

Biodiversity Entrepreneurship in the MENA Region

Josephine Ilesanmi

10.1 INTRODUCTION

This chapter discusses the increasing significance of biodiversity entrepreneurship for advancing nature conservation and biodiversity in the MENA region. It examines the roles of sustainability-focused, nature-based small and medium enterprises (NB-SMEEs), which, although are not substitutes for other conservation strategies, are important contributors toward the halting and reversal of biodiversity loss.¹ The chapter evaluates legal and institutional barriers to the promotion and scale-up of NB-SMEEs in the MENA region and dynamic legal innovations for addressing those barriers.

There is increased worldwide interest in homegrown, sustainability-focused NB-SMEEs, run by eco-entrepreneurs (also known as ecopreneurs), and ecological citizens that develop the sustainable, pro-biodiversity business models needed to halt or reverse the loss of nature.² NB-SMEEs are therefore pro-biodiversity business models and enterprises that aim to halt and reverse biodiversity loss through a sustainable co-benefit approach.³ The Kunming-Montreal Global Biodiversity Framework (GBF) specifically calls on countries to “increase the application of ecosystem-based approaches to address biodiversity loss.”⁴ Specifically, targets 14, 16, 19 of the GBF call for several stages of implementation. First, at the level of governance, the targets call for the all-sector integration of biodiversity values through policy reform, regulations, and strategic planning and development. Second, at the grassroots level,

¹ D. Lobo, P. Reich and A. Ardichvili, “Conservation Entrepreneurship: A New Frontier in Conservation Science” (2023) 282 *Biological Conservation* 110078.

² L. Ossowska, D. Janiszewska, and G. Kwiatkowski, “The Entrepreneurship Ecosystem of Food Festivals – A Vendors’ Approach” (2022) 15 *Sustainability* 2, 906, 15020906.

³ International Finance Corporation, *Biodiversity Finance Reference Guide* (2023) 2 www.ifc.org/content/dam/ifc/doc/mgrt/biodiversity-finance-reference-guide.pdf accessed January 12, 2024.

⁴ Kunming Declaration, “Declaration from the High-Level Segment of the UN Biodiversity Conference 2020,” under the theme: “Ecological Civilization: Building a Shared Future for All Life on Earth” (Part 1) 4, para 10 www.cbd.int/doc/c/df35/4b94/5e86e1ee09bc8c7d4b35aaf0/kunmingdeclaration-en.pdf accessed January 14, 2024.

the targets suggest a focus on localism and citizen empowerment. Third, with the aim of engaging diverse actors, the targets call for the education of and promotion of local and indigenous communities with the capacity to recognize and capture sustainable value from natural resources, such as through incentives and supported nature-based business models, which would halt, restore, and conserve nature and biodiversity, contributing to 2030 and 2050 Sustainable Development Goal targets.⁵ The GBF calls on all governmental and nongovernmental actors to participate, contribute, and advocate for the mobilization of supportive policies, laws, and financial channels that can accelerate the establishment and formalization of these nature-based business models.

Nature-based solutions have been defined by the United Nations as “actions to protect, conserve, restore, sustainably use and manage natural or modified terrestrial, freshwater, coastal and marine ecosystems which address social, economic and environmental challenges effectively and adaptively, while simultaneously providing human well-being, ecosystem services, resilience and biodiversity benefits.”⁶ As discussed in Chapter 6, ecosystem-based approaches and nature-based solutions such as “reducing deforestation and other land use change and degradation; restoring degraded lands and ecosystems; and enhancing soil management in agricultural and range lands” are crucial for halting biodiversity loss.⁷ In this regard, the 2018 Sharm el Sheikh Declaration on Investing in Biodiversity for People and Planet specifically contains commitments by states to “mobilize actions to reduce nature-based risks and leverage nature-based solutions, resources and other natural innovations and technologies, to further achieve the objectives of the Convention on Biological Diversity.”⁸ The declaration also recognizes the need to “create financial

⁵ Convention on Biological Diversity, “The Biodiversity Plan for Life on Earth: Introductory Sections of GBF” Kunming-Montreal Global Biodiversity Framework (Section B: Purpose, No 4) www.cbd.int/gbf/introduction/ accessed January 14, 2024; and International Finance Corporation, “Biodiversity Finance Reference Guide” (May 2023) www.ifc.org/content/dam/ifc/doc/mgmt/biodiversity-finance-reference-guide.pdf accessed January 14, 2024.

⁶ United Nations Environment Assembly, “Nature-Based Solutions for Supporting Sustainable Development” (March 7, 2022) UNEP/EA.5/Res.5: <https://wedocs.unep.org/bitstream/handle/20.500.11822/39864/NATURE-BASED%20SOLUTIONS%20FOR%20SUPPORTING%20SUSTAINABLE%20DEVELOPMENT.%20English.pdf?sequence=1&isAllowed=y> accessed January 14, 2024; see also European Investment Bank, “Investing in Nature-Based Solutions: State-of-Play and Way Forward for Public and Private Financial Measures in Europe” (2023) 2 www.eib.org/attachments/lucalli/20230095_investing_in_nature_based_solutions_en.pdf accessed January 14, 2024, which defines nature-based solutions as “solutions that are inspired and supported by nature, which are cost-effective, simultaneously provide environmental, social and economic benefits and help build resilience.”

⁷ European Investment Bank (n 6). See also Convention on Biological Diversity, “Sharm el Sheikh Declaration on Investing in Biodiversity for People and Planet” (November 16, 2018) 3 www.cbd.int/doc/c/b88b/15fd/ce60b9f3cccb30be25a7c42a/sharmelsheikh-declaration-egypt-en.pdf accessed January 14, 2024.

⁸ Convention on Biological Diversity, “Sharm el Sheikh Declaration on Investing in Biodiversity for People and Planet” (November 16, 2018) 2 www.cbd.int/doc/c/b88b/15fd/ce60b9f3cccb30be25a7c42a/sharmelsheikh-declaration-egypt-en.pdf accessed January 14, 2024.

and nonfinancial incentives aimed at mainstreaming biodiversity in development sectors, consistent with international obligations.”⁹ These instruments show the growing recognition of the need for states and business enterprises to develop and promote nature-based solutions and investments that can accelerate biodiversity conservation and protection.

