the public salary scale is adjusted, recruit and train 50 environmental police officers.

□ See indicator for 16.6

NA 16.8: Implement a cross-sectoral environmental violations reporting system.

Indicator: Environmental Violations Reporting System

Definition: *National indicator; binary:* Has a cross-sectoral environmental violations reporting system been developed?

Unit: Yes/No.

Responsible Agency: MoE.

NA 16.9: Review the existing biodiversity-related environmental legislation where needed, make necessary amendments, prepare all remaining implementation decrees, and draft missing laws.

Indicator: Biodiversity-Related Legislations Reviewed, Amended, or Drafted

Definition: *National indicator; quantified [percentage]:* Share of existing biodiversity-related environmental legislation reviewed, amended or drafted.

Unit: Percentage.

Calculation Method: (List of reviewed/amended/drafted biodiversity-related environmental legislation) / (Total list of environmental legislation) * 100.

Responsible Agency: MoE, MoA.

Development Status: None.

Frequency: Yearly.

Baseline: 2024.

Cost and Funding: No additional cost needed. Covered through existing staff resources (staff time).

Capacity Development Needs: None.

Data Needed	Source
Total list of environmental legislation	MoE, MoA, MoEW, MoPWT
List of reviewed environmental legislation (see also NA 16.13)	MoE, MoA, MoEW, MoPWT

NA 16.10: Build capacity on biodiversity management at the level of governorates, cazas, UoMs, and municipalities including environmental committees in municipal councils.

□ See indicator for NA 16.5

NA 16.11: Integrate biodiversity accounting at the MoF.

Indicator: Biodiversity at the MoF

Definition: *National indicator; binary:* Has the MoF integrated biodiversity accounting?

Unit: Yes/No.

Responsible agency: MoE, MoF.

NA 16.12: Develop scenario-based standard operating procedures (SOPs) for the operation of the Joint Maritime Operation Chamber, in coordination with relevant governmental bodies for marine and coastal environment management.

Indicator: Development of SOPs for the Operation of the Joint Maritime Operation Chamber

Definition: National indicator; binary: Have the SOPs for the operation of the Joint Maritime Operation Chamber been developed in coordination with concerned governmental bodies for marine and coastal environment management.

Unit: Yes/No.

Responsible agency: MoE, MoPWT, MoA, MoD, Lebanese Army.

NA 16.13: Develop a comprehensive environmental law database for the Ministry of Justice, that includes all relevant legislation and regulations related to environmental matters and serves as a complete reference for judges.

Indicator: Environmental Law Database

Definition: *National indicator; binary:* Has the comprehensive environmental law database been developed?

Unit: Yes/No.

Responsible Agency: MoE, MoJ, MoA.

NA 16.14: Integrate the biodiversity agenda in the National Council for Environment (NCE) to enhance coordination.

Indicator: Integration of Biodiversity in the NCE

Definition: *National indicator; binary:* Has the biodiversity agenda been integrated into the National Council for Environment (NCE)?

Unit: Yes/No.

Responsible Agency: MoE.

Indicator: Biodiversity Coverage in the NCE

Definition: *National indicator; quantified [percentage]:* Percentage of NCE meetings in which biodiversity was covered.

Unit: Percentage.

Calculation Method: (NCE meetings dealing with biodiversity) / (Total number of NCE meetings) * 100.

Responsible Agency: MoE.

Development Status: Ready.

Frequency: Yearly.

Baseline: 2024.

Cost and Funding: None.

Capacity Development Needs: None.

Data Needed	Source
Agendas and number of NCE meetings	NCE

NA 16.15: Enforce the resolution of forest violations to manage and control tree cutting through national legislation and regulations. This includes proposing (or amending) laws.

Indicator: Number of Enforcement actions Taken for Forest Violations

Definition: *National indicator; quantitative:* Number of enforcement actions taken (e.g., fines, penalties, prosecutions) to address forest violations, including illegal tree cutting.

Unit: Number.

Calculation Method: Count of documented enforcement actions (e.g., issued fines, legal cases, penalties) related to forest violations.

Responsible Agency: MoE, MoA.

Development Status: To be specified in conjunction with the implementation of NA 16.15.

Frequency: Yearly.

Baseline: TBD.

Cost and Funding: Low.

Capacity Development Needs: None.

Data Needed	Source
Records of fines, penalties, or legal actions from enforcement agencies	MoA, IFS, Environmental prosecutors
Reports on compliance and violations from forest management authorities	MoA

NA 16.16: Enforce the settlement of marine and river violations through national legislation and regulations.

Indicator: Fees for Coastal Construction

Definition: *indicator; new; binary*: Have the national legislation and regulations been updated to facilitate the settlement of marine and river violations?

Unit: Yes/No.

Responsible Agency: MoPWT, MoEW, MoF.

NA 16.17: Prevent further development on high mountains, maritime and river basin public domains by developing and adopting the necessary national legislation and regulations.

National Legislation and Regulations Adopted to Prevent Development on High Mountains, Maritime, and River Basin Public Domains

Definition: *indicator; new; quantitative*: Number of new national laws, regulations, or amendments specifically adopted to prevent further development on high mountains, maritime, and river basin public domains.

Unit: Number.

Calculation Method: Count of adopted national legislation and regulations.

Responsible Agency: MoPWT, MoEW, DGUP, CDR.

Development Status: NA.

Frequency: Yearly.

Baseline: TBD.

Cost and Funding: None.

Capacity Development Needs: None.

Data Needed	Source
List of drafted and adopted laws and regulations related to high mountains, maritime, and river basins	MoPWT, MoEW, DGUP, CDR, MoJ, Lebanese University Website on Law - http://legallaw.ul.edu.lb/LegislationSearch.aspx

NA 16.18: Develop a sustainable tourism strategy and action plan for areas below 500 m to complement the sustainable tourism strategy and action plan for the mountains of Lebanon.

Developing a Sustainable Tourism Strategy and Action Plan for Areas Below 500 m

Definition: *indicator; new; binary*: Has a sustainable tourism strategy and action plan for areas below 500 m been developed?

Unit: Yes/No.

Responsible Agency: MoT.

National Target 17: Private Sector Assessments and Reporting

NT 17: By 2030, ensure that 75% of large businesses in Lebanon (defined as those with over 250 employees: a) regularly implement biodiversity impact assessments and publicly disclose results; and b) demonstrate a 30% reduction in negative biodiversity impacts and a 20% increase in positive impacts compared to baselines conducted between 2020 and 2026.

Indicator: Corporate Biodiversity Reporting

Component Indicator (corresponds to Sustainable Development Goal indicator 12.6.1):

Definition: Number of companies publishing sustainability reports.

Unit: Number.

Calculation Method: Count of companies publishing sustainability reports.

Responsible Agency: MoE.

Development Status: To be developed; requires data collection and refinement of the methodology.

