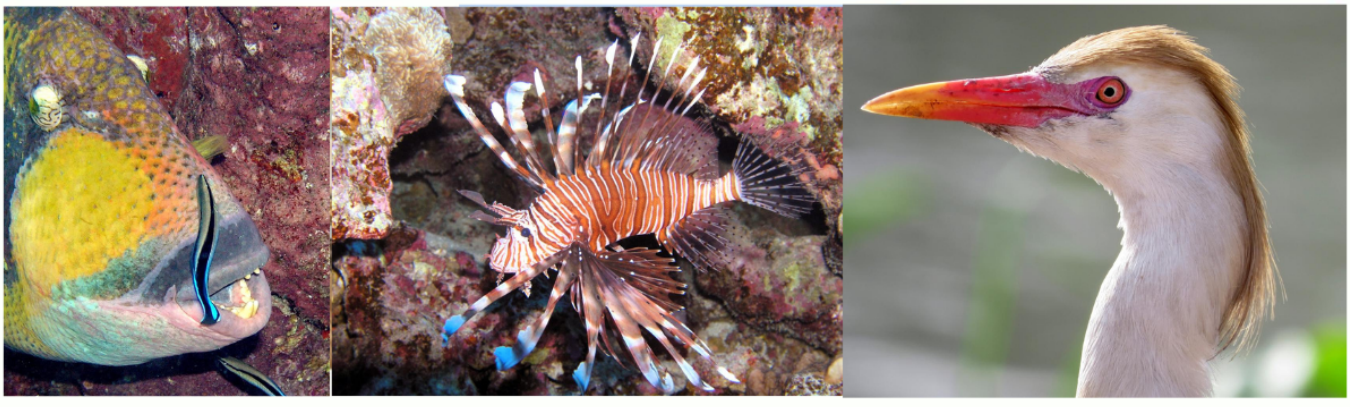
EGYPTS' BIODIVERSITY FINANCE POLICY AND INSTITUTIONAL REVIEW



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Egypt's BIODIVERSITY FINANCE POLICY AND INSTITUTIONAL REVIEW (PIR)

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A report for:

The Biodiversity Finance Initiative in Egypt (BIOFIN-Egypt)

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Abbreviations and acronyms

AFCP	Ambassadors Fund for Cultural Preservation
ASA	Accountability State Authority
BER	Biodiversity Expenditure Review
BFP	Biodiversity Finance Plan
BIOFIN	The Biodiversity Finance Initiative
CAPMAS	Central Agency for Public Mobilization and Statistics
CBD	Convention on Biological Diversity
CBE	Central Bank of Egypt
CI	Conservation International
CIDA	Canadian International Development Agency
CITES	Convention on International Trade in Endangered Species
CPF	Country Partnership Framework
CSO	Civil Society Organizations
CSR	Corporate Social Responsibility
DANIDA	Danish International Development Agency
DFID	Department for International Development of the United Kingdom
DGIS	Dutch International Cooperation Agency
DPSIR	Driver-Pressure-State-Impact-Response
EEAA	Egyptian Environmental Affairs Agency
EEA	European Environmental Agency
EFR	Environmental Fiscal Reforms
EIA	Environment Impact Assessment
EPA	Environmental Protection Authority
EPF	Environmental Protection Fund
EU	European Union
FAO	Food and Agriculture Organization
FNA	Financial Needs Assessment
GAFRD	General Authority for Development of Fish Resources
GDP	Gross Domestic Product
GEF	Global Environment Facility
GFCR	United Nations Global Fund for Coral Reefs
GHG	Greenhouse Gases
GIZ	German Technical Cooperation Agency
GoE	Government of Egypt
HEPCA	Hurghada Environmental Protection and Conservation Association
IBRD	International Bank for Reconstruction and Development
IFC	International Finance Corporation
ISES	Integrated Sustainable Energy Strategy
IMF	International Monetary Fund
ITCM	Individual Travel Cost Model
IUCN	International Union for Conservation of Nature
IUU	Illegal, Unreported, and Unregulated
LDCF	Least Developed Countries Fund
MA	Millennium Ecosystem Assessment
MedPAN	The Mediterranean Protected Areas Network
MDGs	Millennium Development Goals
MIGA	Multilateral Investment Guarantee Agency
MoE	Ministry of Environment
MoF	Ministry of Finance

MoPED	Ministry of Planning and Economic Development
NBSAP	National Biodiversity Strategy and Action Plan
NCS	Nature Conservation Sector
NCCS	Egypt National Climate Change Strategy
NGOs	Non-governmental Organizations
NORAD	Norwegian Agency for Development Cooperation
NSAP	National Biodiversity Strategy and Action Plan
ODA	Official Development Assistance
OECD	Organization for Economic Cooperation and Development
PA	Protected Area
PERSGA	Regional Organization for the Conservation of the Environment of the Red Sea and Gulf of Aden
PES	Payments for Ecosystem Services
PIR	Biodiversity Finance Policy and Institutional Review
PPA	Power Purchase Agreement
PPP	Public-Private Partnership
RAMSAR	Convention on Wetlands of International Importance
RBB	Result-Based Budgeting
SADS	Egypt's Sustainable Agricultural Development Strategy
SCCF	Special Climate Change Fund
SDGs	Sustainable Development Goals
SDS	Sustainable Development Strategy
SEA	Strategic Impact Assessment
SEEA	System of Environmental Economic Accounting
SOD	Shut Down on Demand
TEV	Total Economic Value
UNDP	United Nation Development Programme
UNEP	United Nation Environment Programme
USAID	US Agency for International Development
WB	World Bank
WHC	World Heritage Convention
WTP	Willingness to Pay
WWF	World Wildlife Fund
ZTCM	Zonal Travel Cost Model

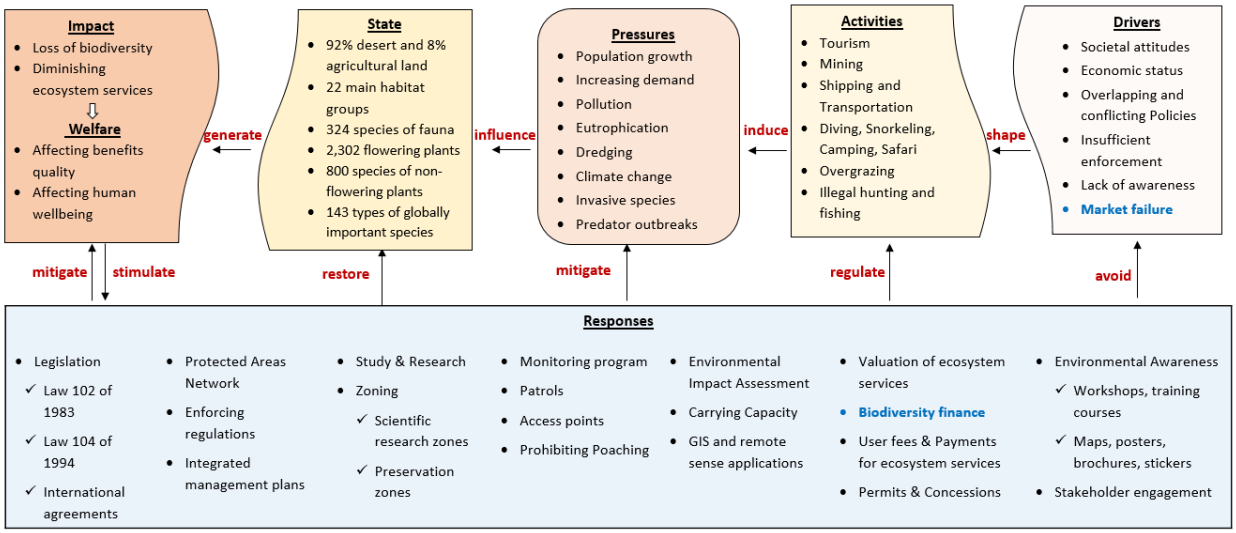
EXECUTIVE SUMMARY

Biodiversity, which encompasses the vast variety of life on Earth, is fundamental to the global economy, yet there is a significant financial shortfall in efforts to safeguard it. While approximately $ 950 billion is necessary to protect endangered ecosystems annually, only about $121 billion is spent. Furthermore, subsidies estimated between $500 to $800 billion are detrimental to biodiversity and need elimination or redirection. Egypt, like many nations, faces some challenges in providing sufficient financing for the conservation of biodiversity. However, the country has shown an increasing commitment towards biodiversity financing in recent years by developing conservation-orientated policies and joining several initiatives and alliances. Egypt has recently become a member of the Biodiversity Finance Initiative (BIOFIN) of the United Nations Development Programme (UNDP). Through Egypt's BIOFIN project, BIOFIN is currently working together with the Ministry of Environment (MoE) to improve the national biodiversity financing through several interventions. This includes the development of a national biodiversity financing plan and a set of financial solutions to bridge the biodiversity financing gap in the country. This report, the Biodiversity Finance Policy and Institutional Review (PIR) for Egypt marks the beginning of a sequence of actions under Egypt's BIOFIN project. The PIR delves into current contextual, policy, and institutional settings to shed light on the existing situation of biodiversity finance and propose interventions in which national performance can be improved.

The outcome of the PIR discloses that Egypt possesses an adequate strategic vision and institutional planning frameworks for biodiversity conservation and sustainable development. Egypt's National Biodiversity Strategy and Action Plan (NBSAP) 2015-2030 sets out national six key goals and 20 targets for nature conservation with an estimated budget of $273 million. Egypt also launched its first Sustainable Development Strategy: Egypt Vision 2030 in 2016 which puts a large emphasis on environmental sustainability as a critical element for future the country's prosperity. Furthermore, there are also several plans and strategies related to biodiversity and ecosystem services that have a potential impact. These include the National Climate Change Strategy 2050, the Sustainable Energy Strategy 2035, the Sustainable Tourism Strategy 2030, the Agricultural Development Strategy 2030, the National Water Resources Management Plan (2017-2037), and projects focused on lake development, sustainable transportation, and sustainable cities.

Egypt's Gross Domestic Product (GDP) is closely tied to the use of natural and biological resources, supporting strategic sectors such as agriculture, fisheries, and food production. Biodiversity also contributes significantly to the creation of jobs and foreign exchange through sectors such as tourism and oil and gas. In the past few decades, an effort has been put into estimating the economic value of biodiversity in some areas of Egypt. Studies suggest that the recreational value of the coral reefs in the oldest and most important protected area in Egypt, Ras Mohamed National Park is $ 191 million annually. El-Omayed Protected Area yields services to agriculture valued at a value of EGP33 million annually, while rangelands bring EGP8 million annually. El-Brullus Protected Area's services are valued at over EGP200 million each year. However, the PIR suggests that further effort is required to build the national capacity and improve the economic valuation of ecosystem goods and services in the country. This is very critical to enhance the country's capacity to account for the use of natural resources and biodiversity degradation in national accounts and plans.

The PIR has employed the Driver-Pressure-State-Impact-Response (DPSIR) framework to assess the state of the environment in the country and to better understand the changes in biodiversity and its external environment as shown in the below figure.



The review of the national budgeting system shows that Egypt's budget process consists of four stages: formulation, approval, execution, and audit. Budgets are classified into economic, administrative, and functional classes.

The 2022/2023 national budget was analyzed based on published data by MoF. It was noted that the environmental protection sector includes (1) waste management and General Authorities for Beautification of Cairo and Giza, (2) Sewage Treatment and Regulatory Authority for Water and Wastewater, and (3) protection of biodiversity and landscape (office of Minister of Environment, and the Egyptian Environmental Affairs Agency). Analysis indicates that the environmental protection sector receives approximately 0.173% of total national spending. Delving deeper, the budget earmarked specifically for the protection of biodiversity and landscapes represents approximately 23% of the environmental protection expenditures and 0.04% of the total national spending, potentially inadequate for real conservation needs. However, a growing national commitment to green investments has been noticed with 40% of public investments, totaling 336 billion pounds, earmarked for green projects in 2022/2023 that potentially can reach 50% by 2025. This highlights the state's vision to further the environmental sustainability aspects in development plans. Some existing subsidies in Egypt may harm biodiversity, especially those supporting fossil fuels, mining, and agriculture. In that regard, the government has adopted a strategy since 2014 to phase out fossil fuel subsidies, with notable reductions already seen in the government budget. In addition, a complete phase-out of electricity subsidies is planned for 2024-2025. Measures such as taxes on gas, electricity, cars, tobacco, and mining fees further support this agenda.

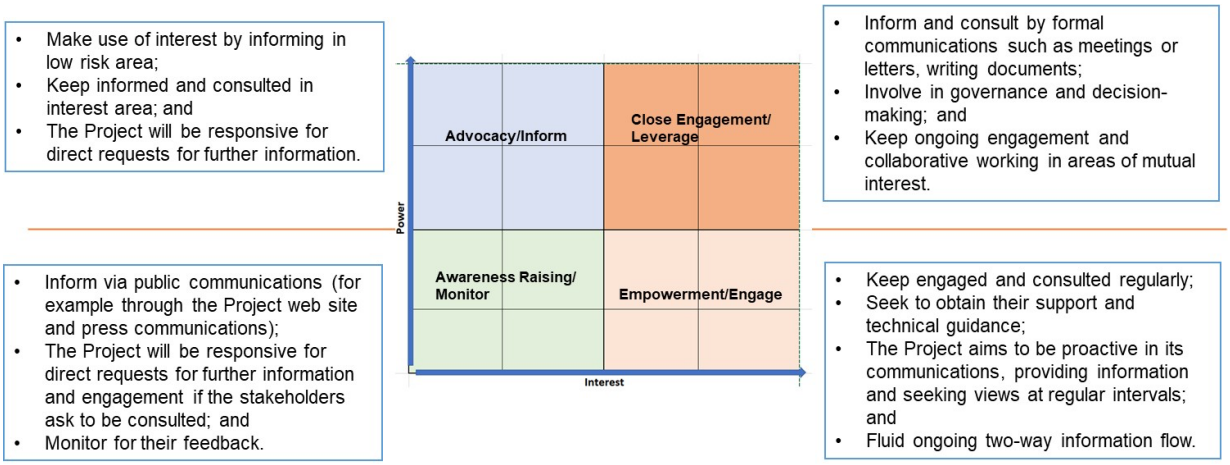
Egypt uses three primary funding mechanisms for biodiversity: at the site level (protected area revenues, private donations, and local government budgets), the national level (state budget, Environmental Impact Assessment (EIA) permit fees, and Corporate Social Responsibility (CSR), and at the international level (Official Development Assistance (ODA) and debt-for-nature swaps). For the fiscal year spanning July 2022 to June 2023, entrance fees amounted to approximately EGP 222 million and US$2.2 million. In addition, during the calendar year of

2022, PA concessions brought in around EGP 9.4 million. Nationally, various mechanisms support biodiversity financing, like the government's annual budget for nature conservation, the Environmental Protection Fund, EIA fees, CSR, and penalties for environmental damage. However, significant funding for biodiversity conservation originates from international agencies, including institutions such as the World Bank (WB), UNDP, the GEF, and bilateral agencies such as United States Agency for International Development (USAID) and the European Union (EU). Recognizing the limits of conventional funding sources, the Ministry of Environment (MoE) is piloting some innovative financing solutions such as the first green bonds, the ecotourism community-based public-private partnership in Wadi El Gemal National Park, and the revenue generation and collaborative management system at Samadi Reef Dolphin House.

Based on an in-depth stakeholder analysis concerning biodiversity finance in Egypt, 44 institutions were categorized using a matrix that considered two primary criteria: The stakeholder's interest in biodiversity finance and their overall influence. Institutions covered several domains, including development planning, conservation measures, sustainable use, green economy, and pollution management. Subsequently, these stakeholders were classified into four distinct groups.

- **Awareness raising/monitoring:** Those with low influence and interest, such as some Non-Governmental Organizations (NGOs).
- **Advocacy/Inform:** Entities with high influence but low direct interest in the project.
- **Empowerment / Engagement:** Stakeholders with high interest but low influence.
- **Close Engagement/Leverage:** This group has high interest and influence and is crucial for the project.

The engagement strategy for BIOFIN Egypt is visualized in below figure.



The main recommendations of the PIR emphasize the importance of improving the biodiversity finance landscape in the country. A fresh vision that benefits from the international best practices and local experience is required. A National Biodiversity Financing Plan would be a key step towards this goal. Strengthening biodiversity financing, governance, and management and integrating them into the key economic sectors in the country is important. It is also essential to further work with and involve civil society, NGOs, the private sector, and local communities in the biodiversity financing planning process. Deepening

insights into the economic value of biodiversity and its services is also crucial. Expanding the role of CSR can ensure that additional financial resources can be directed toward biodiversity and protected areas. Protected area entry fees and concessions systems require improvement where legal and institutional reforms are necessary. The establishment of an independent economic authority could ensure the financial sustainability, flexibility, and independency of the national protected area system. It is also recommended to further encourage and support the adaptation of the Result-Based Budgeting (RBB) at MoE as this could redirect the budgetary emphasis from mere resources to tangible results. A pivotal strategy in promoting biodiversity conservation is the gradual elimination of harmful subsidies, such as those for fuel, and the encouragement of positive incentives. Highlighting the importance of awareness raising and outreach, especially at the high political level (e.g., members of parliament), is recommended. Focused dialogue with the Ministry of Finance (MoF) and the Ministry of Planning and Economic Development (MoPED) is essential to place environmental conservation at the forefront of national financial planning. Finally, the Close Engagement/Leverage group's consistent involvement is vital for the whole biodiversity financing process in Egypt.