By investing in goods, services, and projects that advance biodiversity, business enterprises can be at the forefront of leveraging nature conservation to advance sustainable economic growth. According to the *Biodiversity Finance Reference Guide*, opportunities created from these nature-based enterprises are projected to have an estimated value of US\$10.1 trillion, yearly, and 395 million job opportunities by 2030,¹⁰ promoting sustainability, economic diversification, and local empowerment. The growing recognition of the social, economic, and environmental benefits of investing in nature-based solutions are leading to increased rise in NB-SMEEs, that is business models primary focused on implementing nature-based solutions, technologies, goods, services, and projects that advance the conservation, restoration, and promotion of biological diversity in a sustainable manner.¹¹ This includes through the implementation of conservation, restoration, and nature-based solutions, or support for them through financing or insurance.¹²

Drawing on international instruments, MENA countries have attempted to craft the law and policy frameworks required for promoting NB-SMEEs to ensure sustainability and co-benefits.¹³ However, as demonstrated in this chapter, overgeneralized policies, weak legal frameworks, and fragmented institutional structure have created barriers and an unfavorable entrepreneurial context for the rapid growth of NB-SMEEs.¹⁴ Legal, financial, and regulatory barriers that hinder the innovation, establishment, and operationalization of nature-based eco-ventures in the MENA region must be carefully addressed. While several studies have examined the importance of eco-entrepreneurship as a tool for halting biodiversity loss, an in-depth examination of the legal and policy barriers that hinder the growth of NB-SMEEs has remained absent. This chapter fills a gap in this regard. It examines the strategic transformations of biodiversity law and policy that are required to promote

⁹ Ibid.

¹⁰ International Finance Corporation (n 3) 1, 2–5.

¹¹ P. Pereira, C. Yin, and T. Hua, “Nature-Based Solutions, Ecosystem Services, Disservices, and Impacts on Well-Being in Urban Environments” (2023) 33 *Current Opinion in Environmental Science & Health* 100465.

¹² European Investment Bank, *Resilience and Renewal in Europe* www.eib.org/en/publications/20220211-investment-report-2022 accessed January 12, 2024.

¹³ Damilola Olawuyi, *Environmental Law in Arab States* (Oxford University Press 2022) 245–272.

¹⁴ V. Litskas et al., “Innovation in Water Education Programs in the Eastern Mediterranean to Enhance Security and Socio-Economic Development under Climate Change” (2023) 8 *Euro-Mediterranean Journal for Environmental Integration* 243; M. Mabrouk, “Assessing the Effectiveness of Nature-Based Solutions-Strengthened Urban Planning Mechanisms in Forming Flood-Resilient Cities” (2023) 344 *Journal of Environmental Management* 118260; J. Rodenbiker, “Green Silk Roads, Partner State Development, and Environmental Governance: Belt and Road Infrastructure on the Sino-East African Frontier” (2022) 55 *Critical Asian Studies* 2, 169.

these pro-biodiversity NB-SMEEs across the region. After developing a profile of law and governance barriers facing NB-SMEEs in the region, it proposes dynamic legal solutions for addressing such barriers.

The chapter is organized in five sections. After this introduction, Section 10.2 unpacks the nature, scope, and elements of biodiversity entrepreneurship and its importance for the development priorities of MENA countries. Section 10.3 examines law and governance barriers to NB-SMEEs across the region. Section 10.4 offers recommendations on the dynamic legal innovations required to address those challenges. Section 10.5 is the concluding section.

10.2 NATURE, SCOPE, AND ELEMENTS OF BIODIVERSITY ENTREPRENEURSHIP

Biodiversity entrepreneurship encompasses the natural environment, societal value creation, and entrepreneurship theory.¹⁵ The environment, ecosystem, and biophysical elements support and sustain all life in interstice and diverse ways.¹⁶ Nature and biodiversity provide food, shelter, nonrenewable and renewable energy, clean air, and water; regulate biophysical systems that maintain water, soil, and air quality; and generate services and resources.¹⁷ In addition to its environmental and ecosystems value, biodiversity is critical to economic growth.¹⁸ A country's economic wealth and viability is tied to a healthy and resilient ecosystem and biodiversity.¹⁹ For example, two-thirds of crop production in agribusiness rely on animal pollination while half of global gross domestic product is generated directly from renewable and nonrenewable natural resources, such as wood and natural stones used for construction and infrastructure development, which is valued at US\$44 trillion.²⁰ Given the strategic importance of preserving and conserving biodiversity, it is essential to mainstream pro-biodiversity programs into all key sectors and development planning.

Biodiversity loss is a global emergency.²¹ Over 37,000 species are on the verge of extinction.²² Anthropogenic activities are causing the rate of extinction to

¹⁵ D. C. Magnaye, "Climate Smart Agriculture Edu-tourism: A Strategy to Sustain Grassroots Pro-biodiversity Entrepreneurship in the Philippines" in U. Stankov et al. (eds), *Cultural Sustainable Tourism. Advances in Science, Technology & Innovation* (Springer 2019) 203–218.

¹⁶ R. E. Bitoun, G. David, and R. Devillers, "Strategic Use of Ecosystem Services and Co-benefits for Sustainable Development Goals" (2023) 31 *Sustainable Development* 3, 1296.

¹⁷ E. D. Kooijman et al., "Innovating with Nature: From Nature-Based Solutions to Nature-Based Enterprises" (2021) 13 *Sustainability* 3, 1263.

¹⁸ International Finance Corporation (n 3) 1–5.

¹⁹ P. Dasgupta and S. Levin, "Economic Factors Underlying Biodiversity Loss" (2023) 378 *Philosophical Transactions of the Royal Society B: Biological Sciences* 1881.

²⁰ International Finance Corporation (n 3) iii–v.

²¹ C. Rodríguez-Garavito and D. R. Boyd, "A Rights Turn in Biodiversity Litigation?" (2023) 12 *Transnational Environmental Law* 3, 498.

²² M. J. Evans et al., "Reintroduction Biology and the IUCN Red List: The Dominance of Species of Least Concern in the Peer-Reviewed Literature" (2022) 38 *Global Ecology and Conservation* e02242.

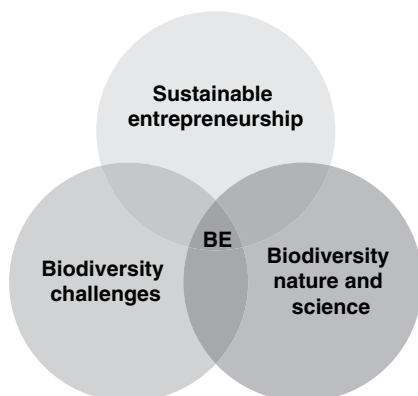


FIGURE 10.1 Biodiversity entrepreneurship
Source: Author.

be 100 times faster than what might otherwise be a natural pace.²³ There is an urgent need to halt and reverse biodiversity loss through innovative investment approaches that leverage biodiversity conservation as a tool for sustainable economic development. For example, the incorporation of low-impact development tools, such as vegetative swale, permeable pavements, infiltration trenches, green roofs, bioretention cells, and rain gardens, in urban-planning phases in Egypt showed a significant reduction in volume of runoff flood water by 73.7 percent.²⁴ More projects such as the 2019 Falaj restoration, implemented at Wadi Shees, and the 2021 Al Bithnah Environmental Conservation and Rehabilitation project, are needed.²⁵

As demonstrated in Figure 10.1, biodiversity entrepreneurship has emerged as a framework for promoting the development and implementation of business models and solutions aimed primarily at conserving the natural environment and halting biodiversity loss.²⁶ Its primary aim is to leverage entrepreneurship, namely the start-up or running of business enterprises, that is focused on developing ecological value.²⁷ Biodiversity entrepreneurship is an effective vehicle through which to

²³ P. Hunter, “Genetics against Extinction: New Conservation Strategies Consider Genetic Diversity and Habitat Loss” (2023) 24 *Science and Society* 7, 202357521.