Frequency: Yearly.

Baseline: 2024.

Cost and Funding: Certain costs for gathering the information and compiling the list.

Capacity Development Needs: None.

Data Needed	Source
List of published reports by companies that refer to biodiversity risks, impacts and/or dependencies.	MoE

NA 17.1: Ensure enforcement of Decree 8471/2012 on the Environmental Compliance of Establishments and set penalties for non-compliance, increasing annually until 2030

Indicator: Enforcement of Decree 8471/2012 on Environmental Compliance

Definition: *National indicator; quantitative:* Annual number of establishments inspected for compliance with Decree 8471/2012 on the Environmental Compliance of Establishments.

Unit: Number.

Calculation Method: Count of establishments inspected annually for compliance with Decree 8471/2012.

Responsible agency: MoE.

Development status: NA.

Frequency: Yearly.

Baseline: TBD.

Cost and Funding: No additional cost needed. Covered through existing staff resources (staff time).

Capacity Development Needs: None.

NA 17.2: Hire an environmental expert in large- scale companies to integrate sustainability, including biodiversity, into their core business strategies, enhance their reputation as responsible corporate citizens, and contribute positively to environmental and social well-being.

- **Develop internal sustainability teams or outsource such services for all companies with over 250 employees and keep this as recommendation for companies below 250 employees.**

Indicator: Large Companies with Environmental Experts

Definition: *National indicator; quantitative:* Number of large companies that report having dedicated environmental expert(s).

Unit: Number.

Calculation Method: Count of large companies that report having dedicated environmental expert(s).

Responsible Agency: MoE, MoET.

Development Status: Methodology requires refining.

Frequency: Yearly.

Baseline: TBD.

Cost and Funding: Low, possibly required for the survey.

Capacity Development Needs: None.

Data Needed	Source
List of large companies with environmental experts	MoET

NA 17.3: Promote Corporate Social Responsibility (CSR) by encouraging businesses to act in a manner that benefits the well-being of society and the environment.

- **Create a public CSR registry requiring annual reporting of biodiversity-related activities by all large companies.**
- **Develop a standardized biodiversity impact assessment tool and train representatives from at least 75% of large companies and 25% of medium-sized companies on its use.**
- **Launch a “Biodiversity Leaders” recognition program that annually acknowledges the top 20 companies demonstrating exceptional biodiversity performance.**

Indicator: Companies with CSR policies and/or following TNFD recommendations

Definition: *National indicator; quantitative:* Number of companies that report having adopted Corporate Social Responsibility (CSR) policies and/or the recommendations of the Taskforce on Nature-related Financial Disclosures (TNFD).

- Corresponds to HI 15.1.

Unit: Number.

Calculation Method: Count of companies that report having adopted CSR policies and/or the recommendations of the TNFD.

Responsible Agency: MoE, MoET.

Development Status: Methodology requires refining.

Frequency: Yearly.

Baseline: TBD.

Cost and funding: Low, possibly required for the survey.

Capacity development needs: None.

Data Needed	Source
List of companies having adopted CSR policies and/or following TNFD recommendations	MoET

NA 17.4: Implement a multi-tiered financial incentive system for environmentally friendly companies, including:

- **10-20% reductions in government fees (i.e.: municipal fees, customs fees, etc.) for environmentally compliant enterprises.**
- **Priority access to government procurement processes for environmentally compliant enterprises.**
- **Expedited permitting processes for biodiversity-positive development projects.**
- **Annual awards and public recognition for top-performing companies in each major industry sector**

Indicator: Positive Incentives for Business Actions

Definition: *National indicator; quantitative:* Number of steps undertaken by the government to provide incentives to environmentally friendly companies, including the definition of criteria and requirements.

Unit: Number.

Calculation Method: Count of steps undertaken by the government to provide incentives to environmentally friendly companies, including the definition of criteria and requirements.

Responsible Agency: MoE.

Development Status: To be further developed. A comprehensive workplan is essential to translate the concept into actionable steps and enable the formulation of a more precise and measurable indicator.

Frequency: Yearly.

Baseline: TBD.

Cost and Funding: Low, depending on other related indicators for this NT and NAs.

Capacity Development Needs: None.

Data Needed	Source
List of incentives developed by the government	MoE, MoF, MoET, etc.

Indicator: Corporate Tax Reduction for Biodiversity-Friendly Businesses

Definition: National indicator; quantified [number]: Number of businesses that receive a corporate tax reduction.

Unit: Number.

Calculation Method: Count of businesses that receive a corporate tax reduction.

Responsible Agency: MoF.

Development status: Ready.

Frequency: Yearly.

Baseline: TBD.

Cost and Funding: None, provided that the list is available.

Capacity Development Needs: None.

Data Needed	Source
List of businesses that receive a corporate tax reduction	MoF, MoE

National Target 18: Private Sector Consumption and Production

NT 18: By 2030, at least 40% of large enterprises (over 250 employees) and 20% of medium enterprises (50-249 employees) have implemented sustainable production plans in key sectors industrial, agriculture, energy, and tourism) to mitigate or prevent negative impacts on ecosystems from the use of natural resources.

Indicator: Business Information Efforts

Definition: Percentage of companies in key sectors implementing sustainable production patterns.

Unit: Percentage.

Calculation Method: (Number of large enterprises implementing sustainable production patterns) / (Total number of large enterprises) x 100.

(Number of medium-sized enterprises implementing sustainable production patterns) / (Total number of medium-sized enterprises) x 100.

Responsible Agency: MoE, MoA, Mol, MoET.

Development status: Ready. To obtain more detailed information, the development of a survey to analyze company efforts may be considered.

Frequency: Yearly.

Baseline: TBD.

Cost and Funding: No additional cost needed. Covered through existing staff resources (staff time).

Capacity Development Needs: None.

Data Needed	Source
List of information efforts by companies	Mol, MoET, MoA, MoE
Number of large enterprises and medium-sized enterprises in key sectors	Mol, MoET, MoA, MoE

NA 18.1: Implement the National Integrated Solid Waste Management Strategy across the industrial, agriculture, energy, and tourism sectors to support the transition toward a Circular Economy.

Percentage Reduction in Waste Generation per Sector

Definition: *National indicator; percentage:* Percentage of reduction in waste management generation compared to baseline levels.

Unit: Percentage decrease.

Calculation Method: (Baseline waste generation per sector – Current waste generation per sector) / (Baseline waste generation per Sector) * 100.

Responsible agency: MoE.

Development status: To be developed

Frequency: Yearly.

Baseline: TBD.

Cost and Funding: TBD.

Capacity Development Needs: TBD.