Introduction

1. INTRODUCTION

1.1. Overview of BIOFIN

Biodiversity refers to the variety of life on Earth, from habitats, ecosystems, species and genetic diversity. The global economy is highly dependent on nature and related ecosystem services, where over half of the world's total GDP (USD 44 trillion of economic value generation)[1] is moderately or highly driven by nature and its services. As a result, loss of biodiversity poses risks to the global economy. In addition, biodiversity loss and ecosystem degradation are disproportionately affecting local populations. Furthermore, the cost of inaction, estimated to rise to at least USD 14 trillion – 7% of global GDP – by 2050, is staggering (IUCN)[2]. While Biodiversity is recognized to provide valuable and priceless services to the human community, financing conservation of biodiversity is still underestimated.

FIGURE 1 RED SEA CORAL REEFS PROVIDE SHORELINE PROTECTION (PHOTO BY MAWAEL)

A 2020 study conducted by the Nature Conservancy, Paulson Institute, and Cornell University revealed that around $950 billion per year is required to restore and safeguard endangered ecosystems on earth, which are crucial for the well-being of humanity. However, the actual expenditure on biodiversity conservation is only an average of $121 billion annually. In addition, the number of subsidies harmful to biodiversity worldwide that have to be eliminated and redirected is estimated to be between US $500 to 800 billion[3]. In addition, detailed bottom-up assessments in participating BIOFIN countries validate this significant financial need and have helped to identify finance solutions required to achieve the Aichi Targets, biodiversity related Sustainable Development Goals (SDGs), and Kunming-Montreal Global Biodiversity Framework targets. In recent decades, biodiversity finance tools and solutions have demonstrated their importance for achieving biodiversity and sustainable development goals.

However, since countries have not approached the issue of biodiversity finance in a comprehensive manner, the choice and adoption of finance solutions remains experimental and opportunistic. Improved choice, design and implementation of effective well-tailored finance solutions will strengthen countries' chances to achieve national and global biodiversity targets.

[1] WEF Report on Global Risks 2020: Focus on Climate, http://www3.weforum.org/docs/WEF_New_Nature_Economy_Report_2020.pdf
[2] https://www.iucn.org/crossroads-blog/202109/post-2020-global-biodiversity-framework-emphasises-all-hands-deck-approach
[3] https://www.paulsoninstitute.org/conservation/financing-nature-report/

The Biodiversity Finance Initiative (BIOFIN) – is a global programme that developed, piloted, and is continuously improving a methodology to measure existing biodiversity expenditure levels, assess future financial needs, and design comprehensive plans using finance tools and solutions to increase financing, effectiveness, and efficiency of biodiversity management in 41 countries. BIOFIN's first phase (2012-2018) enabled full assessments and initial implementation of finance plan elements in target countries. Significant enhancement and scaling up of finance solutions is required in all countries to address the biodiversity finance challenge. Additionally, BIOFIN's second phase aims to enable countries to complete the design and implementation of priority finance solutions and will allow new countries to undertake the assessments as well as create and implement their biodiversity finance plan. At the central level, knowledge management platforms will be expanded, and additional guidance produced for most valuable finance solutions.

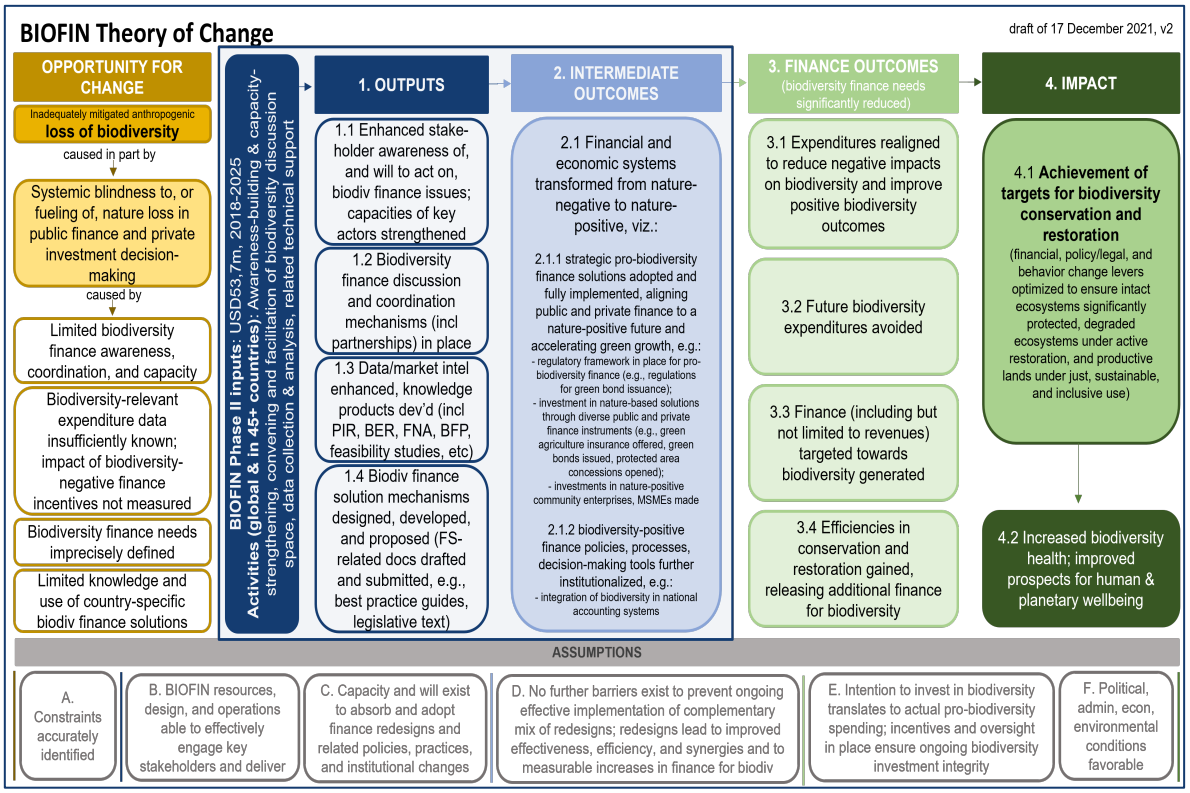


FIGURE 2 BIOFIN THEORY OF CHANGE

Through the BIOFIN support, Egypt aims to:

- Assess the policy, institutional, and economic context for biodiversity finance and map existing finance solutions.
- Measure and analyze current biodiversity expenditures, from the public and private sectors, donors, and NGOs.
- Make a reliable estimate of the finance needed to achieve the biodiversity goals and compare this to current biodiversity expenditures and other resources available.
- Develop a biodiversity finance plan that identifies and mobilizes the resources and policies required to implement the most suitable finance solutions.

This will be achieved through four specific outputs:

- **The Biodiversity Finance Policy and Institutional Review (PIR):** analyze the policy and institutional context for biodiversity finance in Egypt. This analysis examines the relationship between the state of nature and a country's fiscal, economic, legal, policy, and institutional framework.
- **The Biodiversity Expenditure Review (BER):** uses detailed data on public, private, and civil society budgets, allocations, and expenditures to inform and promote improved biodiversity policies, financing, and outcomes.
- **The Financial Needs Assessment (FNA):** makes a comprehensive estimate of the financial resources needed to achieve the national biodiversity targets articulated in national biodiversity plans and other key national planning instruments.
- **The Biodiversity Finance Plan (BFP):** is the guiding document for implementing the most optimal finance solutions to reach national biodiversity targets.

1.2. Background information on Egypt's PIR

The PIR is the first in a series of activities that are undertaken as part of Egypt's UNDP-BIOFIN project. The objective of the PIR is to analyze the current policies in order to understand their adequacy, identify policy gaps, the translation of policies into practice, the role of the broader policy environment in influencing existing practices. In addition, the PIR investigates the adequacy of existing institutions and institutional frameworks to finance and manage biodiversity. the PIR will improve the understanding of the relationship between the state of nature and the country fiscal, economic, legal, policy and institutional frameworks to provide:

- An improved understanding of how the management of biodiversity and ecosystem services supports national sustainable development goals and visions.
- A comprehension of key policy and institutional drivers of biodiversity change.
- A first-time catalogue of existing biodiversity finance mechanisms, incentives, subsidies and other instruments, including sources of biodiversity revenues.

In conclusion, Egypt's PIR analyzes the policy and institutional context for biodiversity finance in Egypt to establish the baseline situation for the remainder of the BIOFIN process. The PIR was prepared following the steps below:

- Inception phase
- Reviewing national biodiversity and sustainable development strategies
- Identifying important trends and drivers for biodiversity change

- Reviewing the current state of biodiversity finance
- Analyzing main institutions
- Developing the Biodiversity Finance Policy and Institutional Review for Egypt including recommendations ad conclusions

1.3. Institutional arrangements and contributors to the report

During the inception phase, a project work plan was developed as a first step in the PIR process providing a proper roadmap for the implementation. In collaboration with Egypt BIOFIN Project Manager, the BIOFIN stakeholders were identified and engaged in the PIR process. A participatory approach was used to involve relevant stakeholders including government, private sector, NGOs, and research institutions. The PIR team built and maintained relations with relevant stakeholders to ensure proper and effective stakeholders' engagement in the PIR process.

Two workshops were conducted during the process of preparing the PIR. The PIR Inception workshop carried out at the beginning of this assignment and the validation workshop conducted at the conclusion of this report. Continuous communication between the BIOFIN project and the PIR team were maintained during the PIR preparation process to ensure an easy flow of information, overcome any potential challenges, and provide common appreciation of relevant issues and results.

1.4. The methods used to collect data and the structure of the report

The PIR was prepared following the guidance and best practice provided in BIOFIN Workbook 2018[4]. It was developed through collaboration with different stakeholders and employing some comprehensive and well-developed frameworks. The PIR employed a mixed methodology including literature review, secondary data collection and analysis (key research papers, reports, studies, and websites), stakeholders and focus group interviews, observations, and expert judgement.

Data collection and analysis. The data and information on biodiversity financing used for the PIR were collected from different sources including global experience and documents provided by the BIOFIN international team; meetings with the BIOFIN country project in Egypt; consultation workshop; and information on relevant policies from the portals of the Egyptian government and line ministries such as MoE, MoF, MoPED, Ministry of Agriculture, General Authority for Fish Resources Development, and Central Agency for Public Mobilization and Statistics (CAPMAS). To identify root causes and underlying drivers of change, DPSIR framework was employed.

Stakeholder Engagement. Consultation is a vital part of the PIR process. It involves all the project stakeholders including relevant authorities. Two workshops were conducted during the process of preparing the PIR, the inception and validation workshops.

- *The PIR Inception workshop*. The first workshop was conducted at the beginning of the PIR project to introduce the PIR project to relevant stakeholders and establish relationships

[4] https://www.biofin.org/knowledge-product/biofin-2018-workbook

with representatives of them as well as consulting with the stakeholders regarding the PIR and its process. A questionnaire was developed to be used during this workshop.

- *The PIR Validation workshop*. The second workshop was conducted after submitting the draft PIR study to present and discuss the report with the stakeholders and obtain feedback on the draft version to be reflected in the final PIR report.

Structure of the report. The PIR report presents the findings of the PIR project. It consists of the following sections:

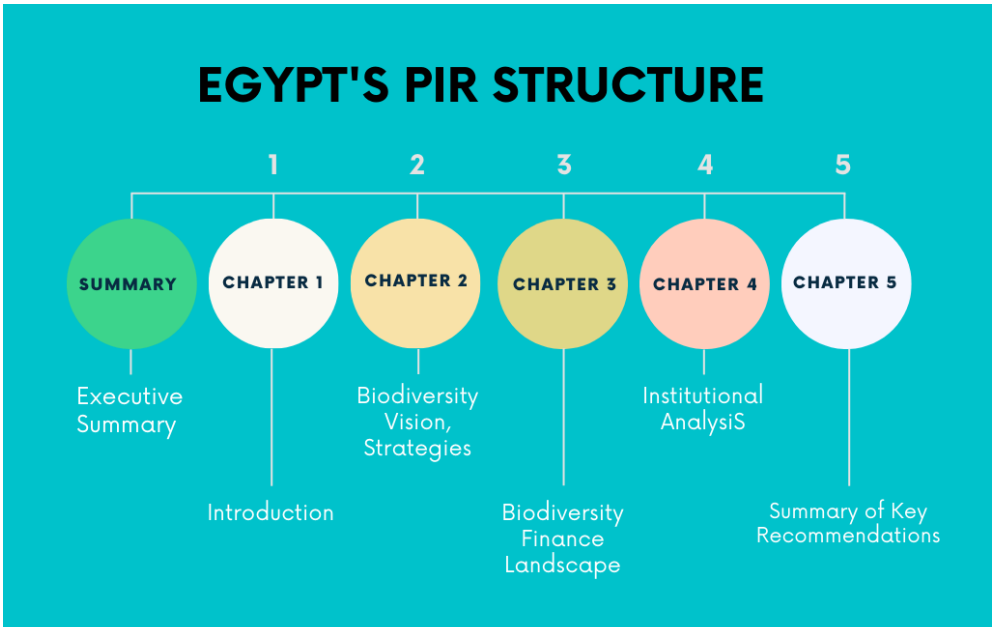


FIGURE 3 EGYPT'S PIR REPORT STRUCTURE

Biodiversity Vision and Strategies

2. BIODIVERSITY VISION AND STRATEGIES

National Biodiversity Plans and other biodiversity policy and sustainable development documents were reviewed. This review aims to identify the role of biodiversity within sustainable development planning, the existing evidence of the economic value of nature and its contribution to sustainable development and define the linkage between biodiversity and sustainable development strategies.

The first phase of national visions and strategies for biodiversity in Egypt, during the eighties, was distinguished by comprehensive protection, while the second phase during the nineties, was distinguished by conservation and sustainable development, and currently the main target is comprehensive ecosystem management which depends on applying an integrated ecosystem for human welfare.

2.1. Egypt's biodiversity significance

Egypt covers an area of about one million square kilometers and can be divided into four physiographic regions: the Nile Valley, Western Desert, Eastern Desert, and the Sinai Peninsula. The country can also be divided into 4 bioclimatic zones: the eastern desert, which is hyper arid with mild winters, hot summers, and extremely rare rainfall; the southern Sinai region, which is also hyper arid but has cool winters, hot summers, and less than 30mm/yr. of rainfall; the coastal belt along the Mediterranean Sea; and the sub-coastal belt and the wetlands (Nile Valley, Nile Delta). The arid desert covers 92% of the land, the remaining 8% of arable land being restricted to the Nile Valley and Delta and a few oases scattered in the Western Desert. Despite being dominated by desert and drought, Egypt's biodiversity is of global significance since it is situated at the juncture of three continents (Europe, Africa, and Asia) and four bio-geographical regions (Irano-Turanian, Mediterranean, Saharo-Sindian and Afro-tropical)[5].

The country is home to a wide range of habitats with microclimates (e.g., mangroves, coral reefs, mountains, sand dunes, oasis, and wadis) that host many plant and animal species and communities representing both tropical and Mediterranean environments, some dating back millions of years ago, such as the skeletons of whales in the Western Desert (a Natural World Heritage Site in Wadi Al-Rayan Protected Area).

The biodiversity of Egypt reflects its habitats, position, and climate. In terms of terrestrial habitats, all of Egypt is classified into only two of the major habitats of Africa (desert and riverine vegetation). Levels of endemicity are reasonably high because the drying of North Africa over the last millennia has fragmented and isolated the fauna and flora, allowing the evolution of many unique forms. Isolated pockets of biodiversity exist in the oases of the Western desert and on the mountaintops of Sinai. Probably the relatively rich biodiversity of Gebel Elba harbors many endemic forms. The fauna and flora change significantly on either side of the Suez Canal because of the bottleneck effect of the connection between Africa and Asia, augmenting Egypt's total biodiversity.

[5] Fouda, M. M. (2017). *National monitoring program for biodiversity and non-indigenous species in Egypt*. UNEP/MAP/SPA-RAC.

In the marine environment, biodiversity in Egypt benefits has two completely independent elements – the Mediterranean and the Red Sea. The Mediterranean fauna and flora are modest and shared with most of the countries of that region. The very rich Red Sea habitats and ecosystems are also probably shared with most of the countries bordering the Red Sea. Endemics are largely or wholly limited to Red Sea habitats, where Egypt has the most northerly coral and mangrove habitats of the world – possibly these will become even more important as climate change occurs. The shallow waters of the Suez Gulf are important areas for marine biodiversity, and the contrast with the abyssal depths of the Gulf of Aqaba creates a very important set of habitats.

In terms of biodiversity significance, the most valuable areas in Egypt are the Red Sea marine systems including coral reefs, mangrove stands and sea grass beds; the St Catherine region in the southern Sinai; the coastal and near-coastal habitats along the Mediterranean coast including the Nile Delta; and Wadi Allaqi and Gabel Elba in Egypt's south-eastern corner near the border to Sudan[6].