²⁴ A. Young, B. Bhattacharya, and C. Zevenbergen, “A Rainfall Threshold-Based Approach to Early Warnings in Urban Data-Scarce Regions: A Case Study of Pluvial Flooding in Alexandria, Egypt” (2021) 14 *Journal of Flood Risk Management* 2, e12702.

²⁵ Emirates Nature-WWF, *Annual Report: A Conservation Diary* (2022) 19, 23 www.emiratesnaturewwf.ae/sites/default/files/doc-2022-05/Emirates%20Nature-WWF%202021%20Annual%20Report%20ENG.pdf accessed January 12, 2024.

²⁶ Joshua Bishop (ed), *The Economics of Ecosystems and Biodiversity* (Routledge 2018) 1–15.

²⁷ M. Stefano, “Towards an Ecological Economic Theory of Innovation” <http://dx.doi.org/10.2139/ssrn.4394539> accessed January 12, 2024.

generate pro-biodiversity solutions and management strategies.²⁸ Biodiversity entrepreneurship marries the key concepts of entrepreneurship (entrepreneur, entrepreneurial opportunity, entrepreneurship context, and entrepreneurship outcome)²⁹ and the sustainability triple bottom line (social, economic, and environmental value),³⁰ while integrating the nature and science of biodiversity (spatial diversity, element of time, interconnectedness, dynamic value, and stakeholder interaction),³¹ to develop innovative business models that halt and reverse biodiversity.

Hence, biodiversity entrepreneurship is put forward as the process of entrepreneurs recognizing, exploiting, and generating entrepreneurial opportunities to create sustainable entrepreneurial outcomes via ecological solutions focused on halting and reversing biodiversity loss. This has led to the shift from traditional, centralized monopoly business models toward decentralized, disruptive, localized, community-led business modes captured by citizens.

10.2.1 Framework for Pro-biodiversity Business Model Innovation

As demonstrated in Figure 10.2, which draws extensively from Lobo's framework for conservation entrepreneurship,³² biodiversity entrepreneurship and business model innovations can be framed as having six core elements:

1. *Spatial diversity*: In assessing entrepreneurial opportunities, considerations of a wide range of biogeographical characteristics must be included to design the right business models that are able to capture the right opportunities and provide sustainable value.
2. *Element of time*: The entrepreneurial opportunities will vary with the season, will naturally fluctuate according to the level of species diversity, and must be considered in business model design.
3. *Interconnectedness*: Ecopreneurs and NB-SMEE owners must consider the biophysical impact of enterprise (entrepreneurial outcome) in order to prevent nature disservice and bioperverse effects.³³
4. *Dynamic value*: Sustainable business model innovations interact with the entrepreneurial ecosystem (entrepreneurial context), which in turn act as

²⁸ S. Herbert, P. Bradley, and M. Everard, "Exploring the Prioritisation of Biodiversity amongst Small-to Medium-Sized Enterprise Leaders with Strong Bigger-than-Self Value Orientation" (2023) 32 *Business Strategy and the Environment* 8, 5633.

²⁹ Lobo et al. (n 1) 110078.

³⁰ A. T. Rosário, R. J. Raimundo, and S. P. Cruz, "Sustainable Entrepreneurship: A Literature Review" (2021) 14 *Sustainability* 9, 5556 14095556.

³¹ M. McBrien, M. Zimonyi, and D. Astley, "Climate Disclosure Standards Board (CDSB)" (2021) *World Scientific Encyclopedia of Climate Change* 29.

³² Lobo et al. (n 1).

³³ E. D. Kooijman et al. "Innovating with Nature: From Nature-Based Solutions to Nature-Based Enterprises" (2021) 13 *Sustainability* 3, 1263.

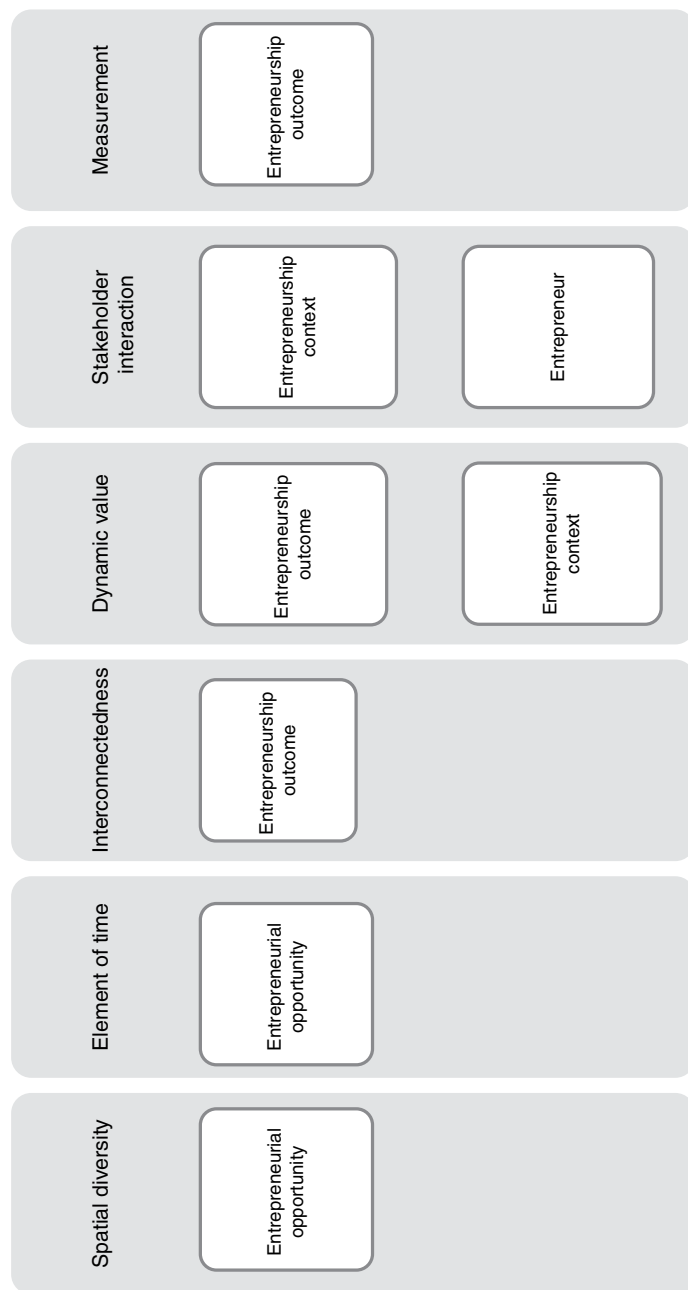


FIGURE 10.2 Elements of biodiversity entrepreneurship and business model innovations
Source: Author.

either the promoters of or the barriers to capture sustainable value at various diversity scales (entrepreneurial outcome).