Data Needed	Source
Waste generation per sector	MoE, local municipalities, private waste management companies, CDR, MoI, NGOs, local and international organizations

NA 18.2: Conduct targeted awareness campaigns to promote the adoption of sustainable strategies (e.g., sustainable production, and sustainable consumption targeting consumers etc.) by:

- **Developing sector-specific educational materials for 4 key industries.**
- **Launching a public media campaign targeting consumers, with annual surveys to measure impact and behavior change.**

Indicator: Awareness for Sustainable Production and Consumption

Definition: *National indicator; percentage:* Share of companies reached through awareness campaigns.

Unit: Percentage.

Calculation Method: (Number of industrial companies reached through awareness campaigns providing feedback) / (Total number of industrial companies) * 100.

Responsible Agency: MoE.

Development Status: The indicator may require refinement based on the design of the awareness campaigns.

Frequency: Yearly.

Baseline: TBD.

Cost and Funding: No additional cost needed. Covered through existing staff resources (staff time).

Capacity Development Needs: None.

Data Needed	Source
List of the company experts reached through awareness campaigns	MoI, MoET, MoE
List of company experts providing feedback (e.g. through survey) on the awareness campaigns	MoI, MoET, MoE

National Target 19: Sustainable Consumption

NT 19: Encourage and enable people to make sustainable consumption choices by establishing supportive policy, legislative or regulatory frameworks, and by improving education and access to relevant and accurate information and alternatives. By 2030, reduce Lebanon's national consumption footprint in an equitable manner, by reducing overconsumption and waste generation and food waste, so that all people can live well in harmony with nature.

Indicator: Policy Instruments on Sustainable Consumption

Definition: *Contributing to HI 16.b.; binary:* Lebanon has developed, adopted or implemented policy instruments aimed at encouraging and enabling people to make sustainable consumption choices.

Unit: Yes/No.

Responsible Agency: MoE.

Indicator: Enhancing Sustainable Consumption through Education

Definition: *National indicator; quantitative:* Number of measures to improve education and access to relevant and accurate information and consumption alternatives.

Unit: Number.

Calculation Method: Count of measures to improve education and access to relevant and accurate information and consumption alternatives.

Responsible Agency: MoE.

Development Status: NA.

Frequency: Every 2 years.

Baseline: TBD.

Cost and Funding: None; provided that the list is available.

Capacity Development Needs: None.

Data Needed	Source
List of measures	MEHE, MoE, MoA, MoET, CAS, international organizations, academic institutions

Indicator: Food Waste Index

Definition: Component Indicator "Food Waste Index", replicated for Lebanon.

Unit: Index.

Calculation Method:

$$\text{Food waste per capita}_t = \frac{\text{Total foodwaste}_t}{\text{Annual Average Population}_t}$$

Responsible Agency: MoE.

Development Status: Methodology to collect and/or estimate food waste data needs to be developed.

Frequency: Yearly.

Baseline: TBD.

Cost and Funding: Potential costs associated with data collection for this indicator.

Capacity Development Needs: None.

Data Needed	Source
Total food waste	MoE, CAS, MoET, local and international organizations, academic institutions, private sector
Population	CAS, MoIM, local municipalities, local and international organizations

Indicator: Material Footprint per Capita

Definition: *Component Indicator “Material Footprint per Capita”, replicated for Lebanon; quantitative:* Sum of the material footprint for biomass, fossil fuels, metal ores and non-metallic minerals.

Unit: Number.

Calculation Method:

- ☐ To be coordinated with UNEP, the responsible agency for global monitoring.

Responsible Agency: MoE.

Development Status: Specifications for this indicator need to be developed. Cooperation with UNEP is possible.

Frequency: Yearly.

Baseline: TBD.

Cost and Funding: Potential costs associated with data collection for this indicator.

Capacity Development Needs: None.

Indicator: Recycling Rate

Definition: *Complementary Indicator “Recycling Rate”, replicated for Lebanon; quantitative.*

Unit: TBD.

Calculation Method:

Recycling Rate= (Quantity of material recycled in Lebanon) + (Quantities exported for recycling) - (Material imported intended for recycling) / (Total waste generated in Lebanon) * 100.

Responsible Agency: MoE

Development Status: Specifications for this indicator need to be developed. Coordination with UNEP, the responsible agency for global monitoring.

Frequency: Yearly.

Baseline: TBD.

Cost and Funding: Potential costs associated with data collection for this indicator.

Capacity Development Needs: None.

NA 19.1: Develop consumer tools to encourage sustainable consumption behavior, such as integrating QR codes on sold products to provide a summary of product life cycle and track consumer's behavior change through tracking sales records.

- ☐ See indicators under National Target 19.

NA 19.2: Develop and implement a national strategy to reduce marine litter by encouraging and enabling sustainable consumption choices.

- ☐ See indicators under National Target 8 (NA 8.8).

National Target 20: Cartagena Protocol

NT 20: By 2030, the implementation mechanism of the Cartagena Protocol on Biosafety is operational.

Indicator: Implementation Mechanism for the Cartagena Protocol in Place

Description: *Contributing to HI 17.b.; binary:* Lebanon has implemented biosafety measures in accordance with Article 8(g) of the CBD, as well as measures related to the handling of biotechnology and the distribution of its benefits as set out in Article 19 of the CBD. The recordings in the Biosafety-Clearing House are updated accordingly: <https://bch.cbd.int/en/countries/LB>

Unit: Yes/No.

Responsible Agency: MoE.

NA 20.1: Enforce and operationalize national biosafety legislation through the issuance of implementation mechanisms.

Indicator: Information Shared on the BCH

Description: *National indicator; quantitative:* Number of pieces of information on national activities shared through the Biosafety-Clearing House (BCH).

Unit: Number.

Calculation Method: Count of pieces of information shared in the Biosafety-Clearing house (BCH) on national activities.

Responsible agency: MoE.

Development status: None; the BCH needs to be kept up to date.

Frequency: Yearly.

Baseline: TBD.

Cost and Funding: None.

Capacity Development Needs: None.

Data Needed	Source
Number of entries in BCH	MoE

NA 20.2: Assess the risks related to Living Modified Organisms (LMOs) and monitor the adequacy of laboratory testing equipment in certified laboratories.

Indicator: Risks Related to LMOs

Description: *National indicator; quantitative:* Number of risk assessments undertaken in accordance with Article 15 of the Cartagena Protocol.

Unit: Number.

Calculation Method: Count of of risk assessments undertaken in accordance with Article 15 of the Cartagena Protocol.

Responsible Agency: MoE, MoA.

Development Status: None; the BCH needs to be kept up to date.

Frequency: Yearly.

Baseline: TBD.

Cost and Funding: None.

Capacity Development Needs: None.

Data Needed	Source
Number of risk assessments undertaken	MoE, MoA

NA 20.3: Develop and implement legislation to control trading and trafficking especially at the national borders.

Indicator: Legislation on Trade Control

Description: *National indicator; binary:* Controls of transboundary movements are in place (in accordance with the Cartagena Protocol).