2.2. Summary of national visions and strategies for biodiversity

The Convention on Biological Diversity (CBD), came into force at the end of 1993, requires member states to set the NBSAP as the primary mechanism for the implementation of the CBD strategic plan to stimulate conservation action at the national level. Effective NBSAP implementation should be based on a highly participatory process and adhere to the principle of social equity which affirms that benefits arising from the sustainable use of biodiversity and benefit sharing among all people, especially women and children.

Egypt's NBSAP was the starting point for the PIR review under the BIOFIN approach that presents a vision, an overall target, specific targets, major tasks, and priority programs/projects for implementation. Other government policies and sector development strategies related to the objectives of the Egypt NBSAP are discussed in this PIR report.

[6] https://www.thegef.org/projects-operations/projects/4965

2.2.1 Egypt's First NBSAP (1997-2017)

Egypt developed its first NBSAP (1997-2017) to establish a sound basis for the sustainable management of natural resources to meet the needs of present and future generations and harmonize conservation and development plans in relevant sectors (e.g., agriculture, industry, mining, housing, tourism). The strategy was adopted by the Government in 1998 as a response to Egypt's obligations under the CBD. The strategy focused on the development and management of existing protected areas through biodiversity assessment using monitoring and database updating; institutional development, capacity-building, partnership-building, outreach, and securing sustainable financing of projects from donor states and organizations7. The NBSAP was considered the key strategic document that provides a vision and roadmap for biodiversity conservation. The NBSAP (1997-2017) had 6 main goals and a national action plan composed of 11 programs categorized into three classes including enabling and supporting, applied research and monitoring projects. The implementation of NBSAP lies under the responsibility of the Nature Conservation Sector (NCS) of the Egyptian MoE.

Although the first NBSAP stimulated conservation action at the national level and contributed to a better understanding of biodiversity, its value and management have not been fully effective in addressing the main drivers of biodiversity loss or mainstreaming biodiversity and ecosystem services in development sectors. Many of its objectives and focal areas were addressed, some to a high level of achievement (e.g., those related to PA establishment and management, and the NCS / EEAA capacity development). On the other hand, objectives concerned with the introduction of biodiversity concerns and priorities into the mainstream of the Egyptian socio-economic landscape were not well addressed. This was reflected in the limited adoption of biodiversity issues in the policies and regulations of most mainstream sectors. Outside protected areas limited complementary ex-situ conservation measures were undertaken for genetic resources of food and agriculture and for selected animal and plant species.

Overall, successes had been mainly in short and medium-term achievements, with limited impact on policy-level processes and root causes, particularly those outside the environmental realm and in the mainstream economic sectors. The inadequate participatory process that governed the NBSAP in the past probably contributed to the erosion of the NBSAP value as a national planning document and confirmed its place as an NCS/EEAA plan. It should also be noted that the NBSAP 1998-2017 was developed with limited guidance from the CBD as it predated the first CBD Strategy and Action Plan 2002-2010. Thus, no clear national targets or indicators have been established and the NBSAP was not structured to be directly related to the global biodiversity conservation agenda (CBD 2010 targets)[8].

2.2.2 Egypt NBSAP (2015 – 2030)

In 2012, the MoE started the process of updating the NBSAP (1997-2017), an effort that was supported by GEF. A national biodiversity steering committee, through a participatory process, was formulated to review and evaluate the NBSAP (1997-2017) and other related

[7]https://www.cbd.int/countries/profile/?country=eg#:~:text=The%20Egyptian%20NBSAP%20(1998)%20aims,mining%2C%20housing%2C%20tourism).

[8] Ministry of Environment. 2016. Egypt National Biodiversity Strategy and Action Plan to 2030

national polices and strategies that could enhance the biodiversity national planning processes. The NBSAP (1997-2017) was revised in line with the new CBD Strategic Plan for Biodiversity 2011–2030, which includes reference to improving mainstreaming. The NBSAP (2015 – 2030) mission is "Egypt takes effective and innovative actions to reduce the loss of biodiversity to ensure that by 2030 ecosystems continue to provide their services to all Egyptian and also ensure pressures on biodiversity are reduced; biological resources are sustainably used and benefits arising out of utilization of genetic resources are shared in a fair and equitable manner; biodiversity issues and values mainstreamed and appropriate policies are effectively implemented in a participatory approach"[9].

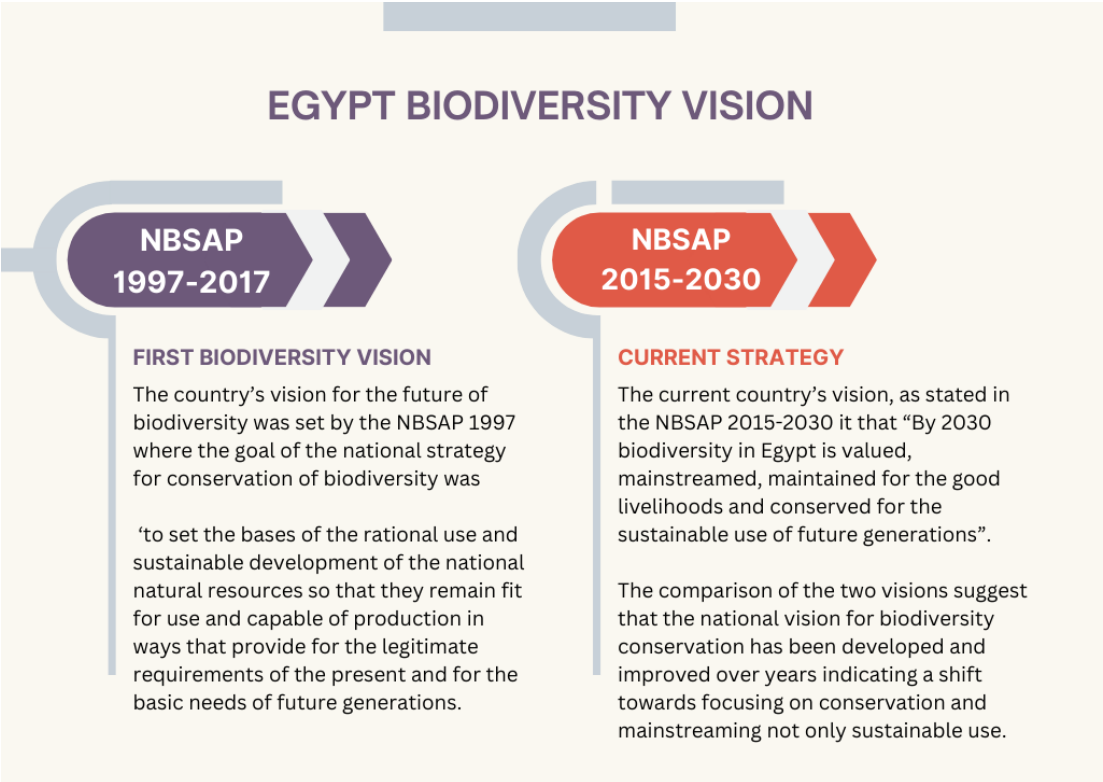


FIGURE 4 COUNTRY BIODIVERSITY VISION

A 15-member National Biodiversity Committee on behalf of various stakeholders and six working groups, assisted by national and international consultants, working in thematic and cross-cutting areas have been Instrumental to guide the update of the first NBSAP. After initial stocktaking and appraisal of the status of national biodiversity and the underlying causes of biodiversity loss, six strategic goals and twenty national targets were identified with an estimated budget of $273 million to address the decline in biodiversity and achieving the Aichi Targets. The Strategic Goals of NBSAP 2030 are[10]:

1. Conserve and manage terrestrial and aquatic biodiversity to ensure sustainable use and equitable benefits to the people
2. Sustainable use of natural resources
3. Access to genetic resources and Benefit-sharing (Nagoya protocol)

[9] ibid

[10] https://www.cbd.int/doc/world/eg/eg-nbsap-v2-en.pdf

4. Improve our understanding of biological diversity and ecosystem functioning in a changing environment
5. Prepare for climate change and combat desertification
6. Build partnerships and integrate biodiversity into all national development frameworks

The components of NBSAP (2015-2030) are based on the following sustainable development principles (Guiding Principles): Equity, Solidarity and shared responsibility, Ecological Soundness, Know-how and eco-technology, Spiritual Values, and Sustainable use of natural resources. The implementation of NBSAP (2015-2030) is coordinated by EEAA with the full participation and guidance of the cross-sectoral NBSAP (2015-2030) steering committee.

Given the large number of issues enclosed by the strategy, considering the country restricted resources, it was obligatory to prepare a set of criteria for prioritizing actions and projects contributing to the implementation of the contemporary strategy. These criteria are geographic impact, consistency with convention objectives, urgency, sequence, country-driven, attainable and resource able, and multisectoral implications.

2.2.3 Actions taken to achieve the Millennium Development Goals Targets

In the light of Egypt's commitment to achieve the targets of the Millennium Development Goals (MDGs), several national committees were established (sustainable development, integrated management of coastal zones, climate change, wetlands, and conservation of biodiversity) to achieve harmonization between policies, strategies and national action plans of development, by executing specific indicators to determine implementation efficiency in different fields, such as environmental sustainability, reduction of poverty pressure, enabling women, improving the quality of health and education[11].

In addition, Egypt prepared many strategies and specialized programs addressing the conservation of wetlands in 2005, ecotourism in 2006, and medicinal plants conservation in 2007. The eight MDGs are integrated in the National Development Plan 2008-2011 under the different key areas. This shows the government's commitment to achieving the MDGs.

2.2.4 Actions taken to achieve the 2020 Aichi Biodiversity Targets

The targets have been interpreted into work programs dealt with establishing, developing, and managing a network of protected areas; setting up a genetic bank, planning for the establishment of natural history national museum, and captive breeding of endangered species center; implementing a national program for research and monitoring in the field of biological diversity; setting up a national network of biological diversity data; developing human resources in the field of biological diversity; and implementing a national program for education and awareness.

According to NBSAP (2015 – 2030 - Strategic Goal 1 – T1), the PAs network secured and expanded to cover 17% of total terrestrial and inland water and at least 5% of coastal and marine representative areas by 2030, especially priority sites of particular importance for

[11] Egypt NBSAP (EGF, 2017)

biodiversity and key ecological processes, and effective management of PAs. Programs have also been established for the conservation and management of important and sensitive ecosystems and habitats outside the natural protected areas network, especially in marine and coastal environments and arid lands. In situ programs for conserving restricted ranges and globally threatened species of plants and animals (e.g., sea turtles) have been elaborated. Ex-situ conservation is provided through national germplasm banks as well as through captive breeding centers for breeding and the reintroduction of rare, endemic, threatened, and extinct plant and animal species[12]. Egypt's proposed Natural History Museum promotes research and training in biodiversity and has a large capacity for conducting educational and awareness-raising activities. Management programs for hunting, fisheries, and rangelands have been introduced. Particular attention has been given to the development of ecological tourism along the warm coasts of the Red Sea, the Gulf of Suez, and the Gulf of Aqaba. Furthermore, some protected area management plans have been updated.

Despite numerous efforts made in the establishment of the protected areas network, there are some challenges affecting Egypt's implementation of the NBSAP and achieving CBD global targets. More effort is needed to leverage funding and revenues to support conservation, develop the capacity of human resources and further mainstream biodiversity into other economic sectors. Biodiversity conservation needs to be further considered in national and regional policies, legislation and regulations governing most of the productive sectors in the country.

2.2.5 The Nature Conservation Sector vision, mission, mandate, and policies

The NCS of the EEAA is responsible for nature conservation and management of Protected Areas. It is entrusted with implementing policies, programs, studies and other actions that ensure compliance with the nation's habitat and species protection legislation and the nation's commitment to international conventions for the conservation of nature. During the last decades, NCS has focused its work on preparing its vision, mission, mandate, and policies as the first step of mainstreaming biodiversity conservation into development sectors (tourism, agriculture, fisheries, mining).

Vision*:* To preserve the natural character of the Egyptian environment for future generations of Egyptians, while using it innovatively to enhance sustainable local productivity and alleviate poverty.

Mission: Egypt has exceptional wild resources (coral reefs, spectacular desert ecosystems, rich fossil deposits, and vast bird migrations) that underpin the economy and offer it a comparative economic advantage in the massive and growing nature-based tourism industry. Recognizing the value of this biodiversity and its critical role in maintaining and enhancing the wellbeing of the country Government, in partnership with stakeholders, will maintain a healthy, well-managed and ecologically representative system of Protectorates and will make them as financially self- supporting as possible. Furthermore, it will manage wild resources outside these areas sustainably for the benefit of the people living on the land with the resources.

[12]https://www.cbd.int/countries/profile/?country=eg#:~:text=The%20Egyptian%20NBSAP%20(1998)%20aims,mining%2C%20housing%2C%20tourism).

Mandate & Policies: Government will fulfill its accountability to the people of Egypt for conserving their wild resources, through the MoE approving an autonomous Nature Conservation Council, in consultation with affected local resource use right holders and other stakeholders. The council is responsible for enacting and implementing a policy to: create and maintain an ecologically representative system of adequate terrestrial and marine areas as Protectorates, ensure that Protectorates are properly governed, endeavor to make protectorates financially self-supporting, promote better long-term conservation, monitor the status and trends in wild resources, promote awareness among decision-makers and the public, ensure that NCS is adequately staffed, equipped and financed, and ensure that Egypt fulfills its obligations in terms of nature conservation.

2.3. National development plans, green growth plans, etc. and the contribution of biodiversity and ecosystem services towards sustainable development in a country

Egypt launched its first-ever Sustainable Development Strategy: Egypt Vision 2030 (SDS) in February 2016, believing that sustainable development is the guarantee for growth, development, and prosperity for future generations. The SDS is aligned with the 17 SDGs and acts as the governing framework for all development programs and projects that will be implemented until 2030. The launch of the strategy was followed by the establishment of the "National Committee for Monitoring the Implementation of the Sustainable Development Goals". The updated version of Egypt's Vision 2030 unfolds in four Guiding Principles putting the citizen at the core and center of development, while guaranteeing equity and accessibility for all, coupled with an approach of resilience and adaptation, all within a mindset of sustainability.

These principles are considered the overarching umbrella that guides the implementation of the six National Strategic Goals which aim to improve Egyptians' quality of life and raise their living standards while achieving social justice and equality, as well as reaching a competitive and diversified knowledge economy within an integrated and sustainable environmental system; goals which would not be achieved without well-developed infrastructure and enhanced governance and partnerships. Finally, to galvanize the implementation of these goals, the strategy identifies a group of seven Enablers: data availability, financing, digital transformation, technology and innovation, legislative environment, supportive cultural values, and population growth management[13].

Egypt has maintained its efforts towards the protection of life on land (SDG 15). The country has recently worked on increasing its natural protectorates. Such efforts are coupled with the progress made in combating: biodiversity losses, urban encroachment of agricultural lands, afforestation, all while expanding Egypt's agricultural lands to achieve self-sufficiency in various crops as well as purifying the lakes. Egypt has been committed to preserving life on land which has been demonstrated in Egypt's presidency of the 14th Conference of the Parties to the Convention on Biological Diversity (COP14) in 2018 and the 27th Conference of the Parties to the United Nations Framework Convention on Climate Change (COP 27) in 2022.

[13] Ministry of Planning and Economic Development. 2021. Egypt's 2021 Voluntary National Review

2.3.1 The Role of Biodiversity within Sustainable Development Planning in Egypt

The country's biodiversity is under threat due to a broad range of factors, including habitat loss, climate change, invasive species, and overexploitation of natural resources. Sustainable development policies, strategies and initiatives have been developed in Egypt to promote economic growth and social development while also protecting biodiversity and promoting conservation. These initiatives are important for ensuring the long-term sustainability of Egypt's natural resources and supporting the country's economic and social development goals. To identify how biodiversity is understood as a fundamental part of sustainable development, national policy and strategy documents focusing on key sustainable and economic development strategies and projects were reviewed (Figure 6). The review highlights how biodiversity and ecosystem services have been integrated into national development planning, green growth strategies, and sector-based plans such as tourism, water and sanitation, agriculture, climate change, energy, and fisheries.

2.3.2 National Development and Green Growth Strategies

Egypt has begun to focus on the green economy as an important and key avenue of comprehensive development plans taking place in the country. This can be achieved through the implementation of numerous initiatives and projects commensurate with the economic and environmental priorities of the State; where the sustainable development strategy, "Egypt's Vision 2030", targets the environmental dimension as a basic focus in all development and economic sectors. Seven national strategies, projects and plans have been identified that are related to biodiversity as well as have potential impacts on it (Table 1).