5. *Stakeholder interaction*: Entrepreneurs, actors, governing bodies, and community members influence the entrepreneurial context. Multistakeholder collaboration is therefore required to effectively maximize biodiversity financing and address legal and regulatory frameworks that act as barriers or promoters of nature-based business models.
6. *Measurement*: This captures the requirement for homogenous, consistent, comparable, and clear typology in metrics, assessment, and the information collation process,³⁴ to measure, accurately capture, and present value to investors, financial institutions, and stakeholders.

The six elements emphasize the strategic investment in biodiversity and nature-based programs that can offer environmental, social, and economic co-benefits. Small and medium-sized enterprises (SMEs) are increasingly identified as effective incubators for rapidly generating such nature-based sustainable business model innovations that halt and reverse biodiversity loss.³⁵ SMEs are the backbone of global economy and account for 80–90 percent of total business in the MENA region,³⁶ as they are resilient and responsive to societal needs.³⁷ NB-SMEEs provide nature-based solutions that generate relative or absolute restoration and reversal of biodiversity loss, while bringing both social benefits that are noneconomic and economic value to eco-entrepreneurs and society.³⁸ These nature-based solutions include forest conservation efforts, ecotourism, green spaces, blue-green infrastructure, and nature-based innovation and projects that mitigate against floods, regulate atmospheric temperatures, and contribute to the health and well-being of urban citizens,³⁹ and are operated via local and civil participation. Furthermore, NB-SMEEs are categorized based on direct value contribution (entrepreneurial outcome) such as: green buildings, sustainable framing, water treatment and management, conservation, restoration, and the creation and the management of biodiversity. NB-SMEEs can contribute indirect entrepreneurial outcomes such as biodiversity assessment techniques, smart technologies for biodiversity monitoring,

³⁴ Taskforce on Nature-Related Financial Disclosures, “Recommendations of the Taskforce on Nature-Related Financial Disclosures” (2023) 3 https://tnfd.global/wp-content/uploads/2023/08/Recommendations_of_the_Taskforce_on_Nature-related_Financial_Disclosures_September_2023.pdf accessed January 12, 2024.

³⁵ Herbert et al. (n 28) 3440.

³⁶ Wael El-Deouki Bedda, “Entrepreneurial Marketing for the International Growth of Niche SMEs: An Explanatory Study in the MENA Region” PhD Thesis (Cardiff Metropolitan University 2022) 12.

³⁷ J. DiBella et al., “Exploring the Potential of SMEs to Build Individual, Organizational, and Community Resilience through Sustainability-Oriented Business Practices” (2022) 32 *Business Strategy and the Environment* 1, 721 <https://doi.org/10.1002/bse.3171> accessed January 14, 2023.

³⁸ Lobo et al. (n 1).

³⁹ Ibid.

green financial services, advisory services, and research, innovation, and education.⁴⁰ The benefits of NB-SMEEs include increased biodiversity, pollution mitigation, and ecosystem resilience to environmental hazards, as well as greater food security and human health and well-being.

The success of these NB-SMEEs is either enabled or constrained by interactions within the entrepreneurial context.⁴¹ These include societal pressures, norms, regulations, and policies which influence consumption patterns, market structure, and purchase behavior. Currently, NB-SMEEs are growing at a slow pace in the MENA region due to legal and policy barriers in the entrepreneurial context that limit the innovation, establishment, and operationalization of these NB-SMEEs.⁴² These barriers hinder the research, innovation, and legalization of NB-SMEEs via a lack of clear implementation guidelines for ecological citizens and ecopreneurs, limited financial channels, lack of social capital and access to land, low capacity to capture and clearly define value, and low market demand for nature-based management solutions.⁴³ Section 10.3 discusses the role of law and governance in addressing such barriers to NB-SMEEs in the MENA region.

10.3 LEGAL AND INSTITUTIONAL BARRIERS TO BIODIVERSITY ENTREPRENEURSHIP IN THE MENA REGION

International instruments such as the Convention on Biological Diversity (CBD) and the GBF encourage states to integrate nature-related solutions into legal instruments, sectoral policies, and public development projects and planning to address biodiversity loss.⁴⁴ This includes addressing law and governance gaps that hinder the development and management of NB-SMEEs in a manner that promotes citizen-led efforts to halt biodiversity loss.⁴⁵

Drawing from international treaties, MENA countries have attempted to craft the law and policy frameworks required for governing and implementing nature-related solutions and ecosystem management strategies to ensure sustainability and co-benefits.⁴⁶ However, overgeneralized policies, weak legal frameworks, and

⁴⁰ S. McQuaid et al., "Innovating with Nature: Factors Influencing the Success of Nature-Based Enterprises" (2020) 13 *Sustainability* 22, 12488.

⁴¹ R. Zaidi et al., "Do Entrepreneurship Ecosystem and Managerial Skill Contribute to Startup Development?" (2023) 12 *South Asian Journal of Business Studies* 1, 25.

⁴² M. J. Collier et al., "An Integrated Process for Planning, Delivery, and Stewardship of Urban Nature-Based Solutions: The Connecting Nature Framework" (2023) 3 *Nature-Based Solutions* 100060.

⁴³ E. D. Kooijman et al., "Innovating with Nature: From Nature-Based Solutions to Nature-Based Enterprises" (2021) 13 *Sustainability* 3, 1263.

⁴⁴ CBD, "Preparation for the Post-2020 Biodiversity Framework" www.cbd.int/conferences/post2020 accessed January 12, 2024.

⁴⁵ See CBD, "Expert Input to the Post-2020 Global Biodiversity Framework: Transformative Actions on All Drivers of Biodiversity Loss Are Urgently Required to Achieve the Global Goals by 2050" www.cbd.int/doc/c/5735/c241/efeeac8d7685af2f38d75e4e/sbstta-24-inf-31-en.pdf accessed January 12, 2024.

⁴⁶ Olawuyi (n 13) 245–272.

fragmented institutional structures in the MENA region have created barriers and an unfavorable entrepreneurial context for the rapid growth of NB-SMEEs.⁴⁷ Some of the salient legal, regulatory, and financial barriers to NB-SMEES across the region are now discussed.