Unit: Yes/No.

Responsible Agency: MoE, MoA, Customs and Border Control Authorities.

NA 20.4: Enforce better control by the customs and relevant authorities over import activities involving Living Modified Organisms (LMOs).

Indicator: LMO import control

Description: *National indicator; descriptive:* Number of import controls undertaken to verify LMOs.

Unit: Number.

Calculation Method: Count of import controls undertaken to verify LMOs.

Responsible Agency: MoE, MoA, Customs and Border Control Authorities.

Development Status: NA.

Frequency: Yearly.

Baseline: TBD.

Cost and Funding: No additional cost needed. Covered through existing staff resources (staff time).

Capacity Development Needs: None.

Data Needed	Source
Report of custom controls involving checks for LMOs	Customs and Border Control Authorities

NA 20.5: Incentivize and support seed banks preserving genetic diversity for the future while also promoting public awareness of their importance.

Indicator: Seed Bank

Description: *National indicator; percentage:* Share of national plant species recorded in seed bank.

Unit: Percentage.

Calculation Method:

(Number of plant species recorded in seed bank) / (Total number of plant species) * 100.

Responsible Agency: MoE, MoA, LARI.

Development Status: NA.

Frequency: Every 3 years.

Baseline: 2013-2024.

Cost and Funding: No additional cost needed. Covered through existing staff resources (staff time).

Capacity Development Needs: None.

Data Needed	Source
List of plant species recorded in seed bank	LARI
List of plant species	MoE, MoA, LARI

NA 20.6: Promote the use of local and native species and enforce their implementation at a minimum in government-funded projects.

Indicator: Use of Local and Native Species

Definition: *National indicator; percentage:* Share of local and native species used in government-funded projects.

Unit: Percentage.

Calculation Method:

(Total number of government-funded projects involving local and native species) / (Total number of government-funded projects involving any kind of species) * 100.

Responsible Agency: MoE, MoA.

Development Status: Ready.

Frequency: Yearly.

Baseline: TBD.

Cost and Funding: None; provided that the lists are available.

Capacity Development Needs: None.

Data Needed	Source
List of local and native species	MoE, MoA, Research Centers and Academic Institutions, Specialized NGOs
List of government-funded projects involving any kind of species	MoE, MoA, Research Centers and Academic Institutions, Specialized NGOs

NA 20.7: Encourage the Orders of Engineers (in relation to agriculture engineers) and scientists to adopt and implement a charter, guideline or a mandatory pledge among its members to refrain from using harmful substances and/or activities derived from biotechnology, in order to implement Biosafety measures.

Indicator: Mandatory Pledge by Engineers

Description: *National indicator; binary:* Has a mandatory pledge or other type of commitment been introduced?

Unit: Yes/No.

Responsible Agency: MoA, Order of Engineers, MoE.

National Target 21: Incentives and Subsidies

NT 21: By 2030, identify and phase out harmful incentives and scale up positive incentives for the conservation and sustainable use of biodiversity.

Indicator: Positive incentives

Description: *Contributing to HI 18.1.; new; number:* Number of positive incentives in place to promote biodiversity conservation and sustainable use.

Unit: Number.

Calculation Method

The total number of positive incentives in place is calculated as the sum of the number of instruments listed below (i.e., instruments that are in force):

- ☐ Biodiversity-relevant taxes, fees, and charges (number active).
- ☐ Biodiversity-positive subsidies (number active).
- ☐ Biodiversity-relevant tradable permits (number active).
- ☐ Payments for ecosystem services (number active).
- ☐ Biodiversity offsets (number active).

Responsible Agency: MoE , MoF.

Development Status: Specifications for this indicator should be clarified at the national level. See also: <https://gbf-indicators.org/metadata/headline/18-1>

Frequency: Yearly.

Baseline: TBD.

Cost and Funding: None; provided that the lists are available. However, gathering the lists may entail cost.

Capacity Development Needs: Potentially required for developing the lists needed for this indicator.

Data Needed	Source
List of biodiversity-relevant taxes, fees, and charges (number active)	MoE, MoF, MoA, MoEW, CDR, international organizations
List of biodiversity-positive subsidies (number active)	MoE, MoF, MoA, MoEW, CDR, international organizations
List of biodiversity-relevant tradable permits (number active)	MoE, MoF, MoA, MoEW, CDR, international organizations
List of payments for ecosystem services (number active)	MoE, MoF, MoA, MoEW, CDR, international organizations
List of biodiversity offsets (number active)	MoE, MoF, MoA, MoEW, CDR, international organizations

Indicator: Value of incentives

Description: *Contributing to HI 18.2.; new; number:* Value of subsidies and other incentives harmful to biodiversity.

Unit: Currency.

Calculation Method:

The total value is calculated as the sum of the values below:

- ☐ Value of agricultural subsidies and other incentives potentially harmful to biodiversity and/or environment.
- ☐ Value of subsidies to capture fisheries with a moderate or high risk of encouraging unsustainable fishing in the absence of effective fisheries management.
- ☐ Value of fossil fuel subsidies (production and consumption).
- ☐ Value of subsidies and other incentives.

Responsible Agency: MoE, MoF.

Development Status: Specifications for this indicator need to be clarified at the national level, and values need to be established. See also: <https://gbf-indicators.org/metadata/headline/18-2>

Frequency: Yearly.

Baseline: TBD.

Cost and Funding: Establishing the values for this indicator will require some efforts. A specific project may be needed.

Capacity Development Needs: Significant, to develop the values for this indicator.

Data Needed	Source
Value of agricultural subsidies and other incentives potentially harmful to biodiversity and/or environment	MoE, MoF, MoA, international organizations
Value of subsidies to capture fisheries with moderate or high risk of encouraging unsustainable fishing in the absence of effective fisheries management	MoF, MoA,
Value of fossil fuel subsidies (production and consumption)	MoF, CDR, international organizations
Value of subsidies and other incentives harmful to biodiversity in another sector (such as water, transportation and mining sectors)	MoE, MoF, MoA, MoEW, CDR, international organizations

NA 21.1: Implement and enforce legislation related to IEES, EIAs and SEAs and ensure the implementation of the environmental monitoring plan included in the EIAs and SEAs.

Indicator: Biodiversity in IEES, SEAs and EIAs

Definition: *National indicator; quantified [percentage]:* Share of SEAs, IEES and EIAs that include considerations regarding the conservation and sustainable use of biodiversity.

Unit: Percentage.

Calculation method: (Number of assessments including biodiversity considerations) / (Total number of assessments) × 100.

Responsible Agency: MoE.

Development Status: Ready.

Frequency: Yearly.

Baseline: TBD.

Cost and Funding: None, provided that the list of assessments is available.

Capacity Development Needs: None.