TABLE 1 : NATIONAL DEVELOPMENT AND GREEN GROWTH STRATEGIES IN EGYPT

National development and green growth strategies	Implementing agency	Budget
Sustainable Development Strategy: Egypt Vision 2030	Ministry of Planning and Economic Development	N/A
Egypt National Climate Change Strategy (NCCS) 2050	Ministry of Environment	US$324 billion
Egypt's Integrated Sustainable Energy Strategy 2035	Ministry of Electricity and Renewable Energy	N/A
The National Strategy for Sustainable Tourism in Egypt 2030	Ministry of Tourism and Antiquities	N/A
Egypt's Sustainable Agricultural Development Strategy 2030	Ministry of Agriculture and Land Reclamation	N/A
The National Water Resources Management Plan (2017-2037)	Ministry of Water Resources and Irrigation	EGP 900 billion
The National Project for the Development of Lakes	Armed Forces Engineering Agency and General Authority for Fisheries Development	EGP 100 billion
Egypt's Sustainable Transportation Projects	Ministry of Transport	N/A
National Sustainable Cities Initiative	Ministry of Housing, Utilities & Urban Communities	US$1.8 billion

FIGURE 5 NATIONAL DEVELOPMENT AND GREEN GROWTH STRATEGIES IN EGYPT

Sustainable Development Strategy: Egypt Vision 2030

Egypt Vision 2030 is a unified long-term political, economic, environmental, and social vision. It was developed in alignment with the United Nations Sustainable Development Goals (SDGs). According to the vision, by 2030 the new Egypt will possess a competitive, balanced, and diversified economy, dependent on innovation and knowledge, based on justice, social integrity and participation, characterized by a balanced and diversified ecological collaboration system, investing the ingenuity of place and humans to achieve sustainable development and to improve Egyptians' life quality. The vision pays large attention to environmental sustainability to be integrated into all economic sectors to preserve natural resources and support their efficient use and investment while ensuring the next generations' rights. A clean, safe, and healthy environment is leading to diversified production resources and economic activities, supporting competitiveness, providing new jobs, eliminating poverty and achieving social justice. The vision sets a target to reduce greenhouse gases (GHGs) by 10% from the energy sector, including oil and gas, by 2030 compared to 2016 levels[14]. Several programs and projects were listed to reach this target, for example: reforming the current legislative framework; and applying environmental standards and accurate measurements.

Egypt Vision sets out ambitious Key Performance Indicators (KPIs) to foster sustainable economic development focusing on eight goals, 10 pillars, and through the implementation of 77 economic development programs and projects [15]. Many of these KPIs and projects largely depend on natural resources and biodiversity. For instance, Golden Triangle project for mineral resources; establishing agro-industrial clusters; developing agricultural areas and supporting agro-industry; developing fisheries; the national program for developing livestock, poultry, and fishery; establishing green resorts in the western desert. In addition to several green projects such as establishing monumental museums in Sharm el-Sheikh and Hurghada; establishing eco-friendly health resorts; and encouraging green tourism. KPIs for sustainable development include targets for manufacturing growth rate to be increased from 5% (current value) to 10% (2030 target); net foreign direct investment to increase from Billion USD 6.37 (current value) to Billion USD 30 (2030 target); investment rate to increase from %14.4 to %30. In addition, the Vision also sets targets for enhancing environmental sustainability and reducing natural resources degradation. These include a decrease in greenhouse gas emissions from the energy sector 10% by 2030 target: end fuel subsidy by 2030 (current value 126.2 billion EGP)[16].

Egypt National Climate Change Strategy (NCCS) 2050

Climate change is one of the most important issues facing Egypt as its impacts pose threats to sustainable development plans, food security, and water availability, and thus will affect the national security. Although Egypt's share of global CO2 emissions does not exceed 0.6%, Egypt is one of the countries that are most vulnerable to the negative impacts of climate change on many sectors, such as coasts, agriculture, and water resources. health, population, and infrastructure. These impacts would lead to adding a new challenge to the set of challenges facing Egypt. Egypt launched the National Strategy for Climate Change 2050 to improve the

[14] Sustainable Development Strategy: Egypt Vision 2030. Ministry of Planning and Economic Development 2016

[15] Sustainable Development Strategy: Egypt Vision 2030. Ministry of Planning and Economic Development 2016

[16] Sustainable Development Strategy: Egypt Vision 2030. Ministry of Planning and Economic Development 2016

citizens' quality of life and sustainable economic growth and preserve its natural resources. Egypt's NCCS is designed to consolidate all aspects of climate change in one document to be a basic reference that ensures the integration of the climate change dimension into the general planning of all sectors in the country. It was developed at the request of the National Council for Climate Change. The strategy contains five key goals and sets directions to achieve each objective.

The Government of Egypt (GoE) has allocated a financial package to set a few projects such as energy, transportation, agriculture, water, irrigation, and carbon reduction in the petroleum sector at a cost of about $211 billion for mitigation and $113 billion for adaptation to programs until 2050[17]. It is expected that the NCCS mitigation and adaptation strategies will depend on and have an impact on biodiversity and natural resources in Egypt. For instance, in 2022, Egypt signed a 5 billion US dollar memorandum of understanding with Norwegian renewable energy company Scatec to establish a plant in the Suez Canal area for producing green ammonia from green hydrogen. The plant, which is to go live in 2025, is expected to produce one ton of green ammonia a year, with the potential to expand to three tons[18]. This is the first large-scale project for production of green ammonia in the country, and is a demonstration of the country's pledge to maximise low carbon and green energy production, support the national strategy for tackling climate change, and enhance transformation towards a more sustainable future. The project is expected to have significant economic benefits. It is projected to create approximately 8,000 job opportunities during the construction phase, with 300 permanent positions available once the plant is operational.

Egypt's Sustainable Transportation Projects

According to Egypt's Vision 2023, the country is aiming to provide a transport system that achieves sustainable development and is intrinsically linked with the requirements of future national economic and social development, and at the same time supports the role of transport at the regional and international levels. Egypt has embarked on a number of sustainable transportation projects based on environment-friendly technologies in passenger transport and green infrastructure. Transportation is the second cause of environmental pollution in the country, because of carbon emissions, with transportation being responsible for 23-2% of carbon emissions in the atmosphere[19]. This has pushed the authorities to lay the foundation for different projects and expansions including a monorail, electric train, the light rail transit (LRT), high-speed electric train, and the Bus Rapid Transit (BRT). There is a great effort in improving the transport infrastructure through the Green Roads, River Transport System, Maritime Infrastructure projects.

Such projects are being funded by the state and through support from international organizations and donors. For instance, in May 2021, the European Investment Bank and Egypt signed the second tranche of a €1.1 billion loan to finance metro and tram projects in Alexandria and Cairo, the two biggest Egyptian cities[20]. The UNDP and GEF has also supported

[17] https://www.egypttoday.com/Article/1/116031/Egypt-launches-National-Strategy-for-Climate-Change-2050
[18] https://www.africanews.com/2022/05/20/egypt-launches-national-climate-change-strategy-2050//
[19] https://www.businesstodayegypt.com/Article/7/1946/Clean-Transportation-Era-Begins-Egypt-s-major-sustainable-transportation-projects
[20] https://www.eib.org/en/stories/egypt-green-transport

the USD44 million "Sustainable Transport Project for Egypt" that aims to reduce the growth of the energy consumption and the related GHG emissions of the transport sector in Egypt[21].

The aim, states the Ministry of Transport, is to transform transportation into collective means, thereby reducing the number of cars and alleviating traffic congestion. Demonstrating the country's stance on maintaining a safe and green environment, Egypt operated 260 electric buses in Sharm El-Sheikh to transport delegations attending the 27th UN Climate Change Conference (COP27) hosted in November. The ministry has begun its plan to convert to electric transport in Sharm El-Sheikh and the tourist cities of Hurghada, Luxor, and Aswan. In addition, the monorail is set to operate by 2023[22].

National Sustainable Cities Initiative

During COP27, Egypt has launched its Sustainable Cities Initiative in cooperation with the WB to enhance sustainable solutions in Egyptian cities. The Initiative aims to increase the role of cities in facing climate change by developing a strategic plan to achieve multidimensional sustainability and implementing projects and programs to achieve sustainable development, the international cooperation ministry said in a statement. The WB will provide $1.8 billion in funding for climate resilience through the "Egyptian Sustainable Cities Initiative". The funds will support 33 projects in the areas of green economy, energy efficiency and green mobility, as well as the development of urban green spaces[23]. The initiative will be jointly led by the Egyptian Ministry of International Cooperation, Ministry of Local Development, in collaboration with the private sector, Civil Society Organizations (CSOs) and the governorates. It will initially be implemented in Greater Cairo, which is considered the economic and industrial center of Egypt with an estimated population of 22 million.

Integrated Sustainable Energy Strategy to 2035 (ISES 2035)

Egypt's economic development hinges on the energy sector, which represents 13.1% of the overall GDP[24]. To meet burgeoning energy demand, the Egyptian government has pursued an energy diversification strategy, known as the Integrated Sustainable Energy Strategy (ISES) to 2035, to ensure the continuous security and stability of the country's energy supply. This strategy involves stepping up the development of renewable energy and energy efficiency, in part through vigorous rehabilitation and maintenance programs in the power sector. Egypt is, therefore, committed to the widespread deployment of renewable energy technologies. To date, the country's total installed capacity of renewables amounts to 5.8 gigawatts (GW), including 2.8 GW of hydropower and around 3 GW of solar and wind power. The Egyptian government has set renewable energy targets of 20% of the electricity mix by 2022 and 42% by 2035[25].

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[21] https://www.undp.org/egypt/projects/sustainable-transport-full-sized-project

[22] https://www.businesstodayegypt.com/Article/7/1946/Clean-Transportation-Era-Begins-Egypt-s-major-sustainable-transportation-projects

[23] https://english.ahram.org.eg/NewsContent/1/1235/479962/Egypt/Urban--Transport/Egypt-launches-national-Sustainable-Cities-Initiat.aspx

[24] Renewable Energy Outlook: Egypt 2022 (https://www.irena.org/)

25 Egyptian Electricity Holding Company annual report 2020/2021 (http://www.moee.gov.eg/)

By signing more than twenty Memorandum of Understanding (MOUs) for green hydrogen projects and its derivatives in Egypt, with total investments that exceeded 80$ billion[26], renewable energy has taken on a new dimension to improve its economic performance. Using unique natural resources from wind and solar, renewable energy enhances its role in sustainable development as a clean source of energy and improves the economic performance of other projects such as water desalination and electric vehicles. It is also recommended for markets to develop their partnerships with the private sector and provide a suitable investment climate with attractive tools. It is important to encourage pioneering investors who can provide innovative business models with a low level of risk and reasonable profits. This emphasizes the need for continuing cooperation between public and private sectors, so that investors can become partners instead of competitors. Egypt's goal is to increase the percentage of renewable energy in the Energy Mix to %42 by 2035. The private sector is currently working on developing projects with a total capacity of 2800 MW of wind and about 700 MW of solar. This will support Egypt's vision to be a regional energy hub[27].

Egypt has ample potential to achieve these ambitious targets while depending on and impacting the country's biodiversity and natural resources and ecosystems. Egypt enjoys an abundance of renewable energy resources with high deployment potential, including hydropower, wind, solar, and biomass. While the regulatory framework addresses electricity production systems using wind and solar, the strategy has not given sufficient focus to the exploitation of biomass potential. This is evident in the limited progress achieved on biomass mainly due to the shortage of local capacity, along with the considerable upfront costs associated with biomass-based electricity generation. The impacts on local communities, biodiversity, birds, desert, and other habitats and ecosystems need to be considered.

The National Strategy for Sustainable Tourism in Egypt 2030

Considering the developments and the economic, social, and environmental dimensions of tourism and archaeological activities with their diversities and their various connections, and in line with the governing principles of Egypt's Vision 2030, the National Strategy for Sustainable Tourism in Egypt 2030 aims to achieve the sustainability of the tourism and archaeological activities and increase the effectiveness of their economic, social and environmental impacts. The strategy's six pillars focus on institutional and legislative reform; increasing competitiveness; enhancing the economic environment (increasing financing capabilities, encouraging tourism investments); supporting and building the capabilities of the human element; maximizing the use of technological means; and preserving the environmental balance and the sustainability of tourism and archaeological activities.

Egypt has a long history of tourism, dating back to the time of the Pharaohs. Today, tourism is one of the country's most important industries, contributing significantly to the national economy. However, sustainable tourism practices have become increasingly important in Egypt, as the country seeks to balance the benefits of tourism with the need to protect its natural and cultural heritage. Egypt has implemented several sustainable tourism policies and initiatives in recent years to promote responsible tourism practices. These include the Green Star Hotel Program; The Red Sea Sustainable Diving Initiative; The Sinai Trail; The Siwa

[26] New & Renewable Energy Authority – Annual Report 2022
[27] New & Renewable Energy Authority – Annual Report 2022

Sustainable Development Initiative; and Eco-Egypt Project. These policies and initiatives are very essential as several tourism and nature-based activities in Egypt occur within or around protected areas and biodiversity-sensitive areas such as the Red Sea, Western Desert, Siwa Oasis, and Wadi Elrayan. These areas are rich in outstanding natural resources and ecosystems such as coastal areas, beaches, islands, coral reefs, birds, desert ecosystems, oases, and mountains. While they offer opportunities for tourism and recreation, larger consideration should be given to developing and most importantly implementing plans and measures for sustainable use of natural resources and promoting sustainable tourism practices.

Egypt's Sustainable Agricultural Development Strategy (SADS) 2030

The Ministry of Agriculture has developed the Sustainable Agricultural Development Strategy 2030 in which a medium-term action plan was developed for Egypt, integrating the current sustainable agricultural development strategy with the existing linkages between agriculture, water, land use, climate change, agro-industry, input supply, food security and nutrition. Key objectives of the strategy are improving the standard of living for workers in the agricultural sector and achieving safe levels of food security; promoting sustainable agriculture in the sense of sustainable and good use of agricultural resources; eradicating poverty in rural areas and reducing its rates; preparing a vision for how to face climate change; increasing the competitiveness of Egyptian agricultural exports; and creating new job opportunities to combat unemployment.

To achieve this strategy, a set of policies have been put in place to be implemented to achieve the greatest amount of self-sufficiency in strategic crops. The horizontal expansion projects are considered one of the most important axes to support the policy of self-sufficiency and reduce the gap, as it aimed to reclaim the desert to increase the agricultural area by more than 3.5 million acres during the past and coming short period, the most important of which is the Toshka Al-Khair project with an area of 1.1 million acres and the New Delta project. The giant project covers an area of 2.2 million acres, the North and Central Sinai development project covers an area of 456 thousand acres, and the Egyptian rural development project covers an area of 1.5 million acres, in addition to other projects in southern Upper Egypt and the New Valley with an area of 650 thousand acres[28]. The current and planned expansion [29] of agriculture activities is expected to have a great impact on biodiversity and natural resources, therefore some of the strategic objectives of the SADS towards 2030 focus on promoting the sustainable use of natural agricultural resources and improving the climate for agricultural investment.

The National Water Resources Management Plan (2017-2037)

Egypt has developed a strategic plan for managing water resources until 2037, at an initial estimated cost of EGP900 billion[30]. The plan is based on four main axes: 1) Improving water quality, including the establishment of two- and three-year treatment plants, 2) Developing

[28] https://moa.gov.eg/ministry-activities/news

[29] https://www.youm7.com/story/2023/3/9/%D9%85%D8%A7-%D9%84%D8%A7-%D8%AA%D8%B9%D8%B1%D9%81%D9%87-%D8%B9%D9%86-%D8%A7%D8%B3%D8%AA%D8%B1%D8%A7%D8%AA%D9%8A%D8%AC%D9%8A%D8%A9-%D8%A7%D9%84%D8%AA%D9%86%D9%85%D9%8A%D8%A9-%D8%A7%D9%84%D8%B2%D8%B1%D8%A7%D8%B9%D9%8A%D8%A9-%D8%A7%D9%84%D9%85%D8%B3%D8%AA%D8%AF%D8%A7%D9%85%D8%A9/6109460

[30] https://www.dostor.org/4134912

new water resources, as the past period witnessed a growing national trend to localize seawater desalination technology, 3) Rationalizing the use of available water resources and raising the efficiency of the Egyptian irrigation system, as the state has adopted a national project to line canals and convert to modern irrigation systems in order to achieve maximum benefit from our limited water resources, and 4) Creating an appropriate environment in line with work programs and water projects, through legislative and institutional development and increasing citizens' awareness of the importance of rationalizing water and preserving it from all forms of waste and pollution.

The axes of the National Water Resources Plan include the development of new additional water resources such as deep groundwater in the Western Desert and Sinai, harvesting torrents and rain, and the use of non-traditional water resources such as seawater desalination. The plan also includes the optimal use of existing water resources with the importance of reducing water losses. In addition to irrigation development projects, reuse of agricultural drainage water and treated sewage, as well as protection of public health and the environment, and work to reduce pollution rates of waterways with industrial and municipal waste.

The National Project for the Development of Lakes

The implementation of the National Project for the Development of Lakes began in 2017 at a cost of EGP 100 billion. The project aims to purify the lakes and remove encroachments, support the development of the northern lakes as well as increase fisheries within the framework of Egypt's plan to achieve food security. The lakes included in the development are five northern lakes (Manzala, Brullus, Idku, Bardawil, and Mariout) of which three lakes are protected areas. These lakes are of great economic importance, as their fish production amounts to more than 75% of the total production in Egypt[31].

The project aims to enhance the economic return and rationalize government spending through the integration of government activities and the optimal use of available expertise and capabilities to improve water quality, treat pollution sources, restoring the ecosystem, increasing the production of fish stocks, organizing and improving fishing controls, raising the efficiency of fishermen and improving their working conditions, as an organizational structure was introduced to manage the national project for the development of lakes, and to establish an integrated structural and legal framework for the management of lakes.

The importance of the national project for the development of lakes as an integrated plan of action in all financial and technical aspects to maximize the utilization of the natural resources in the lakes and address all the problems that they suffer from at the present time in cooperation with the various agencies in the country, indicating that the proposed organizational structure for the implementation of the project will be a good tool for implementing the goals of the project, provided that the project management will be transformed after a short period into a national entity that will manage, protect and sustainably develop the lakes to maximize the economic benefit from them.