10.3.1 *Lack of Coordinated Implementation of National Biodiversity Strategies*

Although several MENA countries have developed National Biodiversity Strategies, institutional barriers that prevent the coherent and holistic implementation of such strategies, including the development of specific strategies that support and facilitate NB-SMEEs, remains a key gap.⁴⁸ For example, the Convention on the Conservation of Wildlife and Their Natural Habitats in the Countries of the Gulf Co-operation Council (the GCC Wildlife Convention), Articles 6 and 7, calls for the establishment of governing committees and secretariats focused on monitoring of wildlife and natural habitat.⁴⁹ Similarly, the Arab League Educational, Cultural and Scientific Organization (ALESCO) encourages Arab states to collaborate and generate frameworks that provide education and training for community members in protection and conservation practices of nature-based cultural heritage.⁵⁰ Also, the Arab Declaration on Environment and Development and Future Prospects calls on Arab states to establish initiatives, policies, and legislation that promote the preservation of natural heritage and the integration of environmental awareness into educational syllabi.⁵¹ These instruments emphasize the need for multistakeholder engagement and coordination in the design and implementation of biodiversity policies and programs, including Nature Based Strategies.

Yet across the region, evidence of the establishment of intragovernmental risk management bodies to implement Nature Based Strategies are slow to emerge. Given the wide range of institutions that are responsible for approving and implementing biodiversity entrepreneurship programs, especially finance, environment, commerce, technology, and infrastructure agencies and institutions, the sectoral

⁴⁷ V. D. Litskas et al., “Innovation in Water Education Programs in the Eastern Mediterranean to Enhance Security and Socio-economic Development under Climate Change” (2023) 8 *Euro-Mediterranean Journal for Environmental Integration* 253; Mabrouk et al. (n 10).

⁴⁸ J. S. Singh, “The Biodiversity Crisis: A Multifaceted Review” (2002) 82 *Current Science* 6, 638–647.

⁴⁹ Olawuyi (n 13) 245–272; see also: Cooperation Council for the Arab States of the Gulf, “Convention on the Conservation of Wildlife and Their Natural Habitats in the Countries of the Gulf Co-operation Council,” Articles 6 and 7 www.gcc-sg.org/en-us/CognitiveSources/DigitalLibrary/Lists/DigitalLibrary/Forests%20pastures%20and%20wildlife/1274593978.pdf accessed January 14, 2024.

⁵⁰ Ibid.

⁵¹ Ibid.; see also United Nations Digital Library, “Arab Declaration on Environment and Development and Future Prospects” (1991) <https://digitallibrary.un.org/record/1292205?ln=es> accessed January 14, 2024.

implementation of Nature Based Strategies and lack of coordination among the wide range of regulatory institutions remains a key hindrance.⁵² A lack of coordination among regulatory institutions has led to vulnerabilities in the infrastructure and technologies required for the implementation of innovative nature-based business models.⁵³ Governance fragmentation reduces the collaborative capacity and access to financial support required for start-up NB-SMEEs.⁵⁴ Furthermore, the lack of harmonized institutional structures and implementation strategies to simplify incorporation requirements and reduce bureaucracy and lengthy procedures creates inefficiency, overlapping responsibilities, and an inability to translate regulations to the local level.⁵⁵ Additionally, the lack of specific committees specialized in providing and enforcing standards and principles for implementing NB-SMEE strategies, as well as the lack of effective coordination between related and connected agencies that facilitate approvals of nature-based SMEE projects, hinders coherent implementation.

Furthermore, a lack of specific institutions, organizations, and committees that mainstream NB-SMEEs within national governance remains a key problem.⁵⁶ While NB-SMEEs are gaining increased recognition and awareness across the region, the establishment of focal agencies that will spearhead nature-based entrepreneurship and investments remains slow. Institutional harmonization and the creation of strategic governing committees are required to integrate and enforce nature-based implementation regulatory standards, steward financial resources, establish policies that promote collaborations, and broaden financial channels that facilitate the innovation, capacity building, establishment, growth, and upscaling of NB-SMEEs.⁵⁷

10.3.2 *Unclear Legal Framework for Nature-Based Enterprises*

A significant barrier to the growth of NB-SMEEs is the lack of clear and specific mention of biodiversity-focused eco-entrepreneurship and NB-SMEEs in national

⁵² I. Abumoghli and A. Goncalves, “Environmental Challenges in the MENA Region” https://wedocs.unep.org/bitstream/handle/20.500.11822/31645/EC_MENA.pdf?sequence=1&isAllowed=y accessed January 12, 2024.

⁵³ R. Namdar, E. Karami, and Keshavarz M., “Climate Change and Vulnerability: The Case of MENA Countries” (2021) 10 *ISPRS International Journal of Geo-Information* 11, 794.

⁵⁴ P. Laderach et al., “Strengthening Climate Security in the Middle East and North Africa Region” position paper (CGIAR FOCUS Climate Security 2022/3).

⁵⁵ R. Mrabet et al., “Policy Review: Up-scaling (Co)-benefits, Opportunities, and Alternatives: Policy Review Document and Institutional Feasibility Analysis Report” (REACT4MED Consortium 2022) 1–10.

⁵⁶ On the need for mainstreaming NBS in national governance, see: UNEP, “Compendium of Contributions on Nature-Based Solutions” https://wedocs.unep.org/bitstream/handle/20.500.11822/29988/Compendium_NBS.pdf accessed January 12, 2024.

⁵⁷ Ibid.

biodiversity legislation and strategies.⁵⁸ Article IX of the African Convention on the Conservation of Nature and Natural Resource, which applies to MENA countries in the Maghreb region, encourages states to integrate conservation practices and programs in regional and urban planning. Article XII calls for legislation that protects and prevents the loss of nature-based cultural heritage, animals, and plants. Article XVII calls for legislation integrated into the intellectual and traditional property and land ownership rights of community members that promote autonomy in conservation and promotion of biological diversity practices. Also, the Arab Declaration to the World Summit on Sustainable Development encourage parties to integrate sustainable management innovations that promote biodiversity and ecosystem conservation while capturing economic value from rich religious and cultural heritage. Yet there is a lack of clear regulatory frameworks and laws that integrate NB-SMEEs into the financial sector, as well as the development and implementation of government projects. Additionally, context-based policies that clearly capture and generate pro-biodiversity projects and increase market demand for nature-based technologies and solutions are generally lacking.⁵⁹

To make NB-SMEEs attractive to social entrepreneurs, there is a need for tailored strategies and legislation that address barriers to the development and formalization of such ventures. For example, Ecuador has specifically implemented the PROAmazonia project to “enable economic transformation by supporting local entrepreneurial efforts to sustainably develop non-timber forest products, thus increasing the economic value of the forests, while maintaining ecosystem function and diversifying income sources for local communities.”⁶⁰ The project enables social entrepreneurs to access the financing, business registration, resources, and tools needed for them to undertake forest conservation projects. There is a need for MENA countries to specifically design and implement such legal intervention programs and efforts. The lack of tailored legislation and policies that integrate NB-SMEEs into conservation, investment, and financial planning exposes nature-based entrepreneurs to broadly framed business laws and procedures that may not have been designed with environmental conservation in mind. This results in delays and the slow uptake of NB-SMEEs.⁶¹

Second, ensuring compliance with environmental impact assessment laws can open up opportunities for NB-SMEEs to emerge. For example, the GCC Wildlife

⁵⁸ J. S. Singh, “The Biodiversity Crisis: A Multifaceted Review” (2002) 82 *Current Science* 6, 647; M. Hachaichi and T. Baouni, “Downscaling the Planetary Boundaries (PBS) Framework to City Scale-Level: De-risking MENA Region’s Environment Future” (2020) 5 *Environmental and Sustainability Indicators* 100023.