Data Needed	Source
List of SEAs, IEES and EIAs	MoE

NA 21.2 Conduct a comprehensive review of existing incentives affecting biodiversity and ecosystems and develop a clear roadmap to ensure that incentives are aligned with conservation goals and sustainable practices. This will help foster biodiversity resilience and ecosystem health across Lebanon. This includes updating current legislation to incorporate positive incentives.

Indicator: Roadmap for Alignment of Incentives

Description: *National indicator; binary:* Has the roadmap for alignment of incentives with biodiversity goals been developed?

Unit: Yes/No.

Responsible Agency: MoE.

NA 21.3: Increase fees for construction permits near ecologically sensitive areas (e.g., buffer zones of protected areas, forests, rivers, marine public domains, etc.).

Indicator: Fees for Construction Permits Near Ecologically Sensitive Areas

Definition: *National indicator; percentage:* Increase of fees for construction permits near ecologically sensitive areas.

Unit: Percentage increase.

Calculation Method: (New fees – old fees) / (Old fees) * 100.

Responsible Agency: MoE, Municipalities.

Development Status: Ready.

Frequency: Yearly.

Baseline: TBD.

Cost and Funding: None, provided that information on fees is available.

Capacity Development Needs: None.

Data Needed	Source
Information on fees for construction permits	MoE, Municipalities

NA 21.4: Impose fees on imported fresh fish to protect the local fish market.

Indicator: Fees on Imported Fresh Fish

Definition: *indicator; new; binary*: Have fees on imported fish to protect the local fresh fish market been imposed?

Unit: Yes/No.

Responsible Agency: MoF.

NA 21.5: Improve infrastructure related to the fishing sector in collaboration with the Directorate General of Cooperatives at the MoA and Directorate General of Land and Maritime Transport. This includes ports, fishing nets, fishing equipment, and other tools, with the aim of reducing the need for direct public financial support and rehabilitation costs, and mitigating unregulated practices.

Indicator: Percentage of Targeted Fishing Ports Upgraded

Definition: *indicator; new; percentage*: Targeted fishing ports where infrastructure improvements have been completed.

Unit: Percentage.

Calculation Method: (Number of upgraded fishing ports) / (Total number of fishing ports) x 100.

Responsible agency: MoPWT, MoA.

Development status: NA.

Frequency: Yearly.

Baseline: TBD.

Cost and Funding: None.

Capacity Development Needs: None.

Data Needed	Source
List of fishing ports	MoA, fishermen cooperatives
Number of fishing ports where infrastructure improvements have been completed	MoA, MoPWT, fishermen cooperatives international organizations

NA 21.6: Promote local fish products (legal wild catch and aquaculture) through national campaigns.

Indicator: Promotion of local fish products

Definition: *National indicator; binary:* Have national campaigns promoting local fish products been launched or are they ongoing?

Unit: Yes/No.

Responsible Agency: MoA.

NA 21.7: Promote local organic agricultural products through national campaigns.

Indicator: Promotion of Local Agriculture Products

Definition: *National indicator; binary:* Have national campaigns promoting local organic agricultural products been launched or are they ongoing?

Unit: Yes/No.

Responsible Agency: MoA.

NA 21.8: Provide financial incentives or subsidies to farmers who adopt environmentally sustainable practices, such as organic farming, agroforestry, aquaculture, and conservation agriculture.

Indicator: Financial Incentives or Subsidies for Sustainable Farming Practices

Definition: *national indicator; quantitative:* Number of farmers receiving financial incentives or subsidies for adopting environmentally sustainable practices.

Unit: Number.

Calculation Method: Count of farmers who have received financial incentives or subsidies for adopting practices, such as organic farming, agroforestry, aquaculture, and conservation agriculture.

Responsible Agency: MoA, FAO.

Development Status: Methodology to be developed.

Frequency: Yearly..

Baseline: TBD.

Cost and Funding: Some costs may be required to gather the information required for this indicator.

Capacity Development Needs: None.

Data Needed	Source
Number of farmers who have received financial incentives or subsidies	MoA, MoE, farmers' unions, local and international NGOs, financial institutions
Breakdown of types of agricultural practices incentivized	MoA, local and international NGOs

NA 21.9: Increase the amount of fines related to forest violations and illegal logging to promote sustainable forestry management and minimize environmental degradation.

Indicator: Increase in the Amount of Fines for Forest Violations and Illegal Logging

Definition: *indicator; new; quantitative:* Percentage increase in the amount of fines related to forest violations and illegal logging.

Unit: Percentage increase.

Calculation Method: (New fines amounts – Old fines amounts) / (Old fines amounts) × 100.

Responsible Agency: MoE.

Development Status: Ready.

Frequency: Yearly.

Baseline: TBD.

Cost and Funding: No additional cost needed. Covered through existing staff resources (staff time).

Capacity Development Needs: None.

Data Needed	Source
Log and amount of fines collected for forest violations and illegal logging during the reporting period	MoA, law enforcement authorities

NA 21.10: Offer tax credits or other financial incentives for companies and individuals involved in ecosystem restoration and sustainable forest management efforts.

Indicator: Tax Credits or Financial Incentives for Ecosystem Restoration and Sustainable Forest Management Efforts

Definition: *indicator; new; quantitative:* Number of companies and individuals who have received tax credits or financial incentives for participating in ecosystem restoration and sustainable forest management efforts.

Unit: Number.

Calculation Method: Count of the number of companies and individuals who have received tax credits or financial incentives for their involvement in ecosystem restoration and sustainable forest management efforts.

Responsible agency: MoE.

Development status: NA.

Frequency: TBD.

Baseline: TBD.

Cost and funding: Some costs may be required for gathering the information for this indicator.

Capacity development needs: None.

Data Needed	Source
Number of companies and individuals receiving financial incentives or tax credits for participating in ecosystem restoration and sustainable forest management	MoA, MoE, MoF, local and international NGOs, international organizations
Types of incentives and tax credits provided	MoA, MoE, MoF, financial institutions, international organizations

National Target 22: Resources and funding

NT 22: By 2030, substantially and progressively increase the level of financial resources from all sources– including domestic, international, public and private resources– in an effective, timely, and easily accessible manner to implement national biodiversity strategies and action plans, mobilizing at least \$100 million per year.

Indicator: International Public Funding

Description: *Contributing to D.1.; new; number:* International public funding, including official development assistance (ODA) allocated to the conservation and sustainable use of biodiversity and ecosystems.

Unit: Currency.

Calculation Method:

- Aggregation of funds used by Lebanon to support international biodiversity conservation.

Responsible Agency: MoE, MoF.

Development Status: Ready.

Frequency: Yearly.

Baseline: TBD.

Cost and Funding: No additional cost needed. Covered through existing staff resources (staff time)

Capacity Development Needs: None.