[31] https://beta.sis.gov.eg

2.4. Economic, fiscal policy, and other studies, information on how nature contributes to current GDP

A significant portion of Egypt's GDP is directly linked to the use of biological resources[32]. Biodiversity forms the basis of agriculture, fisheries and enables the production of foods, both wild and cultivated, which contributes to the overall well-being of Egyptian people. As shown in Table 2, most economic activities that contribute to the state's GDP are highly dependent on and potentially impacting the country's natural resources and biodiversity. For instance, the Egyptian economy which relies on tourism as a main source of income is highly dependent upon the health of the ecosystems.

Biodiversity also plays a crucial role in job creation and foreign exchange earnings for Egypt. This is particularly important in tourism, ecotourism, agriculture, fisheries, green economy, and sustainable development sectors. By valuing and conserving biodiversity, Egypt can promote economic growth, job creation, and foreign exchange earnings while preserving its natural heritage for future generations. It is essential to adopt sustainable practices, collaborate with local communities, and implement policies that protect and enhance biodiversity to maximize these benefits. However, there is a need to implement tools and policies to integrate and mainstream environmental dimensions into economic decision-making. This can include improving the expertise in environmental economics and natural capital; the use of cost-benefit analyses, System of Environmental Economic Accounting (SEEA) and environmental economic valuation methods in the decision-making process. Accordingly, decision makers can further factor environmental considerations into their decision-making process.

Several socioeconomic and cultural studies were carried out in different Protected Areas representing different ecosystems, where results confirmed the revenues linked with biodiversity. El-Omayed Protected Area (representing the coastal desert ecosystem) provided services to agriculture worth EGP33 million annually, rangelands provided returns equal to EGP8 million annually. Services provided by Brullus Protected Area (representing wetlands) are estimated at more than annual EGP200 million[33]. Services afforded by marine ecosystems (Red Sea) are worth hundreds of billion pounds annually. They are so dissimilar, including coral reefs, mangroves, islands, beaches, sea grasses, fishes, reptiles, birds, and marine mammals.

TABLE 2 GDP BY ECONOMIC ACTIVITY FINANCIAL 2021/2022 (CURRENT PRICES)[34]

Economic Activity	Sector (value in Million EGP)			Dependency on Biodiversity*	Impact on Biodiversity*
	Public	Private	Total		
Agriculture Forestry Fishing	1,580.49	856,840.23	858,420.72	H	H
Mining Quarrying	400,745.97	164,816.02	565,561.99	H	H
Petroleum	218,567.64	35,268.04	253,835.68	H	H
Gas	177,437.88	30,739.85	208,177.73	H	H

[32] https://www.cbd.int/countries/profile/?country=eg

[33] Ministry of Environment. 2016. Egypt National Biodiversity Strategy and Action Plan to 2030

[34] Ministry of Planning and Economic Development: https://mped.gov.eg/GrossDomestic

Other Extraction	4,740.45	98,808.13	103,548.58	H	H
Manufacturing Industries	341,186.76	911,302.23	1,252,489	H	H
Petroleum Refining	237,813.01	25,378.2	263,191.2	H	H
Other Manufacturing	103,373.76	885,924.03	989,297.79	H	H
Electricity	97,063.73	40,379.81	137,443.55	H	H
Water Sewerage Remediation Activities	19,443.93	21,557.25	41,001.17	H	H
Construction	49,499.02	519,399.29	568,898.31	H	H
Transportation And Storage	57,720.71	327,667.29	385,388	H	H
Communication	36,196.46	142,130.3	178,326.76	L	L
Information	1,214.36	29,940.16	31,154.53	L	L
Suez Canal	114,626.1	0	114,626.1	M	M
Wholesale And Retail Trade	53,548.79	986,571.28	1,040,120.08	L	L
Financial Intermediaries Auxiliary Services	120,780.62	133,351.6	254,132.21	L	L
Social Security and Insurance	37,895.75	11,932.42	49,828.17	L	L
Accommodation And Food Service Activities	3,583.06	172,771.7	176,354.75	M	M
Real Estate Activities	4,651.74	810,434.12	815,085.85	L	L
Real Estate Ownership	3,817.49	546,028.59	549,846.08	L	L
Business Services	834.25	264,405.53	265,239.78	L	L
General Government	488,464.5	0	488,464.5	L	L
Social Services	31,752.55	468,074.06	499,826.61	L	L
Education	0	169,983.71	169,983.71	L	L
Health	30,503.53	170,840.4	201,343.93	M	M
Other Services	1,249.02	127,249.95	128,498.96	L	L
Total GDP (Total Gross Value Added)	**1,859,954.52**	**5,597,167.76**	**7,457,122.29**		

***H=High, M=Medium, L=Low

GDP, Megaprojects and Overpopulation

Egypt's GDP has increased during the fiscal year 2021-2022 to 7.9 trillion pounds[35]. The Egyptian economy achieved the highest growth rate in 14 years, despite the repercussions of the Ukrainian crisis, recording 6.6% in 2021-2022 compared to 2.9% in 2013-2014. The GDP at current prices increased by more than 3 times, reaching 7.9 trillion pounds in 2021-2022, compared to 2.2 trillion pounds in 2013-2014. Since 2016, the Egyptian state has started implementing measures related to improving the state's finances, increasing its ability to implement plans, and carrying out thousands of national projects that stimulated economic activity. National and mega projects and government investments are the locomotive of development that moved the economy and pushed it towards more growth until it achieved significant growth rates and was the main reason for doubling the GDP to reach about 7.9 trillion pounds during the year 2021-2022.

[35] Ministry of Planning and Economic Development

However, such economic growth efforts are challenged by population growth. Overpopulation is one of Egypt's major problems and constitutes the main obstacle to development efforts. It also hinders efforts to secure the best services for citizens and fight other economic problems, such as unemployment and poverty. The current population of Egypt is equivalent to 1.31% of the total world population. Egypt ranks number 14 in the list of countries (and dependencies) by population. The population density in Egypt is 103 per Km^2 where the total land area is 995,450 Km^2 [36]. Biodiversity and natural resources are subject to impacts caused by this rise in GDP and overpopulation. Pollution, habitat loss, biodiversity loss, and overuse of natural resources are some of these effects. Egypt has therefore adopted national development and green growth strategies in addition to getting assistance from international organizations.

2.5. Summary of availability of economic valuation evidence for the country

The implementation of the CBD and the NBSAP has shed light on some valuable insights for Egypt. The role of biodiversity in the supply of ecosystem goods and services is gaining recognition in Egypt although identifying economic values of biodiversity goods and services is relatively new. Thus, it is essential for proper management of an ecosystem, to identify its goods and services. It is also argued that another essential element for such proper management is to quantify ecosystem services in a way that is meaningful for decision-makers. One such a way involves expressing the value of these goods and services in monetary units that can be easily understood and compared along the board with other aspects related to policy and/or decision making. This monetizing process is called "economic valuation" of ecosystem goods and services. Table 3 presents summary of the economic valuation studies for ecosystems conducted in Egypt.

TABLE 3 ECONOMIC VALUATION STUDIES FOR ECOSYSTEMS IN EGYPT

Source	Ecosystem / PA	Results
Spurgeon, J. 2002. Socio-economic assessment and economic valuation of Egypt's mangroves, Food and Agriculture Organization of The United Nations, Cairo **https://www.fao.org/publications/card/fr/c/3149272f-fb2e-5708-84ca-2bdd5e190628/**	Mangroves	Total Economic Value (TEV) of the mangroves at Ras Mohammed could be as high as $ 182,000/year ($ 91,000/ha/yr), and for Nabq Protected Area the figure could be as high as $ 1,290,000/year ($ 24,000/ha/yr).
Cesar, H. 2003, Economic Valuation of the Egyptian Red Sea Coral Reef. USAID-funded, Cairo, Egypt. **https://pdf.usaid.gov/pdf_docs/Pnadf666.pdf**	Coral Reefs	Reef-related tourism expenditures are estimated at $ 470 million per year. A total reef-associated consumer surplus is of over $ 17 million for Marsa Alam, over $ 116 million for Sharm and over $ 75 million for Hurghada.
Tawfik, R. T. 2004. Recreational Value of Coral Reefs: An Application to Coral Reefs in Ras Mohamed National Park, Master's thesis, University of York, UK.	Coral Reefs	This study aims to estimate the recreational value of coral reefs within Ras Mohammed by employing the travel cost and the contingent valuation methods. The zonal travel cost model (ZTCM) estimates the annual recreational value at $ 142 million while the result from the individual travel cost model (ITCM) is about $

[36] https://www.capmas.gov.eg/HomePage.aspx

Source	Ecosystem / PA	Results
		191 million. The WTP for coral reefs conservation was estimated to be about $ 1.5 million per year.
Brading, P., El-Gabbas, A., Zalat, S., Gilbert, F. 2009. Biodiversity economics: The value of pollination services to Egypt. Egyptian Journal of Biology. **https://www.ajol.info/index.php/ejb/article/view/56561**	Crops - pollinators	Many Egyptian crops are fully or partially dependent on pollinators for their yields, and data exist on the market values of Egyptian crops. The annual cost to the Egyptian economy of losing its pollinators were approximately LE 13.5 billion ($2.4 billion), 3.3% of the 2003 GDP.
Abdrabo, M. A. 2009. Economic Valuation of Wetland Ecosystem. Case Study: Lake Maryuit, Egypt. **https://www.torrossa.com/it/resources/an/2425351**	Wetland	The total economic value of fish production from the Maryuit lake, assuming 5%, and 10% discount rates, ranges between EGP 470,029,000 and 940,578,000.
Tawfik, R. T. 2010. Economic Valuation of Coral Reefs and The Ecosystem Services Approach to Environmental Management: A Case Study of Ras Mohammed National Park, Ph.D. Thesis, University of East Anglia, Norwich, UK.	Coral Reefs	The Willingness to Pay (WTP) per person values for reef conservation derived from Contingent Valuation method are $26.67 for foreign tourists and LE30.51 for national tourists. The WTP for scenario includes improving the reef quality by 30%, reducing the number of people at the reef site by 50%, and increasing the number of dive sites to 25 sites derived from Choice Experiment is $29 for international tourist and LE26.5 for national tourist'
Tawfik, R. T., Turner, R. K. 2014. A choice experiment to value the recreational benefits of coral reefs: A case study of Ras Mohammed National Park, Egypt. In *Handbook on the Economics of Ecosystem Services and Biodiversity* (pp. 367-390). Edward Elgar Publishing. **https://www.worldscientific.com/doi/10.1142/9789814327084_0039**	Coral Reefs	Based on the total number of visitors to Ras Mohammed of 495 382 (471 142 international tourists and 24 240 national tourists) in the year 2008/09, the annual WTP on top of the existing entrance fees was estimated to be US$238 656 for each 1 per cent increase in the reef quality, US$94 994 for each 1 per cent decrease in the congestion level and US$189 779 for each additional dive site. The aggregated WTP is $13.7 million.
Abdrabo & Hassan. 2015. cited in Temraz, T. A., Zedan, H., Fouda, M., Saber, M., Salama, W., & Harhash, K. A. (2016). Egyptian biodiversity strategy and action plan (2015-2030). *Minist. Envirnoment*, 1-83.	Wadi El Ryan	It was found that the discounted present value of Wadi El Ryan ecosystems, at 7% and 10% discount rates, to be L.E. 1118.2 and 865.89 million, respectively. Meanwhile, the potential value of Wadi El Rayan Ecosystem is, also, estimated and could generate additional L.E. 211.47 million annually from agricultural activities expansion within the protected area.
Abdrabo & Hassan. 2015. Cited in Temraz, T. A., Zedan, H., Fouda, M., Saber, M., Salama, W., & Harhash, K. A. (2016). Egyptian biodiversity strategy and action plan (2015-2030). *Minist. Envirnoment*, 1-83.	Ras Mohammed	The present value of Ras Mohamed ecosystem is estimated to be US$ 3665.14 and 2951.35 million under 7% and 10% discount rates, respectively. The value of Ras Mohamed ecosystems is about US$ 271.3 million/year. This value includes fishing activities, bio-prospecting, education and research and recreation functions of the most prominent ecosystems in Ras Mohamed National Park, namely; coral reefs and mangroves.
Tawfik R. T. & Sarhan M. I. 2017. Environmental Damage Assessment Applied to Coral Reefs. Strengthening Protected Area Financing and	Coral Reefs	The evaluating environmental damage equation should be simplified and reduced to three elements as it was in the early nineties, where the area and the

Source	Ecosystem / PA	Results
Management Systems Project, UNDP – GEF, Egypt.		percentage of destruction are merged into the destroyed area while ignoring the percentage of coral cover, because we are dealing with the reef ecosystem as an integrated unit. In this case, the price per square meter is $120. In the case of continuing to use the equation with its five elements, the price per square meter will be $300 with the need to unify the application in the Sinai and Red Sea reserves.
Sharaan, M., Somphong, C., & Udo, K. 2020. Impact of SLR on beach-tourism resort revenue at Sahl Hasheesh and Makadi Bay, Red Sea, Egypt; A hedonic pricing approach. Journal of Marine Science and Engineering, 8(6), 432. **https://www.mdpi.com/2077-1312/8/6/432**	Sahl Hasheesh and Makadi Bay	Three regression models (semi-log, double-log, and custom-log) were used to select the most appropriate functional hedonic model. Three coastal slopes were considered (0.03, 0.06, and 0.12) to address the uncertainty in beach width. When 0.06 coastal slope is used, the expected losses in revenue are 84,000, 220,000, and 546,000 USD/day period (representing 3%, 7%, and 18%) for 2030, 2050, and 2100.

Egypt faces numerous challenges to economic valuation of ecosystem goods and services. These challenges include: a lack of understanding of the effects of climate change on goods and services provided by ecosystems; limited understanding of cumulative impacts on ecosystem services; inadequate practical national guidelines for valuation of ecosystem services; and inadequate capacity or human resources to conduct valuation of ecosystem services. A priority activity to address these challenges in Egypt includes conducting an economic valuation of the country's biodiversity and ecosystems services according to the international standards.

Several of these studies significantly contributed to policy discussions. For example, the Socio-economic Assessment and Economic Valuation of Egypt's Mangroves study served as the inaugural step in an ongoing process aimed at fully grasping and evaluating the importance of Egypt's mangroves. The findings of the Recreational Value of Coral Reefs study, which estimated the recreational value of coral reefs in Ras Mohammed, directly influenced the decision to raise entrance fees for the park. In another instance, the biodiversity economics study, focusing on the value of pollination services to Egypt, provided an estimation of the potential costs to the Egyptian economy in the event of a catastrophic loss of pollinators. This underscores the economic considerations crucial for the preservation of pollinator populations. Furthermore, the results of the Environmental Damage Assessment Applied to Coral Reefs study played a crucial role in approving a fine system within the EEAA. Moreover, the concept of willingness to pay (WTP) assumed a pivotal role in the reformulation of PAs entrance fees.

2.6. Sectoral dependencies on, impacts on, risks to, and opportunities for, biodiversity

Biodiversity plays a part in amending the natural processes thus maintaining the earth's life support systems. The genetic components of some fauna and flora species support the development of medicinal, agricultural, and industrial products as well as the basic daily needs of local communities. Agricultural production, for instance, is reinforced by biodiversity and

ecosystem services such as provision services (food, fuel or fiber is the product), support services (microorganisms cycling nutrients and soil formation), regulatory services (pollination and pollution control), and cultural services (spiritual or aesthetic benefits). In addition, biodiversity supports the development of many new industries (e.g., ecotourism) which provide high economic returns.

The loss and degradation of biodiversity would therefore have social, economic, cultural, and ecological implications. Threats to Egypt 's biodiversity include demographic pressure, excessive hunting and, cutting, globalization and its negative impacts on resource extraction, limited human and financial resources, and habitat degradation due to pollution from unsustainable agricultural and industrial use. Egypt's population doubled to over a hundred million, in about four decades. This population increase has put further strain on biodiversity. At present, 20% of Egyptians live in coastal areas which are also visited annually by 11 million tourists. In addition, more than 40% of industrial and developmental activities are concentrated in the coastal zone (ports, cities, infrastructure, petroleum and mining activities, and tourism) [37].

Total agriculture production accounted for 12% of Egypt's GDP (81.3 billion Egyptian pounds) and employed 20.6% of the total work force (more than 6 million jobs in agriculture and fisheries) in 2017. According to the annual report issued by the General Authority for Development of Fish Resources (GAFRD, 2012), fish production in 2011 over 1.3 million tons with a value of 18 billion Egyptian pounds are captured from marine and inland capture fisheries and brackish and freshwater aquaculture. The natural resources (Nile River, Red Sea, and Mediterranean) provided 375,354 tons (18.5% of total production) of which marine fish production reached 122,303 tons (12.5% from total fish catch). The aquaculture sector produced 986,820 tons (81.5% of total fish production). In addition, fish hatcheries produced more than 270 million fish fries (sea bream, sea bass, soles, shrimps, tilapias, and carp) that are used in developing fish production in some lakes and fish culture[38]. In 2017, the contribution to Egypt's GDP from the fisheries sector was about 0.4% and more than 250,000 fishermen were employed in the sector. Fish production has increased from 790,000 tons in 2001 to 1.6 million tons in 2017; the latter valued at approximately $1.5 billion. A 2009 study estimated that the loss of pollinators would cost the Egyptian economy approximately $2.4 billion, or 3.3% of the 2003 GDP[39]. Biodiversity also provides regulating and supporting services. The protection of Red Sea coastal areas from erosion by coral reefs and mangroves was valued at 80 million EGP per km^2. [40] Tourism is one of the most important sectors in Egypt contributing 11.3% of GDP in 2017. In addition, 12.6% of the total labor force were employed in this sector in 2017. While not all of this is associated with nature-based tourism, visits to Egypt's Red Sea reefs account for approximately 3.5% of the 11.3% GDP accrued for tourism. As of 2019, the number of tourist rooms in hotels and similar establishments amounted to 202,430 units[41], the number of tourists was 13.1 million, and the tourism revenues were $14.25 billion (about 9% of the GDP)[42].