⁵⁹ Mabrouk et al. (n 10).

⁶⁰ See UNEP, “Compendium of Contributions on Nature-Based Solutions” https://wedocs.unep.org/bitstream/handle/20.500.11822/29988/Compendium_NBS.pdf accessed January 12, 2024.

⁶¹ M. Hachaichi and T. Baouni, “Downscaling the Planetary Boundaries (PBS) Framework to City Scale-level: De-risking MENA Region’s Environment Future” (2020) 5 *Environmental and Sustainability Indicators* 100023.

Convention Article 1(3) calls for clear regulations and legislations for environmental impact assessment (EIA) pre-project approval requirements to quantify impact on biodiversity.⁶² Similarly, Article 1(3) also calls for GCC countries to enact legislation making environmental assessments compulsory. The Kuwait Regional Convention on Protection of Marine Environment and Protocols require associated parties to draw from international law to develop marine pollution prevention measures.⁶³ Virtually all MENA countries have also enacted legislation that mandate EIAs, including the examination of biodiversity impacts, prior to the approval of key development projects.⁶⁴ However, gaps in the enforcement of such mandatory EIA standards, especially the tendency of large-scale and politically sensitive projects to evade EIAs, often reduce biodiversity considerations in some projects. Similarly, generalized EIAs without a clear focus on biological diversity and other tangible and intangible conservation needs have been highlighted as gaps in the MENA region.⁶⁵ Enforcing EIA standards will automatically increase the need for biodiversity solutions and accelerate the demand for goods and services offered by NB-SMEEs. For example, laws that require the mapping of natural heritage via a remote sensing survey allow the quantifying, characterizing, and raising of awareness of the unique biological diversity for specific regions, as well as specific opportunities of sustainable value creation. Similarly, most marine protected areas in the MENA region have focused more on natural heritage in appraisals and management plans with little emphasis on cultural heritage.⁶⁶ This significantly impacts ecotourism business models and limits the governance and support required to establish and grow ecotourism business models. These limitations can engineer the reputational damage of ecological citizens and result in negative impacts on end-users. Ensuring the comprehensive implementation of EIA programs, such as the integration of cultural heritage in marine protection areas, can significantly support and accelerate NB-SMEE growth and upscaling.⁶⁷

10.3.3 *Unclear Legal Framework on Joint Governance and Partnerships*

ALESCO encourages Arab states to collaborate through joint and strategic partnerships with community members and heritage institutions, among others, to integrate social perspectives and develop management strategies that sustainably maximize social value.⁶⁸ Yet the lack of comprehensive stakeholder engagement in

⁶² Olawuyi (n 13) 245–272.

⁶³ Ibid.

⁶⁴ Ibid.

⁶⁵ Mabrouk et al (n 10).

⁶⁶ C. Breen et al., “Integrating Cultural and Natural Heritage Approaches to Marine Protected Areas in the MENA Region” (2021) 132 *Marine Policy* 104676.

⁶⁷ Ibid.

⁶⁸ Olawuyi (n 13) 269–260.

the design and implementation of biodiversity and nature conservation programs remains a key challenge in the MENA region.

Across the region, public participation in environmental decision-making is often structured in formal institutions such as the Shura Council.⁶⁹ While important, such a top-down decision-making approach limits the potential of countries to harness partnerships with nonstate actors such as stakeholders, entrepreneurs, indigenous communities, landowners, and government institutions toward halting and reversing biodiversity loss. The lack of clear and comprehensive laws to define the roles and responsibilities of state and nonstate actors often limits public–private partnerships and the shared governance of biodiversity programs.⁷⁰

There is a need for more partnerships for the financing, planning, and implementation of nature-based projects. For example, the World Wide Fund for Nature collaboration with local and global experts to assess the United Arab Emirates' (UAE) coastal ecosystem and value the natural capital functions by identifying the locations of ecological corridors, evaluating the ecological knowledge, and analyzing the scientific data, which in turn can be used to develop contextual nature-based solutions and intervention strategies for the conservation, restoration, and innovation of NB-SMEEs.⁷¹

Substantive collaborations with universities and institutions that promote research and development regarding nature-based innovation and eco-entrepreneurship will also need to be accelerated across the MENA region.⁷² The objective of transitioning to a knowledge economy through environmental education, research, and capacity building has been identified in national visions and is a priority in several countries in the region.⁷³ While environmental education and entrepreneurship programs are increasing, the need for biodiversity-focused collaborations with higher education institutions remains prevalent. An effective ecosystem management strategy incorporates both scientific and societal-based evidence approaches in identifying and creating pro-biodiversity strategies and conservation practices.⁷⁴ ALESCO encourages collaboration and joint action in the area of conservation and protection through organized training and frameworks that promote strategic partnerships and joint actions, and the Arab Declaration to the World Summit on

⁶⁹ Ibid.

⁷⁰ B. Macura, L. Secco and A. Pullin, "What Evidence Exists on the Impact of Governance Type on the Conservation Effectiveness of Forest Protected Areas? Knowledge Base and Evidence Gaps" (2015) 4 *Environmental Evidence* 24; also A. Elmahdi et al., "Urban Flash Floods Mitigations: Enhancing the Link between Water, Sanitation and Energy Services in Urban Settings in the MENA Region" (2020) 4 *Advancements in Civil Engineering & Technology* 2.

⁷¹ Emirates nature-WWF (n 25) 17–18.

⁷² A. Ormert, *Drivers and Barriers to Environmental Engagement in the MENA Region* (Institute of Development Studies 2020) 1–5.

⁷³ See for example, Government of Qatar, *Qatar National Vision 2030* (General Secretariat for Development Planning [GSDP] 2008).

⁷⁴ Mabrouk et al. (n 10).