Data Needed	Source
International biodiversity funding	MoE, MoF, Research Centers, Academic Institutions, Specialized NGOs, international organizations

Indicator: Domestic Public Funding

Description: *Contributing to HI D.2.; new; set of numbers per year:* Domestic public funding allocated to the conservation and sustainable use of biodiversity and ecosystems.

Unit: Currency.

Calculation Method:

- Monetary value of domestic public expenditure in national currency per year during the CBD national reporting cycle.
- Excludes financial flows supported by developed country Parties or other providers of international public finance (e.g., multilateral institutions) and international private finance (e.g., private philanthropy), which are captured under indicators D.1 and D.3, respectively.

Responsible Agency: MoE and MoF.

Development Status: Data needs to be established.

Frequency: Yearly.

Baseline: TBD.

Cost and Funding: Possible.

Capacity Development Needs: Possible.

Data Needed	Source
Domestic biodiversity funding	MoE, MoF, Research Centers, Academic Institutions, Specialized NGOs, international organizations

Indicator: Private Funding

Description: *Contributing to D.3.; new; set of numbers per year:* Private funding (domestic and international) allocated to the conservation and sustainable use of biodiversity and ecosystems.

Unit: Currency.

Calculation Method:

- Aggregated funds from private donors allocated to biodiversity conservation (domestic and international).

Responsible Agency: MoE, MoF.

Development Status: Data needs to be established.

Frequency: Yearly.

Baseline: TBD.

Cost and Funding: Possible.

Capacity DevelopmentN: Possible.

Data Needed	Source
Private biodiversity funding	MoE, MoF, Research Centers, Academic Institutions, Specialized NGOs, international organizations

NA 22.1: Operationalize the national environmental fund established through Law No. 444/2002.

Indicator: National Environment Fund

Description: *National indicator; numerical:* Funds made available through the National Environment Fund from all sources (public, international, and private).

Unit: Currency.

Calculation Method:

- Accumulated turnover since the inception of the fund, including funds generated through the polluter-pays principle.

Responsible Agency: MoE, MoF / new National Environment Fund.

Development Status: Ready.

Frequency: Yearly.

Baseline: 2016.

Cost and Funding: None, once the National Environment Fund is established.

Capacity Development Needs: None.

Data Needed	Source
Accounting of the National Environment Fund	MoE, MoF, National Environmental Fund

NA 22.2: Direct Green Climate Fund towards biodiversity projects (e.g., Lebanon Green Investment Facility (LGIF)).

Indicator: Green climate fund Climate Fund

Description: *National indicator; numerical:* Total funding deployed for Green Climate Funds projects (from all sources).

Unit: Currency.

Calculation Method:

- Accumulated funds used for Green Climate Funds projects.

Responsible Agency: MoE, MoF, and possibly others.

Development Status: Advisory group among ministries for this indicator needs to be established. Process for gathering data for this indicator needs to be established.

Frequency: Yearly.

Baseline: TBD.

Cost and Funding: Limited.

Capacity Development Needs: None.

Data Needed	Source
Overview of Green Climate Fund projects	MoE, MoF, Research Centers, Academic Institutions, international organizations

NA 22.3: Partially increase the natures reserves entrance fee and allocate the additional revenue to the national environmental fund.

Indicator: Nature Reserve Revenues

Description: *National indicator; quantified [percentage]:* Increase in revenue of nature reserves and allocated to the National Environmental Fund.

Unit: Percentage increase.

Calculation Method: (Nature reserves revenue from entrance fees for year X) - (Nature reserves revenue from entrance fees for the baseline year) / (Nature Reserves revenue from entrance fees for the baseline year) * 100.

Responsible Agency: MoE and National Environmental Fund.

Development Status: To be specified once the National Environmental Fund is established.

Frequency: Yearly.

Baseline: 2024.

Cost and Funding: No additional cost needed. Covered through existing staff resources (staff time).

Capacity Development Needs: None.

Data Needed	Source
Nature reserves revenue for the baseline year	NRs management, MoE
Annual nature reserves revenue	NRs management, MoE

NA 22.4: Establish a tracking tool for economic instruments and biodiversity finance (e.g., biodiversity positive taxes and fees, fines, projects, tradeable permits, environmentally motivated subsidies, biodiversity offsets, etc.).

Indicator: Biodiversity Finance Tracking Tool

Definition: *indicator; new; binary:* Has the tracking tool for economic instruments and biodiversity finance been established?

Unit: Yes/No.

Responsible Agency: MoE, MoF.

NA 22.5: Implement tax incentives and funding programs to promote (private public partnerships) in support of biodiversity conservation, and sustainable use of resources.

Data Needed	Source
List of PPPs	MoE, MoA, MoEW, MoPWT, MoF

NA 22.6: Develop a national biodiversity finance plan, including the following:

- Study innovative sources of financing for biodiversity.
- Engage donors in the implementation of the plan.
- Engage the private sector in resource mobilization.
- Conduct an environmental valuation study to promote the mobilization of internal resources.
- Assess and develop mechanisms to facilitate access to funding for vulnerable and low-income population.
- Develop guidelines to Introduce biodiversity valuation into SEAs and EIAs, including the assessment of economic value, potential loss and offset measures resulting from the project impacts.
- Develop a national framework for evaluating the economics of ecosystems and biodiversity in Lebanon (e.g., TEEB, BIOFIN), including payments for ecosystem services, reform of environmentally harmful subsidies, or introducing fiscal incentives for conservation.
- Conduct economic valuation studies for nature reserves and utilize the findings in decision-making, seeking internal and external funding, and promoting ecotourism and sustainable practices in tourism activities.
- Conduct economic valuation studies for coastal zones, the maritime public domain, high mountains, riparian zones classified as nature sites, and at least 20% of public forests, and utilize the findings in strategic land use planning, seeking internal and external funding, and promoting sustainable management practices.

Indicator: Resource mobilization strategy

Description: *National indicator; binary:* Has the national biodiversity finance plan been developed? (more specific indicators should be developed in the context of the development of the resource mobilization strategy).

Unit: Yes/No.

Responsible agency: MoE.

Indicator: Determination of the value of ecosystem services

Definition: National indicator; number: Instances where established methodologies under the national biodiversity finance plan have been applied in Lebanon at national level or in specific areas/Nature Reserves.

Unit: Number.

Calculation Method: Count of instances where established methodologies under the national biodiversity finance plan have been applied in Lebanon at national level or in specific areas/Nature Reserves.

Responsible agency: MoE, MoA, MoEW, MoPWT.

Development status: Methodology of data collection has to be clarified.

Frequency: Five years.

Baseline: TBD.

Cost and funding: No additional cost needed - Covered through existing staff resources (staff time).

Capacity development needs: None.

NA 22.7: Conduct awareness campaigns and educational seminars to introduce the concept of biodiversity valuation and its importance for conservation and sustainable management to decision-makers, practitioners, and other concerned stakeholders (e.g., the public sector including deputies, ministers, Directors Generals; the private sector; research institutions; NGOs; etc.)