[37] https://www.cbd.int/countries/profile/?country=eg
[38] Ministry of Environment. 2016. Egypt National Biodiversity Strategy and Action Plan to 2030
[39] Brading et al. 2009. Biodiversity Economics: The Value of Pollination Services in Egypt. *Egyptian Journal of Biology* 45-51.
[40] Zedan, H. 2014. Overview of Egypt's Biodiversity Status and Trends.
[41] https://www.statista.com/statistics/1006610/egypt-number-rooms-hotels-and-similar-establishments/
[42] https://www.macrotrends.net/countries/EGY/egypt/tourism-statistics

Trends, Drivers and Sectoral Linkages

3. TRENDS, DRIVERS AND SECTORAL LINKAGES

The main positive and negative trends in biodiversity and underlying drivers and levers of change were identified. DPSIR framework was employed to elucidate the drivers of change in biodiversity, and the external environment surrounding it. The Driver-Pressure-State-Impact-Response (DPSIR) Framework provides a structure to present the indicators needed to enable feedback to policy makers on environmental quality and the resulting impact of the political choices made or to be made in the future. The DPSIR framework assumes a chain of causal links starting with 'driving forces' (economic sectors, human activities) through 'pressures' (emissions, waste) to 'states' (physical, chemical, and biological) and 'impacts' on ecosystems, human health, and functions, eventually leading to political 'responses' (prioritization, target setting, indicators). It can be summarized as ***Drivers*** place ***Pressures*** on the environmental ***State*** and lead to ***Impacts*** which elicit a management ***Response***. DPSIR framework has been applied in numerous environmental contexts, ensuring environmental management to connect ecological and socioeconomic factors and assess whether specific policy decisions are effective. It incorporates both the internal status and the external factors and acts as a comprehensive method for reporting the environment state. Many international institutions recommended its application such as the Organization for Economic Co-operation and Development (OECD), EU, US Environmental Protection Agency (EPA), European Economic Area (EEA), UNDP, and the United Nations Environment Program (UNEP).

3.1. Drivers

Drivers refer to vital social processes shaping human activity and affecting biodiversity. Examples of root causes of biodiversity loss include population growth, human greed, poverty, insufficient resources, inappropriate policies, lack of enforcement, poor education, the public good nature of the majority of ecosystem services, the user externalities, and the failure of the current market to consider many impacts on biodiversity and ecosystem services[43]. This loss also could be attributed to a lack of information, lack of resources, and lack of commitment[44]. The lack of knowledge about their value is a main cause of many threats to biodiversity and ecosystem services.

Ecosystems are deteriorated by the same economic activities they sustain. The numerous goods and services provided by ecosystems have left these ecosystems vulnerable to exploitation from over-fishing/hunting to the overdevelopment of many areas.

3.2. Pressures

Pressures affecting biodiversity could be divided into exogenous unmanaged pressures (their cause emanates outside the area, e.g., climate change) and endogenous managed pressures

[43] Spurgeon, J., 2001. Valuation of Coral Reefs: The Next Ten Years, Paper presented at Economic Valuation and Policy Priorities for Sustainable Management of Coral Reefs an International Consultative Workshop. Organised by ICLARM, in Penang, Malaysia.

[44] Pearce, D., 2007. Do we really care about Biodiversity? *Environmental and Resource Economics,* 37, 313-333. https://doi.org/10.1007/s10640-007-9118-3

(take place inside the management area, e.g., overfishing, coastal development, dredging, and land reclamation).

Human populations and tourists are increasing rapidly in Egypt, particularly in coastal cities where the development now stretches along the coast of the Red Sea and the Mediterranean Sea. From 1960 to 2021 the population of Egypt increased from 26.63 million to 109.26 million people. This is a growth of 310.3 percent in 61 years[45]. The population is very unevenly distributed: 99% of Egyptians live on less than 4% of the land. A growing population increases pressure on biodiversity and drives habitat fragmentation, degradation, and misuse. In addition to their direct use, recreational users have the potential to impact biodiversity through the increased demand for infrastructure and development. Illegal fishing and the rising demand for seafood from restaurants affected several reef fisheries.

Moreover, there are rapid increases in shipping, transport, local marina operations, and recreation boats. The Red Sea is one of the busiest international shipping routes and the Suez Canal is regarded as the quickest route between the east and the west. This prominence is getting increased with the development of maritime trade and transportation. Shipping is the most affordable form of transportation, and most of the global trade volume is transported by sea. Being a major international maritime route, the Red Sea is vulnerable to a lot of vessel accidents and ship groundings on reefs due to the increase in recreational boat traffic. Coastal development, and associated dredging, waste, and land reclamation represent additional stressors on ecosystems in the region.

According to Egypt's NBSAP, pressures on biodiversity in Egypt are either directly or indirectly related to human impacts, with the former including excessive hunting, clear-cutting, and deforestation, and the latter linked to habitat destruction for developmental purposes and all pollution types, including refuse from industry and human settlements. Excessive hunting is endangering several species of resident and migratory birds as well as several hoofed animals (e.g., gazelles). Pollutants in the air, water, and soil (especially in rural areas) are also threatening a large number of plants and animals as well as leading to a substantial increase in other harmful exotic ones (e.g., species of rats, birds, red spiders, American cotton worms). A famous example is the detrimental effect of the introduction of the water hyacinth (Eichhornia crassipes) on life in the Nile River. Major threats to marine ecosystems include unregulated tourism, exploitation of marine resources, overfishing and fishing in illegal areas (e.g., breeding grounds), and coastal pollution. Currently, the Egyptian coastal areas accommodate 20% of the national population, in addition to 11 million tourists on an annual basis. In addition, more than 40% of industrial activity occurs in the coastal zone. Pressures are accentuated by increases in the level of desertification due to climate change as well as in human populations[46]. Many ecosystems are naturally threatened by flooding, disease, and predator outbreaks. However, these events might be due to human influences.

3.3. State

State refers to the ecosystem while impact refers to the changes to the ecosystem and the social system. Such changes could be described as structural characteristics (e.g., the number

[45] https://www.worlddata.info/africa/egypt/populationgrowth.php
[46] https://www.cbd.int/countries/profile/?country=eg

of species in a community) or functioning variables (e.g., productivity). The interaction of the physical, chemical, and biological variables determines the ecosystem's state.

Egypt is home to a wide variety of ecosystems and terrestrial and aquatic life. Many plant and animal species in Egypt represent tropical and Mediterranean environments, some of which go back millions of years. The land area of Egypt is composed of desert (92%) and agricultural land (8%). The country comprises 22 main habitat groups such as: Gebel Elba; Mountains and Wadies of the Eastern Desert; Red Sea Littoral Habitats; Red Sea Islands; Red Sea Marine Habitats; Mountains and Wadies of South Sinai; Central and North Sinai; Mediterranean Wetlands; Nile Valley and Delta; Gebel Uweinat and Gilf Kebir; Western Desert Depressions and Oases; Sand and Dunes of the Western Desert; Western Desert Mediterranean Coast and Mediterranean. The main features of these dry land areas are rocky surfaces, eroded pavement, gravel desert, sand dunes, slopes, and cliffs, yet the composition of plants in these areas differs one from the other. Egypt is bounded on the north and east by two largely enclosed seas, the Mediterranean Sea, and the Red Sea.

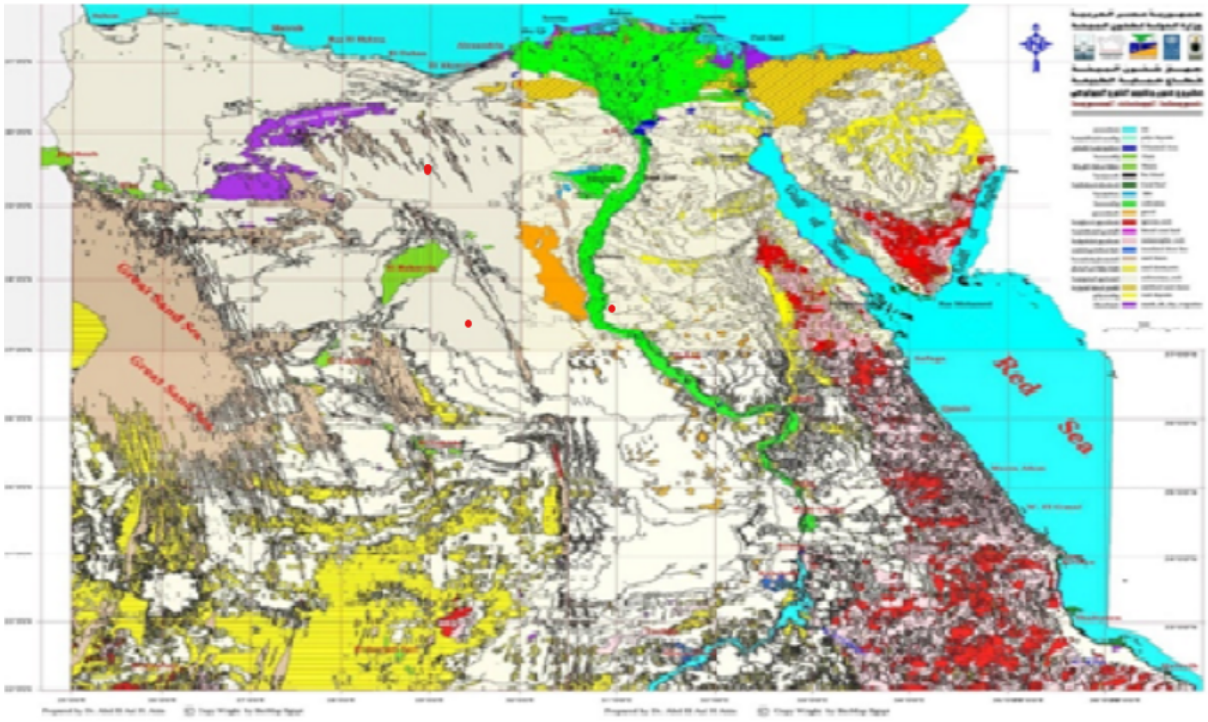

FIGURE 6 HABITAT SUBSYSTEM IN EGYPT (SOURCE: NCS 2014)[47]

This unique position is enhanced by the circumstance that it is divided by the Nile, the longest river in the world. Despite being mostly arid or hyperarid, Egypt is home to a wide diversity of terrestrial habitats, fauna, and flora due to its very varied eco-zones[48]. A total of 5 main habitat systems, 12 habitat sub-systems, and 36 habitat classes were identified and described. The main 5 habitat systems in Egypt can be described in decreasing order as follows: Desert habitat system (868860.71 km2 -86.89 %); Marine habitat system (269204.63 km2 - 26.92%); Wetlands habitat system (70177.49 km^2 - 7.02 %); Artificial habitat system (51938.97 km^2 -

[47] NCS, Egypt's Fifth National Report to the CBD, 2014)
[48] Fouda, M. M. 2017. *National monitoring program for biodiversity and non-indigenous species in Egypt*. UNEP/MAP/SPA-RAC.

5.19 %); and Fresh Water habitat system (7156.31 km^2 - 0.72 %)[49]. Egypt has four sites designated as RAMSAR sites of international importance (Lake Qarun, Wadi El Rayan, Lake Brullus, and Lake Bardawil).

Egypt contributes 1.7% of the world's biota [50]. Three hundred and twenty-four species of fauna, and many species of flora, that exist in desert habitats are considered of ecological importance, especially in Sinai. Along with deserts, wetlands also constitute an important ecosystem, with 80 plants, 100 animals, and 82 fish, notably along the Nile, spread over 1,530 km of the national territory. Overall, Egyptian biodiversity comprises 143 types of globally important species, 800 species of non-flowering plants, 2,302 flowering plants (62 endemic species and 2 threatened), 111 species of mammals (13 threatened), 480 species of birds (14 threatened), 109 species of reptiles (6 threatened), 9 species of amphibians, and more than 1,000 species of fish.

There exist many invertebrates, 10,000 to 15,000 species of insects, more than 200 types of coral species, 800 species of mollusks, and over 1,000 crustaceans. 18 indigenous coral species are the world's best because of not having been subjected to coral bleaching. Two types of mangroves (*Avicennia marina*) and (*Rhizophora mucronata*) provide shelter for numerous species (40 species of insects, 72 species of butterflies, 65 mollusks, 17 polychaetes, and 22 species of fish)51. It is noteworthy that many plant and animal species in Egypt (e.g., coral reefs and mangroves) are on the very edge of their geographical or ecological range and have therefore very limited tolerance for ecological pressures and many species are very narrowly distributed or highly localized, making habitat conservation crucial.

3.4. Impact

Impacts reflect the changes in the natural system (ecosystem physical, chemical, or biological state) and in the social system and human welfare (ecosystem services and benefits).

3.4.1 Impact on Ecosystems

Egypt's Fifth National Report to The CBD states that national biodiversity is deteriorating at ecosystems, species, and populations levels, in addition to decline in genetic diversity[52]. Available indicators suggest that the state of biodiversity in Egypt is declining despite the many national efforts taken to conserve biodiversity and use it sustainably. Climate change is likely to exacerbate many of the risks associated with other stressors, by further taxing the already compromised resilience of natural systems and reducing the choices open to individuals and policy makers. The expected impacts of climate change include shifts in species distribution and range, shifting rainfall patterns, rising temperatures, shifts in seasons, and sea level rise. The most vulnerable sectors to climate change include agriculture, water, and health. Moreover, coastal areas and islands are expected to be heavily impacted. The impact of biodiversity loss is difficult to determine precisely due to the complexity of the processes

[49] https://www.cbd.int/doc/world/eg/eg-nbsap-v2-en.pdf
[50] USAID/Egypt. 2020. Foreign Assistance Act Section 119. Biodiversity Analysis.
[51] https://www.cbd.int/countries/profile/?country=eg
[52] https://www.cbd.int/doc/world/eg/eg-nr-05-en.pdf

involved. Some examples of the impacts of major threats on biodiversity and associated effects on ecosystem services are summarized below.

The Mediterranean Sea is becoming warmer (might be of the order of 0.6°C/decade in summer); its salinity is increasing, and the rise in sea level is accelerating (might be in the range of about +6/+11 cm)[53]. The Nile Delta is considered one of the most vulnerable sites in the world due to climate change. Sea level rise would change the water quality and affect most freshwater fish. Valuable agricultural land would be inundated. Recreational tourism beach facilities would be endangered, and essential groundwater would be salinated[54].

About 60% of Red Sea coral reefs were assessed as at risk primarily due to coastal development, overfishing, and the potential threat of oil spills in the heavily trafficked Arabian Gulf and the southern end of the Red Sea. The four northern Delta lakes (Manzala, Brullus, Deku, and Mariout) were among the richest and most diverse ecosystems in Egypt until just 40 years ago. Production levels are endangered already by developments in other sectors: e.g., land reclamation in Lake Manzala, and hyper-salinization in Lake Qarun. Increasingly harsh climatic conditions, livestock grazing, population growth, and hunting are among the factors contributing to the decline of numerous terrestrial mammal populations, such as the striped hyena, Dorcas's gazelle, and Nubian ibex. This also includes resident and migratory birds, especially throughout the Western Desert and Mediterranean Coastal regions. Threatened reptiles found in Egypt include the vulnerable African softshell turtle and the critically endangered Egyptian tortoise. The Food and Agriculture Organization (FAO) statistics on data collected for beehives in Egypt from 1960 to 2016 indicate that the number of beehives declined steeply between 2005 (~1.5 million) and 2015 (~800 thousand). Approximately 20,000 acres of farmland are lost each year to urban growth, while the government spends an average of $2 million annually to subsidize food imports[55]. Of the assessed 364 species in 2013, 41% (152 species) are considered threatened with extinction, although this varies among taxonomic groups[56].