Sustainable Development encourages collaborative efforts toward biological diversity and ecosystem conservation and to develop sustainable management practices with co-benefit values.⁷⁵ These instruments underpin the need for regulatory institutions across the MENA region to promote shared programs aimed at accelerating biodiversity-focused entrepreneurship and NB-SMEE business models.⁷⁶

10.4 MINDING THE GAPS: RECOMMENDATIONS

Accelerating nature-based solutions for biodiversity across the region will require clear and comprehensive legal frameworks and strategies to promote the active development of citizen-led NB-SMEE business models. To advance NB-SMEE business models, all MENA countries need to reform legal frameworks that impede or slow down their implementation. This includes the need to develop national accountability strategies that develop into local and community innovation, assessments, and reporting. The MENA region can draw on international frameworks, especially the GBF, to inform policy reforms in finance and governance institutions to transform national policy and legal and institutional frameworks. This will broaden financial channels by promoting: green financing, incentives, and subsidies; reporting standards; and enterprise requirements to disclose nature-related dependencies, opportunities, risks, and impacts as an eligibility requirement to assess green investors, green loans, incentives, and subsidies. For example, the Priceless Planet Coalition created an initiative for funding management projects to restore forest ecosystems and mangrove habitats in the UAE and hence legitimate the grounds to solicit financial resources from banks and other partners.⁷⁷ By adopting the Avoid, Reduce, Restore and Regenerate, Transform framework, the MENA region can develop policies that support NB-SMEEs with minimal to no impact to biodiversity, and pro-biodiversity business models that directly or indirectly reduce, restore, and regenerate ecological productivity and biophysical and ecosystem functions and services.⁷⁸ For example, transformative policies that encourage human resource development, auditing and accountancy, education programs, information technology, and a flexible and favorable legal framework (e.g. incentives, tax breaks, exemption from antitrust laws, low-credit interest, access to information, infrastructure, and land)⁷⁹ can engineer a favorable entrepreneurial context that supports the rapid establishment and growth of NB-SMEEs in the MENA region.

The GBF calls for a decentralized governance approach toward community-based, citizen-led management strategies to tackle biodiversity loss. Implementation

⁷⁵ Olawuyi (n 62) 245–272.

⁷⁶ Mabrouk et al. (n 10).

⁷⁷ Emirates nature-WWF (n 25) 45–46.

⁷⁸ Taskforce on Nature-Related Financial Disclosures (n 34).

⁷⁹ E. Ribasauskiene et al., “Evaluating Public Policy Support for Agricultural Cooperatives” (2019) 11 *Sustainability* 14, 3769.

will require holistic and transformative legal and policy frameworks developed by the MENA region that places citizens at the center of pro-biodiversity governance. The GBF supports implementation strategies with indicators such as openness, transparency, and legitimacy, as well as strategies which address gaps in social learning regarding the nature of ecosystems and biodiversity, and which focus on disparities in policy frameworks by eliminating the dominance by few power players in policy design. Furthermore, the GBF supports the integration of ecosystem services and valuation, of perceptions and knowledge of community and indigenous society, and of social and religious values into these implementation strategies.⁸⁰ The transformative governance of biodiversity promotes the knowledge and skill empowerment of citizens to develop nature-based sustainable business innovations, access and source for multiple financial channels, and successfully implement pro-biodiversity business models. It integrates pro-biodiversity policies and ecosystem management projects with helpful institutional structures, financial incentives, and support programs that engineer a supportive entrepreneurial context by simplifying the incorporation, registration, and legitimacy of NB-SMEs in the MENA region. It also facilitates the significant contribution of biodiversity entrepreneurship in achieving both national and international biodiversity targets. For example, the Urban Governance Atlas is an online database of 250 policy instruments aimed at financing and deploying nature-based solutions that halt and reverse biodiversity loss.⁸¹ This licensed platform aims to design inclusive and coherent strategies, green space planning, and ecological restoration projects through a bottom-up, community-led approach. Both government and nongovernmental agencies in MENA nations should utilize such information platforms to design policy instruments that promote citizen-led nature-based solutions, projects, technologies, and social instruments. For example, the Community of Latin American and Caribbean states cooperatives instrument is based on agreements to jointly engage in pro-biodiversity and nature-based activities. The MENA nations can collaborate at a local level to form agreement-based eco-cooperatives of the MENA region.⁸²

To advance NB-SMEs in the MENA region, legal and institutional decluttering is required. There is a need for harmonizing and eliminating the overlap of governing institutions to promote a smooth process regarding eligibility, requirements, and licensing procedures for implementing nature-based start-ups. Unclear regulations and administrative delays must be addressed by narrowing down requirements and the registration time frame as well as incentivizing registration and licensing

⁸⁰ I. J. Visseren-Hamakers et al., "Transformative Governance of Biodiversity: Insights for Sustainable Development" (2021) 53 *Current Opinion in Environmental Sustainability* 20.

⁸¹ McKenna Davis, "Nature-Based Solutions in European Policy: A Framework for Enhancing Local Action" (Ecologic Institute: Science and Policy for a Sustainable World, October 5, 2023) www.ecologic.eu/sites/default/files/presentation/2023/Davis-23-EU-Policy-Framework-ERRIN-workshop.pdf accessed January 12, 2024.

⁸² Ibid.

processes. This will boost trust in citizens to incorporate nature-based ventures and projects. For example, the concept of an Interinstitutional Gap (IIG) framework is proposed to address institutional gaps and mismatch in a socio-ecological context by assessing interactions and the impacts of constitutional choices and operational outcomes.⁸³ Furthermore, nature-based government initiatives and projects require specialized institutions and organizations focused on the governing, enforcing, and streamlining of regulations and laws to facilitate approvals and implementation standards for projects and ecosystem management strategies. These institutions will provide a “one-stop shop” for information on how to access financial support, education, skill and incentives, and partnerships for ecopreneurs to help with navigating challenges and optimizing success possibilities in the journey of nature-based entrepreneurship. The institutions also stand as an information pod for investors for a better understanding of methodologies, procedures, and ecological value assessment for informed and confident decision-making. The MENA nations can develop an IIG framework implemented by an assigned organization or government body to address institutional gaps, without which biodiversity and sustainable natural resource management cannot be attained.⁸⁴

The lack of government interest must be addressed to match the urgency to halt and reverse biodiversity loss. Governments and policymakers must design policy frameworks that prioritize the fast-tracking of incorporation and licensing processes for nature-based enterprises. For example, training and programs aimed at empowering and accelerating processes from start-up to establishment must be prioritized in policy design to centralize and maximize social capital toward mitigating biodiversity loss. To maximize social capital, reforms in laws, procedures, rules, and regulations are required to broaden the eligibility and opportunities for public participation in nature-based projects. For example, eliminating eligibility rules limited to nationals, locals, or certain educational qualifications alone can unlock a broad range of public participation and promote inclusivity and democracy in governance, which are indicators of transformative governance favorable to pro-biodiversity innovations. The incorporation and prioritization of nature-based concepts and solutions in EU policy instruments and financial instruments that promote the financing, deployment, and market integration of nature-based solutions can be emulated by governing bodies in the MENA region. For example, the EU Green Infrastructure Strategy (2013) addresses biodiversity; L'Instrument financier pour l'environnement (2018) provides targeted financial support; the Blue Growth Strategy (2012) addresses marine ecosystem; the Forest Strategy (2013) targets forestry; and the Urban Agenda (2016) targets agriculture.⁸⁵ In the MENA region, developing

⁸³ H. Tuihedur Rahman et al., “A Framework for Analyzing Institutional Gaps in Natural Resource Governance” (2017) 11 *International Journal of the Commons* 2, 823.