Indicator: Awareness for the Importance of Biodiversity Valuation

Definition: *National indicator; percentage:* Share of stakeholders effectively reached through awareness campaigns.

Unit: Percentage.

Calculation Method: (Number of stakeholder experts providing feedback) / (Total number of stakeholders reached through awareness campaign) * 100.

Responsible Agency: MoE.

Development Status: Methodology of data collection needs to be clarified.

Frequency: Yearly.

Baseline: TBD.

Cost and Funding: Some costs may be incurred, provided that the list is available.

Capacity Development Needs: None.

Data Needed	Source
List of stakeholder experts addressed through awareness campaigns	MoE, MoA, Research Centers, Academic Institutions, Specialized NGOs

National Target 23: Capacity-Building

NT 23: Strengthen capacity-building, joint scientific research programs for the conservation and sustainable use of biodiversity, and scientific research and monitoring capacities.

Indicator: Capacity-Building Strengthening

Definition: *Contributing to 20.b.; new; percentage increase:* Capacity-building and joint scientific research programs were strengthened, as is evidenced by an increase in budget.

Unit: Percentage increase.

Calculation Method: (Capacity-building and scientific cooperation budget for year X) - (Capacity building and scientific cooperation budget for baseline year) / (Capacity building and scientific cooperation budget for baseline year) * 100.

□ To be disaggregated by ministry.

Responsible Agency: MoE, MoF.

Development Status: To be specified, inter-ministerial data collection is required.

Frequency: Yearly.

Baseline: TBD.

Cost and Funding: No additional cost needed. Covered through existing staff resources (staff time).

Capacity Development Needs: Possibly required to ensure data consistency.

Data Needed	Source
Capacity-building and scientific cooperation budget in baseline year	MoE, MoF
Annual capacity-building and scientific cooperation budget (by ministry)	MoF

NA: 23.1 Allocate a capacity building and scientific cooperation budget within the national biodiversity budget

[See indicator for NT 24](#)

NA 23.2: Allocate a capacity-building budget for relevant ministries focusing on GBF, CBD, and NBSAP.

Indicator: Biodiversity Capacity Building Budget

Definition: *indicator; new; binary:* Has a biodiversity capacity-building budget been allocated for relevant ministries?

Unit: Yes/No.

Responsible Agency: MoE, MoF.

NA 23.3: Ensure the necessary resources to revive and sustain the Clearing-House Mechanism (CHM) and use it to consolidate biodiversity-related studies and avoid overlap and duplication of work.

Indicator: Operational Status of the Clearing-House Mechanism (CHM)

Definition: *indicator; new; binary:* Is the CHM fully operational, regularly updated, and actively used to consolidate biodiversity-related studies and reduce duplication of work?

Unit: Yes/No.

Responsible Agency: MoE.

NA 23.4: Develop a spin-off incubation and acceleration program to foster the creation of innovative products and services derived from scientific research that can be utilized by companies. Establish a system to promote collaboration between the private sector and research centers.

Indicator: Biodiversity Incubator Program

Definition: *indicator; new; binary:* Has a biodiversity spin-off incubation and acceleration program been developed?

Unit: Yes/No.

Responsible Agency: MoE, MoA, Academic Institutions, Specialised NGOs.

National Target 24: Data Availability

NT 24: Ensure that the best available data, information and knowledge are accessible to decision-makers, practitioners and the public to guide effective and equitable governance, integrated, and participatory management of biodiversity. This will also strengthen communication, awareness-raising, education, monitoring, research, and knowledge management.	
□ The Headline Indicator for this Target has not yet fully developed (HI 21.1: Indicator on biodiversity information for monitoring the Global Biodiversity Framework) Metadata factsheet accessed on 6 December 2024: https://gbf-indicators.org/metadata/headline/21-1	
Indicator: Availability of Knowledge <u>Definition:</u> <i>National indicator; percentage:</i> Share of decision-makers, practitioners, and the public who respond in regular surveys that they have sufficient access to biodiversity information. <u>Unit:</u> Percentage. <u>Calculation Method:</u> Survey (□ See corresponding NA 24.1) (Number of respondents who report sufficient access to biodiversity information) / (Total number of respondents) * 100. <u>Responsible Agency:</u> MoE, Central Administration of Statistics (CAS). <u>Development Status:</u> Pending development of the survey. Frequency: Yearly. <u>Baseline:</u> TBD. <u>Cost and Funding:</u> Possible costs associated with the development and dissemination of the survey. <u>Capacity Development Needs:</u> None.	
Data Needed	Source
Survey results for year X covering decision-makers, practitioners, and public	Central Administration of Statistics (CAS) services to assess and monitor people's awareness on biodiversity
NA 24.1: Develop and implement a survey program with the Central Administration of Statistics (CAS) to assess and monitor public awareness of biodiversity.	
Indicator: Survey Program with CAS <u>Definition:</u> <i>National indicator; binary:</i> Has a survey program been developed with CAS to assess and monitor public awareness of biodiversity?	

NA 24.2: Strengthen the awareness unit at the MoE to enhance public outreach and direct communication related to biodiversity.

Indicator: Awareness Unit

Definition: *National indicator; quantified (number):* Number of outreach activities conducted by the MoE.

Unit: Number.

Calculation Method: Count of outreach activities conducted by the MoE.

Responsible Agency: MoE.

Development Status: Ready.

Frequency: Yearly.

Baseline: TBD.

Cost and Funding: None; provided that the list is available.

Capacity Development Needs: None.

Data Needed	Source
List of outreach activities of the MoE	MoE

NA 24.3: Adopt and implement the existing “National Strategy on Greening Education/Education for Sustainable Development”, currently being developed by the MEHE, and integrate environmental education—including biodiversity (fauna and flora)—into school curricula under this strategy and implement extracurricular activities related to the environment. Implementation efforts should include comprehensive training and capacity-building for schoolteachers and health educators to ensure effective delivery of environmental education across Lebanon.

Indicator: National Strategy for Greening Education/Education for Sustainable Development

Definition: *indicator; new; binary:* Has the National Strategy on Greening Education/Education for Sustainable Development been adopted and implemented?

Unit: Yes/No.

Responsible Agency: MoE, MEHE (Center for Educational Research and Development under UN Lebanon CERD), UNESCO,

NA 24.4: Organize participatory events to raise awareness on biodiversity among students, youth, and the public, such as national science fair, guided open-house events at the MoE, etc.

Indicator: Participatory Events

Definition: *National indicator; quantified (number):* Participatory events organized by the MoE.

Unit: Number.

Calculation Method: Count of participatory events organized by the MoE.

Responsible Agency: MoE.

Development Status: Ready.

Frequency: Yearly.

Baseline: TBD.