3.4.2 Impact on Human welfare (Benefits and Services Provided by Ecosystems)

For effective management, it is very important to understand the ways in which ecosystem services benefit humans. The ecosystem services, their characteristics and how and where they are generated, and in what terms the benefits are realized should be identified. There is a need for ecosystem thinking to determine priorities for management interventions. The Millennium Ecosystem Assessment (MA) classified ecosystem services into four categories: provisioning services (e.g., food, medicines); supporting services (e.g., photosynthesis, nutrient cycling); regulating services (e.g., the regulation of erosion, and natural hazard); and cultural services (e.g., recreation, education). The condition of the biodiversity sites determines the quality of the cultural, social, and economic benefits the society and different stakeholders derive from these services. If the ecosystem has an appropriate structure and functioning, it is fostering a healthy environment and providing ecosystem services and benefits. The deterioration and loss of biodiversity jeopardize food security, health, clean

[53] *Fouda, M. M. 2017. National monitoring program for biodiversity and non-indigenous species in Egypt. UNEP/MAP/SPA-RAC.*
[54] *Elsharkawy H., Rashed H., & Rached I. 2009., The impacts of SLR on Egypt,*
[55] USAID/Egypt. 2020. Foreign Assistance Act Section 119. Biodiversity Analysis.
[56] Zedan, H. 2014. Overview of Egypt's Biodiversity Status and Trends.

environment as well as economic development. The activities in the region place pressures on the state of ecosystems leading to a range of impacts diminishing the condition of the ecosystems' value and affecting the quality of the benefits derived and the human welfare which elicit a management response. Understanding these causal relationships assists to predict the potential changes in human wellbeing due to the changes in ecosystem services.

The biodiversity in Egypt provides valuable services for humanity, as well as crucial nursery habitats for animals and sanctuaries for endangered species. These resources have traditionally supported livelihood through fisheries, agriculture, and trading. Nowadays, the coastal areas are the focus of rapid urban an industrial growth, oil and gas development, industrial-scale, fisheries, and tourism. Egypt's' wetlands represent a significant sink for carbon and are key ecosystems to consider when managing and weighing earth's carbon stock. A significant portion of Egypt's GDP is directly linked to the use of biological resources and most economic activities that contribute to the state's GDP are highly dependent on the country's natural resources as presented in section 2.4. Total agriculture production accounted for 12% of Egypt's GDP (81.3 billion Egyptian pounds) and employed 20.6% of the total work force (more than 6 million jobs in agriculture and fisheries). Tourism is contributing 11.3% of GDP and employed 12.6% of the total labor force. Several socioeconomic and cultural studies were carried out representing different ecosystems, where results confirmed the revenues linked with biodiversity. El-Omayed Protected Area (representing the coastal desert ecosystem) provided services to agriculture worth EGP33 million annually, rangelands provided returns equal to EGP8 million annually. Services provided by Brullus Protected Area (representing wetlands) are estimated at more than annual EGP200 million[57]. Services afforded by marine ecosystems (Red Sea) are worth hundreds of billion pounds annually. The protection of Red Sea coastal areas from erosion by coral reefs and mangroves was valued at 80 million EGP per km^2 [58].Section 2.5 presents summary of the economic valuation studies for ecosystem services conducted in Egypt.

3.5. Responses

Identifying the different components and understanding causal links in the framework is essential to guiding management actions. Management responses interventions may target some drivers and activities to enable them to be avoided or mitigate the magnitude of the pressure or impact allowing use to occur within sustainable limits, or restore the state of the environment itself, or promote understanding, awareness and appreciation of the benefits derived from the ecosystems. Understanding these relations is needed to justify management responses and promote adaptive management. Biodiversity management relies on governance that includes laws, regulations, and administrative procedures in addition to other tools like economic instruments, education, research, and technology advancements

Egypt has identified three future needs for biodiversity protection: development challenges, information requirements, and public awareness[59]. The challenge for the Egyptian

[57] Ministry of Environment. 2016. Egypt National Biodiversity Strategy and Action Plan to 2030

[58] Zedan, H. 2014. Overview of Egypt's Biodiversity Status and Trends.

[59] PERSGA, 2003. *Coral Reefs in the Red Sea and Gulf of Aden: Surveys 1990 to 2000 Summary and Recommendations*. The Regional Organization for the Conservation of the Environment of the Red Sea and Gulf of Aden, Technical Series No. 7, Jeddah

government lies in achieving a harmonious balance between environmental protection, including biodiversity preservation, and fostering economic development.

Article 45 of the Egyptian Constitution of 2014 dictates that the state commits to protecting its seas, beaches, lakes, waterways, mineral water, and natural reserves. It is prohibited to encroach upon, pollute, or use them in a manner that contradicts their nature. The state also commits to the protection and development of green space in urban areas; the protection of plants, livestock, and fisheries; the protection of endangered species; and the prevention of cruelty to animals. Furthermore, the state commits to its international obligations imposed by ratified international conventions and agreements to which Egypt has joined. In addition, a number of laws have been enacted to govern this relationship (e.g., Nature Protectorates Law 102 of 1983, Environmental Law 104 of 1994).

Law 4 of 1994 (Amended by Law 9/2009) is the main law that is specialized in matters of environmental protection. According to Law 102/1983, activities that would cause harm to organisms and habitats within protectorates are prohibited. However, implementation and enforcement are not adequate, with conflicting policies and objectives among different government departments. Egypt also is a signatory of all the major international agreements and conventions on the conservation of biodiversity. Examples include the CBD, the Convention on Wetlands of International Importance (RAMSAR), the World Heritage Convention (WHC), the Convention on International Trade in Endangered Species (CITES). Additionally, Egypt is a signatory body to a number of regional conventions such as Jeddah Convention and Barcelona Convention.

Jeddah Convention is a UNEP Regional Seas Convention for the Red Sea and the Gulf of Aden dated 1982. The convention sets out the terms of regional cooperation among the signatory parties including 7 member states (Djibouti, Egypt, Jordon, KSA, Somali, Sudan, and Yemen) in regards to marine and coastal environmental protection. Adopted in 1982 and entered into force in 1985, the convention is complemented by 4 protocols[60].

The Barcelona Convention on the Protection of the Mediterranean Sea against Pollution (the original convention entered into force on 12 February 1978) or the Convention for the Protection of the Marine Environment and the Coastal Region of the Mediterranean (amended in 1995), also known as the Barcelona Convention, is the most important regional instrument concerning the transboundary environmental problems in the Mediterranean.

The revised Convention (1995) aimed to progress from an essentially proclamatory form of law to a more prescriptive law setting out obligations. The scope of its protocols was extended and new protocols were adopted either to replace the existing ones or to cover new fields. Egypt first signed the Barcelona convention on the 16 February 1976. It ratified and approved

[60] Jeddah Convention is complemented by 4 protocols including: Protocol on Regional Cooperation in Combating Pollution by Oil and Other Harmful Substances in Cases of Emergency" signed in February 1982, Protocol Concerning the Conservation of Biological Diversity and the Establishment of Network of Protected Areas in the Red Sea and Gulf of Aden (2005), Protocol Concerning the Protection of the Marine Environment from Land-Based Activities in the Red Sea and Gulf of Aden (2005), Protocol Concerning Technical Cooperation to Borrow and Transfer Experts, Technicians, Equipment and Materials in Cases of Emergency (2009).

the Barcelona convention on 24 August 1978 and accepted its amendment on 11 February 2000 and entered to force on 9 July 2004. The present Barcelona structure includes the 7 protocols[61].

The NCS of the EEAA is responsible for the management of the protected areas. A network of protected areas was established to protect the environment from destructive development, conserve natural resources and manage traditional extractive uses. Zones for scientific research and preservation are kept closed. Mooring buoys, walkways, and access points have been established to reduce the damage to coral reefs. EIAs are requested from developers. Marine species identification using taxonomical methods is employed. However, using effective modern tools in marine biodiversity assessment (e.g., DNA barcoding) should be used more widely. A user fee ($5-10 per day) and a fine system for reef damage ($300 per m^2) were implemented. Starfish removal campaigns were organised. Inshore fishing is prohibited in the protected areas. The fish populations should be maintained to remain an attraction for tourists.

Environmental awareness has risen as a result of significant efforts. A number of workshops, seminars, and training courses for the hotel staff, instructors, and dive guides were organised in addition to the distribution of brochures and regulations in multiple languages.

[61] Barcelona structure includes the 7 protocols including Dumping, Emergency, Land Based Sources, Specially Protected Areas, Offshore , Hazardous Wastes, and ICZM Protocols.

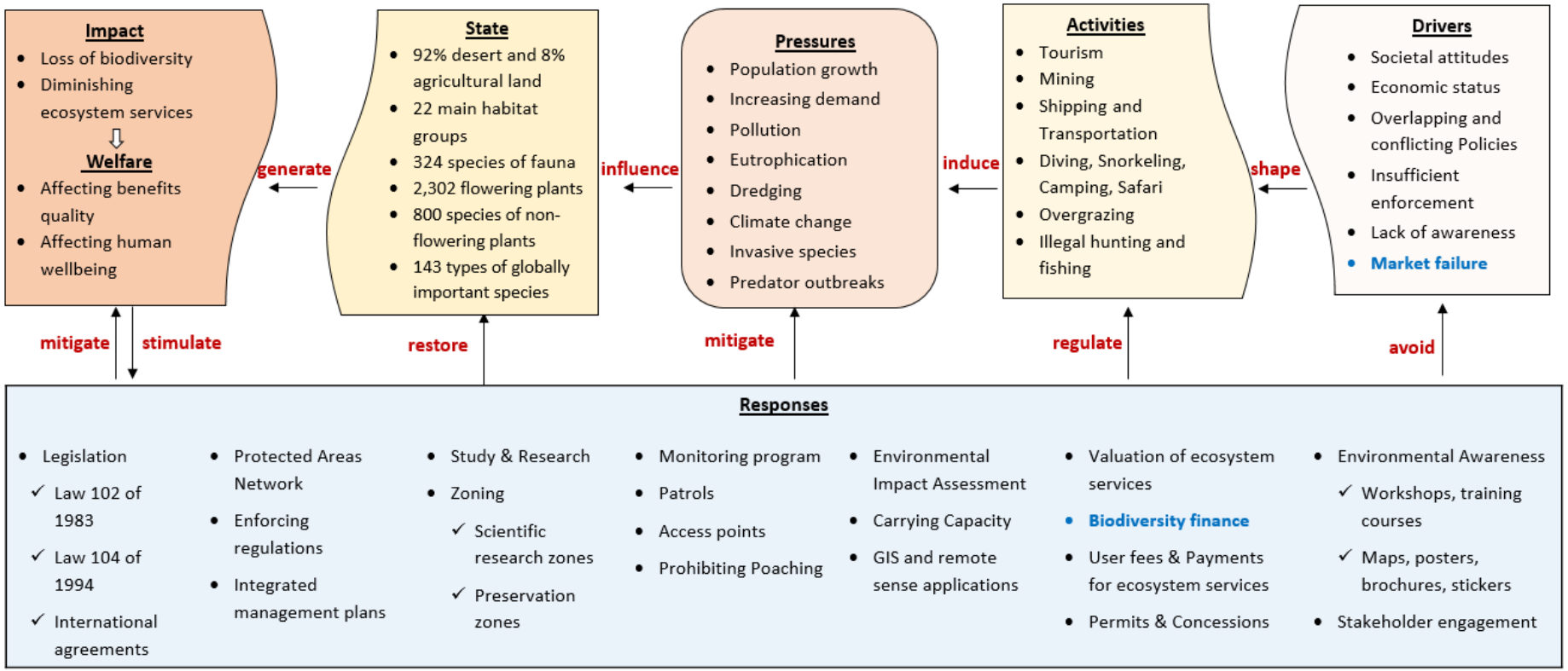

FIGURE 7 THE DPSIR FRAMEWORK FOR BIODIVERSITY IN EGYPT

The Biodiversity Finance Landscape

4. THE BIODIVERSITY FINANCE LANDSCAPE

4.1. Introduction

Biodiversity finance refers to financial mechanisms and strategies that contributes – or intends to contribute – to the conservation, sustainable use, and restoration of biodiversity. Biodiversity finance originates from both public and private sources and may be channelled through intermediaries such as public finance institutions and private asset owners and managers. It can be mobilised and delivered through various finance instruments and mechanisms, domestically and internationally. Ideally, an estimate of biodiversity finance would be based on a common point of measurement. However, due to data limitations, this analysis compiles information on finance flows at different points of the financial value chain while taking steps to minimise the potential for double counting (OECD 2020)[62].

Key aspects of the landscape of biodiversity finance in Egypt include international support, the NBSAP, Egypt's Protected Areas Financing Policy and Strategy (2013)**,** protected areas revenues, public and private sector support, tourism contribution, and innovative biodiversity financing mechanisms as follows:

- **International Support:** Egypt has received financial support from international organizations, for example the GEF, UNDP, and the WB to fund various biodiversity conservation projects. These projects have been designed to protect ecosystems, preserve endangered species, and promote sustainable resource management.

- **NBSAP:** Egypt has developed a comprehensive NBSAP to guide its biodiversity conservation efforts. The plan includes actions for resource mobilization, financial mechanisms, and partnerships to support biodiversity conservation. In addition, as signatory party to CBD, Egypt is required to submit data towards the Financial Reporting Framework, which is informed by the BIOFIN process.

- **Egypt's Protected Areas Financing Policy and Strategy (2013):** This plan outlines a road map for PA system financial sustainability. It conducts an assessment for PA status, funding gaps and associated legal provisions; also explores the available revenue generation tools and their retention to secure PA needs. It presents a framework for PA financing policy and strategy with diverse funding resources, effective financial administration, enabling environment, mainstreaming, and building capacity. Additionally, it addresses recommendations on institutional reform, defines the required ministerial decree and proposes the factors that motivate PA system development.

- **Protected Areas:** Egypt has established a network of protected areas to safeguard its biodiversity. These areas receive funds for management and conservation activities through various mechanisms and sources, including government budgets, international grants, and tourism revenues.

[62] OECD (2020), A Comprehensive Review of Global Biodiversity Finance

- **Public and Private Sector Support:** Biodiversity conservation efforts in Egypt involve both the public and private sectors. The government collaborates with NGOs, research institutions, and private companies to support biodiversity projects. Public-private partnerships are formed to secure funding and implement conservation initiatives.

- **Tourism:** Egypt's unique biodiversity, such as its coral reefs in the Red Sea, attracts a significant number of tourists. The revenue generated from sustainable tourism practices can contribute to the conservation of biodiversity. Efforts are being made to promote sustainable tourism that minimizes negative environmental impacts while providing socioeconomic benefits.

- **Innovative Biodiversity Financing Mechanisms:** Egypt has explored innovative financing mechanisms to support biodiversity conservation. This includes exploring opportunities for Payments for Ecosystem Services (PES), eco-tourism, biodiversity offsets, and green bonds. These mechanisms aim to mobilize funds from various sources, including private sector investments.

A review of the current state of biodiversity finance in Egypt was conducted to create a comprehensive background context of the biodiversity finance landscape by identifying and describing many of the existing biodiversity finance solutions in the country. The analysis includes:

1) reviewing biodiversity financing legislation,

2) mapping and analyzing existing finance instruments and biodiversity-related revenues, and;

3) reviewing the national budgeting process and supportive and harmful subsidies that impact biodiversity (Figure 8).

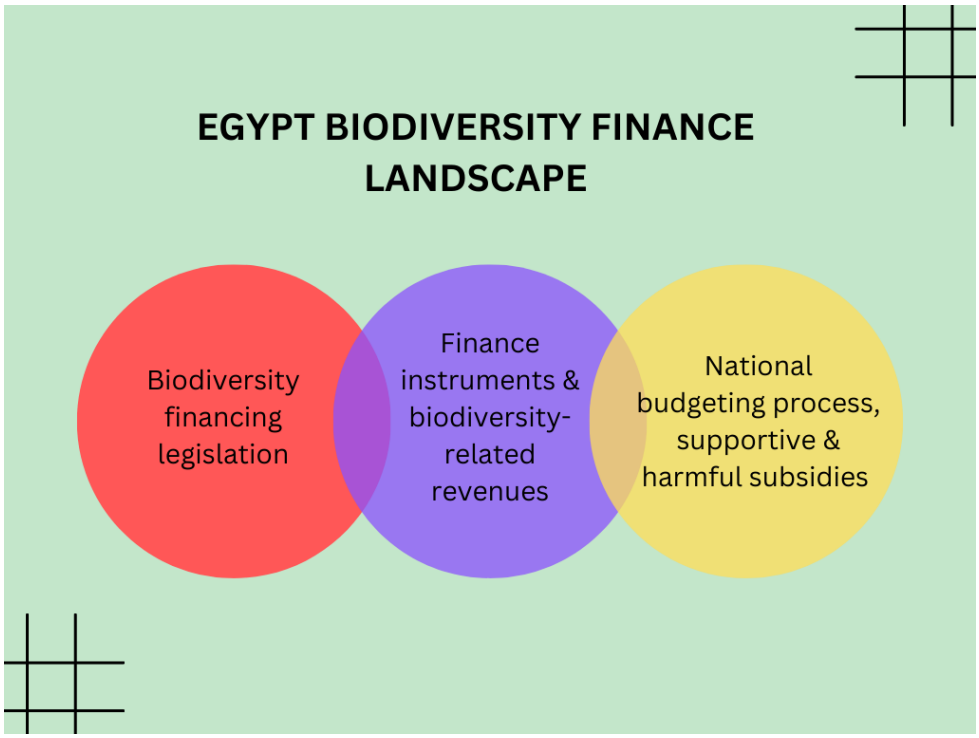

FIGURE 8 BIODIVERSITY FINANCE LANDSCAPE IN EGYPT

This analysis provides a comprehensive overview of biodiversity finance flows in Egypt. It also provides an overview of government support that may be harmful to biodiversity and highlights opportunities for improving the assessment, tracking, and reporting of biodiversity finance. It is also useful for identifying and assessing any shortfalls in biodiversity finance and for identifying opportunities for scaling up finance in support of biodiversity objectives. Biodiversity finance flows can help establish a baseline from which the GoE and other stakeholders can track biodiversity finance trends over time.