⁸⁴ Ibid.

⁸⁵ M. Davis et al., *Nature-Based Solutions in European and National Policy Frameworks* (European Commission 2018) 50.

a framework that integrates and prioritizes nature-based business solutions and concepts in all policy instruments in a consistent, thematic, and synchronized fashion will foster the rapid deployment of NB-SMEEs across the MENA region. For example, creating a thematic nature-based framework – such as marine, terrestrial, agriculture, tourism, biodiversity, adaptation, environmental assessment, or cultural heritage – with assigned policy instruments can encompass the entirety of halting and reversing biodiversity loss while boosting pro-biodiversity business models.

The MENA region lacks substantial innovative partnerships from both national and international organizations. Laws encouraging public–private partnerships must be comprehensive and clear. They must create a supportive environment with multiple supportive incentives such as financial channels, access to research and innovation, technology, training, education, and international collaborations that promote the establishment and growth of NB-SMEEs. Laws which provide clear and comprehensive nature value assessments guidelines, and which clarify the role of government in incentive provisions, implementation standards, and regulatory approvals, will boost the confidence of private investors. For example, partnerships with educational institutions to generate clear scientific-based nature value assessments would help investors to predict returns on investment from nature-based projects, while also promoting the tax and financial incentives from the financial institutions needed to boost project resources and sustainable competitiveness. As already mentioned, the example of the EU intergovernmental Urban Agenda is an initiative that promotes thematic partnerships with EU institutions, governments, cities, and partners to broaden financial channels, build knowledge, and streamline regulations to incentivize nature-based solutions and the sustainable use of natural resources.⁸⁶

Creating a supportive entrepreneurial context for NB-SMEEs will require engineering a favorable market structure for nature-based value proposition in the MENA region. Comprehensive laws that generate government conservation and green-planning projects will secure a favorable market for nature-based technologies, solutions, and enterprises. For instance, laws that promote the integration of artificial ecosystems through green urban planning will provide a steady demand for nature-based technologies and eco-ventures, which allow for the financial growth and asset development required for investment. The Australian Commonwealth Nature Repair Market Bill 2023 creates a favorable framework via biodiversity certificates that are tradable, provides transparent and clear pro-biodiversity entrepreneurial outcomes, and promotes investment in pro-biodiversity projects by companies, Australian landholders, and individuals.⁸⁷

⁸⁶ Urban Agenda for the European Union, “Sustainable Use of Land and Nature-Based Solutions Partnership” https://ec.europa.eu/futurium/en/system/files/ged/leaflet_sulnbs_en.pdf accessed January 12, 2024.

⁸⁷ S. Daly et al., “Federal Government Introduces New Biodiversity Credit Market Legislation” <https://jws.com.au/insights/articles/2023-articles/federal-government-introduces-new-biodiversity> accessed January 12, 2024.

Lastly, communities, citizens, and indigenous members of society can engineer a favorable entrepreneurial context by establishing local associations and self-help groups that create community awareness.⁸⁸ For example, the Arcandina Foundation promotes awareness of biodiversity in the Ecuadorian community through television shows, while the Inland Shore Wieringermeer Project combines action from ecopreneurs, the indigenous community, and society members to produce ecosystem services and generate new markets.⁸⁹ These associations are knowledge hubs that assist in providing information to biodiversity entrepreneurs on the available investment and financial opportunities, intellectual property protection contract designing, and compliance with human rights and environmental, social, and governance requirements, among other things.⁹⁰ According to the Taskforce on Nature-Related Financial Disclosures, 80 percent of the world's biodiversity is governed by indigenous community members, and therefore traditional nature-based knowledge provided by community and indigenous members is invaluable and provides a fundamental contribution toward pro-biodiversity management strategies.⁹¹

10.5 CONCLUSION

Calls for sustainable innovative management strategies to halt and reverse biodiversity loss will require the transformative governance of biodiversity in order to realize the full potential of nature-based enterprises. These nature-based business models require an entrepreneurial context that favors innovation and the successful introduction and integration into market economies and governance institutions. Biodiversity entrepreneurship provides both the incubator and the engine for generating nature-based, pro-biodiversity business models. NB-SMEs are not a replacement for other conservation practices but they do offer the supplementary solutions needed to steadily halt and reverse biodiversity loss.

However, the lack of a supportive legal, regulatory, and financial entrepreneurial context that promotes these citizen-led NB-SMEs continues to inhibit biodiversity entrepreneurship across the MENA region. Legal, regulatory, and financial factors are considered the most significant external barriers to the awareness, establishment, and growth of NB-SMEs and the attainment of the GBF targets of 2030 and 2050 in the MENA region. MENA countries should therefore develop supportive policies, laws, and economic instruments that remove barriers to the market development of nature-based solutions. To facilitate the growth, establishment, and upscaling of NB-SMEs, MENA countries would need to transition toward transformative

⁸⁸ J. Singh, "The Biodiversity Crisis: A Multifaceted Review" (2002) 82 *Current Science* 6, 638.

⁸⁹ Lobo et al. (n 1).

⁹⁰ S. McQuaid, "Innovating with Nature: Factors Influencing the Success of Nature-Based Enterprises" (2021) 13 *Sustainability* 22, 12488.

⁹¹ Taskforce on Nature-related Financial Disclosures (n 34).

governance initiatives that streamline the process for commercializing nature-based solutions and innovations.

Institutional and policy fragmentations that produce generalized policies and regulatory standards that complicate private sector participation in biodiversity initiatives must be dismantled. Given the barriers that such fragmentations pose to the rapid growth of NB-SMEEs, there is a need to promote greater institutional coordination and interoperability between different government agencies and institutions that have roles to play across the business development and entrepreneurial value chain.

Lastly, strategic multistakeholder partnerships between educational institutions, training programs, and think tanks are also key to advancing capacity and knowledge sharing on biodiversity entrepreneurship. Knowledge exchange could enable NB-SMEEs by generating nature-based innovations and technologies that are context-specific, boost investors awareness and understanding, and equip interested stakeholders with the tools needed to increase local participation and the registration of NB-SMEEs.