Cost and Funding: None.

Capacity Development Needs: None.

Data Needed	Source
List of Participatory events organized by the MoE	MoE

NA 24.5: Support local biodiversity clubs, health and environment school club, and local actions groups across the country.

Indicator: Support of Local Action Groups

Definition: *National indicator; quantitative [number] and descriptive:* Support provided to local biodiversity clubs, health and environment school club, local actions groups provided in monetary and non-monetary terms.

Unit: Currency.

Calculation Method: Sum of financial support provided to local biodiversity clubs, health and environment school club, and local actions groups and description of non-monetary support.

Responsible Agency: MoE and other ministries.

Development Status: Ministries that work with local NGOs need to work together to provide the data for this indicator.

Frequency: Yearly.

Baseline: TBD.

Cost and Funding: No additional cost needed. Covered through existing staff resources (staff time).

Capacity Development Needs: None.

Data Needed	Source
Overview of monetary and non-monetary support provided to local action groups	MoE, and other ministries

NA 24.6: Build the capacities of NGOs to recognize and collect relevant data on biodiversity awareness.

See indicator for NT 25.

National Target 25: Participation in Decision-Making

NT 25: Ensure the full, equitable, inclusive, effective and gender-responsive representation and participation in decision-making, as well as access to justice and information related to biodiversity, by local communities—while respecting their cultures and their rights over lands, territories, resources, and traditional knowledge. This also includes women and girls, children and youth, and persons with disabilities, and ensures the full protection of environmental human rights defenders.

- ☐ *The Headline Indicator for this Target is a binary indicator (22.b). The question for this indicator has not yet been formulated.*

Indicator: Gender Representation

Definition: *National indicator; percentage:* Gender representation in decision-making bodies (national level and subnational/municipal parliaments and courts).

Unit: Percentage of women in decision-making bodies.

Calculation Method: (Total number of women in decision-making bodies) / (Total number of members of decision-making bodies) * 100.

Responsible Agency: MoE, and probably other relevant ministries.

Development Status: Channels for gathering this information need to be established.

Frequency: Yearly.

Baseline: TBD.

Cost and Funding: Some costs will be incurred from gathering data for this indicator.

Capacity Development Needs: None.

NA 25.1: Develop and enforce legislation to protect the rights of environmental human rights defenders (or integrate environmental human rights in human rights law).

Indicator: Human Rights Defenders

Definition: *National indicator; scale:* Extent to which legislation to protect the rights of environmental human rights defenders has been developed and enforced.

Unit: Scale from 1 (no legislation and enforcement) to 10 (legislation in place and enforced).

Calculation Method: Expert group analysis of the extent to which legislation to protect the rights of environmental human rights defenders has been developed and enforced.

Responsible Agency: MoE, and other relevant ministries.

Development Status: Channels for gathering this information need to be established. An expert group needs to analyse the extent to which legislation protecting the rights of environmental human rights defenders has been developed and enforced.

Frequency: Yearly.

Baseline: TBD.

Cost and Funding: No additional cost needed. Covered through existing staff resources (staff time).

Capacity Development Needs: None.

NA 25.2: Design awareness-raising campaigns to highlight the equal contributions of both men and women in conserving biodiversity particularly focusing on women serving in local councils and Community Based Organizations (CBOs).

- ☐ See respective Indicators for Awareness-Raising

NA 25.3: Ensure the inclusion of needs of local communities, women girls, children, youth, and persons with disabilities in the decision-making process related to biodiversity at both governmental and local authority level.

Indicator: Satisfaction Score of Marginalized Groups in Decision-Making Processes

Definition: *National indicator; descriptive:* Measures the satisfaction of marginalized groups regarding the inclusion of their needs in biodiversity-related decisions, collected through surveys.

Unit: Score.

Calculation Method: Surveys to measure satisfaction score of marginalized groups with the inclusion of their needs in biodiversity-related decisions (e.g., scale of 1–5, where 5 indicates high satisfaction).

Responsible Agency: MoE.

Development Status: Process for gathering this information needs to be established.

Frequency: Yearly.

Baseline: 2024.

Cost and Funding: No additional cost needed. Covered through existing staff resources (staff time).

Capacity Development Needs: None.

NA 25.4: Integrate gender considerations into policies, strategies and plans related to biodiversity.

- ☐ See indicators above.

NA 25.5: Develop in collaboration with NCLW a biodiversity-focused gender action plan. This plan can promote gender-sensitive cross-ministerial collaboration (including but not limited to MoE, MoA and others) to shape supportive policies and mainstream environmental priorities at all levels.

Indicator: Biodiversity and Gender Action Plan

Definition: *indicator; new; binary:* Has the biodiversity and gender action plan been developed?

Unit: Yes/No.

Responsible Agency: MoE, MoA.

National Target 26: Gender Equality

NT 26: Ensure gender equity in the implementation of the Framework through a gender-responsive approach, where all women and girls have equal opportunity and capacity to contribute to the three objectives of the Convention. This includes recognizing their equal rights and access to land and natural resources and their full, equitable, meaningful, and informed participation and leadership at all levels of action, engagement, policy and decision-making related to biodiversity.

Indicator: Biodiversity in Gender Strategy

HI 23.b; new; binary: Has Lebanon reflected legal, administrative or policy frameworks, including the Gender Plan of Action, as well as the allocation of specific financial resources, to ensure that all women and girls have equal opportunity and capacity to contribute to the three objectives of the Convention, including by ensuring women's equal rights and access to land and natural resources?

Unit: Yes/No.

Responsible Agency: MoE.

NA 26.1: Ensure integrating environmental concerns (including biodiversity) in future national gender strategies.

See indicator for NT 26.

NA 26.2: Work with cooperatives, including women-led cooperatives, to direct and encourage women to diversify biodiversity-based activities through awareness-raising, capacity-building, and financial support.

Indicator: Women in biodiversity projects

Definition: *indicator; new; quantified [growth number]:* Number of women working in biodiversity projects compared with previous years.

Unit: Number.

Calculation Method: (Number in year Y) – (Number in baseline year X).

Responsible Agency: MoE, MoA.

Development Status: Process for gathering the data needs to be established.

Frequency: Yearly.

Baseline: TBD.

Cost and Funding: Potential costs may be incurred for gathering the data.

Capacity Development Needs: None.

Data Needed	Source
Data on the number of women working in biodiversity projects	MoE, MoA, CAS, MoL local and international organizations and NGOs

NA 26.3: Conduct a baseline study on gender contextual analysis related to the biodiversity sector.

Indicator: Gender Contextual Analysis

Definition: *indicator; new; binary:* Has a baseline study on gender contextual analysis related to the biodiversity sector been conducted?

Unit: Yes/No.

Responsible Agency: Ministry of Social Affairs (MoSA), CAS, National Commission for Lebanese Women.



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