4.2. Biodiversity Financing Legislations

The biodiversity financing legislation in Egypt involves laws and regulations that are put in place to support and facilitate the funding of biodiversity conservation efforts. These legislations aim to create mechanisms and frameworks for the effective allocation, management, and utilisation of financial resources for the conservation of biodiversity. Biodiversity and protected areas in Egypt are regulated by several laws, of which Law 102/1983 for protected areas and Law 4/1994 for environmental affairs are the key legislations.

Law for Protected Areas – Law 102/1983. Egypt's Law on Protected Areas - No. 102/1983 governs the establishment of terrestrial or marine protected areas in Egypt. It is the primary legislation for protected areas and biodiversity in Egypt. The Provisions of the law regulates establishment and management of protected areas. It provides the legal framework governing violations occurring in protected areas, and associated fines and penalties.

The law has established the first protected area fund, which would receive funds, donations, penalties and compensations from violations occurring in protected areas. However, in 1994, the law of the Protection of Environment was issued, by which the protected area fund was

revoked, and its resources are currently part of the Environmental Protection Fund (EPF) resources.

In addition to the mentioned law, there is a number of decrees that regulate economic activities in protected areas including Prime Minister Decrees No. 264/1994 and Prime Minister Decrees No. 2728/2015.

Prime Minister Decree No. 2728/2015- amending decree No. 264 of 1994. The decree No. 264 of 1994 sets the conditions of conducting economic activities inside protected areas, and obligates that allowed activities could be undertaken on an area that does not exceed 10% of a protected area. The decree No. 2728/2015 has replaced this requirement with the following statement "allowed activities inside a protected area and associated buildings and facilities shall be located in low sensitivity areas, consistence with the protected area nature, topography, and in line with the management plan and zoning scheme endorsed by the EEAA board of directors.

Furthermore, the Ministerial Decree No. 204 of 2019 impose entrance fees for a number of protected areas in South Sinai (Ras Mohamed, Nabq, Abu Gallum, Taba, and Saint Kathrine), and the Red Sea (Northern Islands, Wadi El Gemal-Hamata, Elba, and Far Islands).

The amendment updates the executive regulations of the Law 4/1994, governing environmental issues in Egypt, as previously amended in 2011. It includes several updates related to the environmental protection fund and coal handling regulations, including methane emissions. This amendment identifies the different resources that contribute to the environmental protection fund, and the disbursement terms of such funding. The budget is allocated to finance different categories of environmental activities in Egypt. One category supports pilot projects in environmental protection, pollution reduction, and sustainable development. Another facilitates technology transfer to address environmental issues.

Law for the Protection of Environment, Law 4/1994 (Amended by Law 9/2009). The law defines environmental protection and prevents or reduces its degradation or pollution. Its components encompass air, seas, and internal waters protection, in addition to EIA commitments. Protected areas, biodiversity, and other natural resources are also included in some specific articles in this law.

- Article 14: An Environmental Protection Fund (EPF) is to be established in EEAA and its resources are to be provided as follows:
    - Financial resources allocated by the Government budget to support the Fund.
    - Grants and gifts provided by the national and international organizations for the protection and development of the natural environment
    - Court fines and compensations related to damages to the nature environment.
    - Financial resources and revenues from protected areas stipulated by law 102/1983 including protected areas entrance fees, concessions, and other commercial use revenues

- Article 15: EPF has a special independent entity managed by a board of directors under the supervision of the Minister of Environment.

4.3. National Budgeting and Biodiversity

This section reviews the national budgeting system in Egypt to explore the budget revenue sources, budgeting process, and government allocations for biodiversity conservation, protected areas, and green initiatives. It also provides an overview of the current economic situation and the harmful subsidies of the government that have an impact on the natural resources and biodiversity of the country.

4.3.1. The Budget Laws

The budget process in Egypt is governed by constitutional provisions and budget laws. Egypt's 2014 constitution defines the role of Parliament in reviewing and approving the State Budget. It also clarifies the role of the Accountability State Authority (ASA), the State's central auditing agency, in performing accounting and compliance checks. More importantly, it specifies minimum allocations for specific line items, such as healthcare and education, that are required to increase over time in accordance with international standards (see Table 4, below). Egyptian Law No. 53 for 1973 and its executive regulations constitute the rest of the legal framework regulating the budget process[63].

TABLE 4 SAMPLE MINIMUM MOF BUDGET EXPENDITURES (AS PERCENT OF GDP)

Item	Minimum Expenditure (Percent of GDP)
Health	3
Education	4
University Education	2
Scientific Research	1

4.3.2. The Budget Process

The State General Budget of Egypt is the main tool of the MoF to achieve the economic and social objectives of citizens. It presents MoF plans and programs to address current challenges and pave the way for a better future by maximizing revenues and reorganizing spending priorities to better serve society. More importantly, the State Budget is an accountability and verification tool that citizens can use to examine whether government spending plans align with their priorities[64].

As specified by law, the MoF budget process is divided into the following four phases: 1) Formulation (design); 2) discussion and Approval; 3) Execution (spending); and 4) audit (examination). The budget process usually starts in August or September, prior to the start of the fiscal year, and the final phase takes place in December of the following year (Figure).

Budget Formulation Phase

In the formulation phase, the government estimates the revenues, allocations, and expenditures of the next fiscal year based on assumptions made by the Ministry of Finance (MoF), the MoPED, and the Central Bank of Egypt (CBE). These assumptions take into account both national and international economic, political, and social conditions. Based on these assumptions, in September or October, the MoF issues a budget circular, asking ministries and other government entities to formulate and submit their budgets to the MoF.

[63] UNICEF (n.d.) Budget Transparency Series: A Guide to Egypt's State Budget Transparency Brief No

[64] UNICEF (n.d.) Budget Transparency Series: A Guide to Egypt's State Budget Transparency Brief No.1

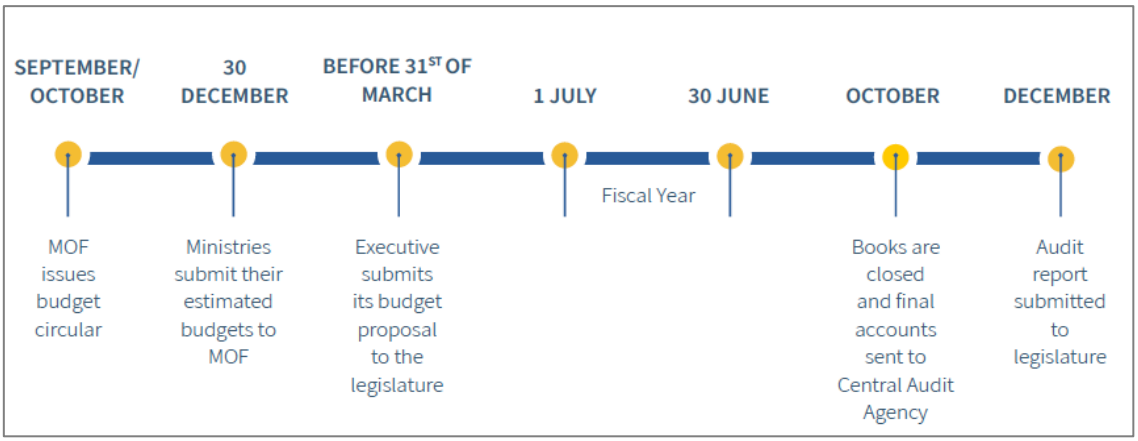

FIGURE 9 THE BUDGET PROCESS OVER THE FISCAL YEAR[65]

Expenses related to infrastructure projects (investment) are reviewed by the MoPED, while the MoF reviews recurring expenses (such as salaries and maintenance). A compiled budget is submitted to the Cabinet after negotiations between the MoF and the other ministries. A pre-budget statement is issued by the MoF six months ahead of the fiscal year to brief Parliament and the general public on the contents of the budget. Once the Cabinet reaches an agreement about the budget, it submits an Executive Budget Proposal to the President, who in turn submits it to Parliament for discussion and approval. The proposal is also published by the MoF in order to provide citizens with insight on the government's plans for the next year[66].

Budget Discussion and Approval Phase

The discussion of the budget proposal takes around three months. Following its submission to Parliament, the budget proposal is examined by the Plan and Budget Committee and reviewed by specialized committees (such as the Health Committee and the Education Committee, among others). The resulting questions and recommendations are then discussed with the government. Parliament can make changes to the budget in consultation with the government, as long as the budget deficit is not increased. Finally, the Plan and Budget Committee puts every budget line item to a separate vote in Parliament, and once approved, the Budget Law is approved by the President and published in the Official Gazette. Following the publication of the budget law, the MoF issues the following two documents: the enacted budget and the citizen budget. The Enacted Budget is the final budget version that will be implemented by the MoF; and the Citizen Budget is a simplified version released for clarity and transparency, and to offer the public a real opportunity to participate in budget processes. Both documents can be found on the official MoF website.

Budget Execution Phase

The MoF implements the budget by collecting revenues from various sources (including taxes and grants) and spending funds to support budget programs. The MoF disperses funds to the line ministries, which in turn maintain and submit records of revenues and expenditures to the MoF. These records are reflected in in-year, mid-year, and year-end reports published on

[65] UNICEF (n.d.) Budget Transparency Series: A Guide to Egypt's State Budget Transparency Brief No

[66] UNICEF (n.d.) Budget Transparency Series: A Guide to Egypt's State Budget Transparency Brief No

the MoF website. A mid-year review report is published by the MoF and acts as a benchmark by which mid-year results are checked and examined against budget assumptions. Any required budget amendments must be discussed and approved by the Parliament. Four months after the end of the fiscal year, ministries and government agencies submit their actual revenues and expenditures in a Final Accounts Report to the MoF. These reports are compiled and published in a Year-End Report.

Audit budget phase

The final phase of the budget process is the Audit (or examination), the responsibility of the ASA, which reviews budget results for accounting accuracy and compliance with laws and administrative regulations. The ASA usually takes around two months to submit its audit report to the MoF and Parliament, where recommendations and suggestions for corrective actions are discussed. Finally, the MoF's Final Accounts Report is passed by a law, signed by the President, and published on the MoF website.

4.3.3. Budget Classifications and Distribution

Governments normally develop their budgets using different formats called classifications. Each classification is helpful in conveying specific information about its content. The Egyptian budget law and regulations state that the county's budget should be presented in three of these classifications; economic, administrative, and functional. The Egyptian budget comprises the budgets (both revenue and expenditures) distributed as follows.

- *Central Administration*: This includes all ministries' central offices (including MoE), plus the office of miscellaneous agencies and other bodies that work at the central level.
- *Local Administration*: This refers to the central office of the governorates, plus the directorate offices for the governorates of state ministries (this includes protected areas).
- *Service Authorities*: This includes miscellaneous governmental entities that provide services at the central or local levels (for example, the General Authority for Exports and Imports Control and the National Council for Women)[67].

4.3.4. Government Allocations for Protected Areas and Biodiversity

The estimated appropriations for the use of the state's general budget 2022/2023 amount to approximately EGP3.6 trillion, divided between (1) expenditures totaling approximately EGP2.07 trillion, (2) the requirements to acquire assets for funds totaling approximately EGP30 billion, and finally (3) the repayment of domestic and foreign loans totaling approximately EGP 965,5 billion (Table 5). In the general budget, the category of "expenditure" encompasses the following elements: salaries, commodities, service

[67] International Budget Partnerships (2015) A Guide to the Egyptian Budget

requirements, loan interest, subsidies, grants, social benefits, miscellaneous items, and the acquisition of non-financial assets.

The 2022/2023 national budget was analyzed based on published data by MoF. It was noted that the environmental protection sector includes (1) waste management and General Authorities for Beautification of Cairo and Giza, (2) Sewage Treatment and Regulatory Authority for Water and Wastewater, and (3) protection of biodiversity and landscape (which include office of Minister of Environment, and Egyptian Environmental Affair Agency).

TABLE 5 EGYPT STATE BUDGET 2022/2023

Item	EGP
Total State Budget 2022/2023	3,066,300,000,000
1. Expenditures	2,070,900,000,000
2.Requirements for holding financial assets	30,000,000,000
3.Repayment of domestic and foreign loans	965,500,000,000
Allocations for Environmental Protection*	3,580,881,000
Percentage of spending on environmental protection (as percentage of national expenditures)	0.173%

Data source: Egypt's State General Budget - Administrative budget for the fiscal year 2022/2023 Report. Published by Ministry of Finance.

* Environmental protection sector includes waste management, General Authorities for Beautification of Cairo and Giza, Sewage Treatment, Regulatory Authority for Water and Wastewater, protection of biodiversity and landscape, office of Minister of Environment, and EEAA.

www.mof.gov.eg

A review of the State budget suggests that the total allocations for the country's expenditures is about EGP2.07 trillion of which EGP3,580,881,000 allocations for the environmental protection sector representing about 0.173% of the total national spending. Such a small budget suggests that the environmental protection (including biodiversity conservation and protected areas) receives only a minor fraction of the Government budget that might not be sufficient to meet the financial needs of such an important and large sector in the country[68].

Further analysis of the 2022/2023 budget reveals that the State Budget allocations for the protection of biodiversity and landscapes are only EGP838,949,000, which is amounting for about 23% of the country's spending on environmental protection and only %0.04 of the total national spending. The environmental protection allocations include all environmentally related expenses such as pollution control, waste management, environmental education & awareness, biodiversity conservation, and climate change.

[68] Egypt's State General Budget - Administrative budget for the fiscal year 2022/2023 Report. Published by Ministry of Finance. www.mof.gov.eg

TABLE 6 ENVIRONMENTAL PROTECTION SECTOR BUDGET 2023/2023

Category	Expenditures type						
	Wages and workers' compensation	Purchasing goods and services	The benefits	Support, grants, and social benefits	Other expenses	Purchase of non-financial assets (investments)	Total allocations 2022/2023
Environmental protection sector	1,510,538,000	1,246,902,000	9,287,000	78,056,000	94,250,000	641,848,000	**3,580,881,000**
1.Waste disposal	1,197,706,000	1,139,340,000	-	68,000,000	61,870,000	252,000,000	**2,718,916,000**
2.Sewage drainage	14,956,000	4,000,000	-	1,020,000	40,000	3,000,000	**23,016,000**
3.Protecting biodiversity and landscapes	297,876,000	103,562,000	9,287,000	9,036,000	32,340,000	386,848,000	**838,949,000**
3.1 Office of the Minister of Environment	6,723,000	1,750,000	-	-	40,000	5,000,000	**13,513,000**
3.2 Egyptian Environmental Affairs Agency	291,153,000	101,812,000	9,287,000	9,036,000	32,300,000	381,848,000	**825,436,000**

Data source: Egypt's State General Budget - Analytical statement on the state's draft general budget for the fiscal year 2022-2023. Published by Ministry of Finance

Protected areas budget performance

The NCS of the EEAA is the department in charge of overseeing protected areas and biodiversity conservation in the country. It is also in charge of securing and mobilizing the financial resources needed to carry out conservation activities and projects. The annual budget of the NCS is funded by the state budget (central state budget) and the Environmental Protection Fund (EPF) of the MoE. The budget is divided into three main categories: 1) capital expenditures (e.g., buildings, infrastructure. Machinery, equipment, vehicles etc.), 2) operating costs (e.g., conservation programmes, materials, supplies, rent, travel, utilities, insurance, maintenance, repairs, office supplies, etc.) and 3) staff salaries and wages. In the past five years 2018-2022 the allocated state budget was ranging between 50-70 million Egyptian pounds per year[69]. In addition to these two financing sources, the international development assistance (environment and development donors) contributes significantly to financing nature and biodiversity conservation mainly through funded and co-funded conservation projects.

4.3.5. Government Investment in Green Projects

The Egyptian government has increased the percentage of green public investments to %40 in the 2022/2023 State budget, with a plan to reach %50 by 2025. The total investments of the state are about 336 billion pounds for green projects (Egypt's State General Budget 2022/23). This is to support the integration of environmental sustainability into development

69 Nature Conservation Sector presentation in the consultation workshop

plans in the fields of transportation (300 billion pounds), electricity (4.2 billion pounds), local development (8.2 billion pounds), irrigation (4.26 billion pounds) and housing (5.4 billion pounds)[70].

According to MoF[71], the increase in green investments is to improve Egypt's competitiveness in the Environmental Performance Index. There is a presidential mandate to expand green and sustainable financing in the coming years, in a way that contributes to achieving development goals with environmentally friendly projects, in cooperation with the development partners from the private sector, in line with the country's regional efforts to combat climate change. GoE is keen to diversify the sources of financing investment projects, between dollar, green bonds, and Eurobonds, and to move towards issuing sovereign bonds; which contributes to reducing the costs of financing comprehensive and sustainable development; hence, the sustainability of the public finance indicators, in order to preserve the economic gains that have been achieved. The state succeeded in issuing the first sovereign green bond offering in the Middle East and North Africa, with a value of $750 million in September 2020, for five years at a yield of 5.250 percent, putting Egypt on the map of sustainable financing for the green economy. Such green investments are expected to contribute to Egypt's biodiversity financing to support national efforts to conserve and use natural resources.

4.3.6. Harmful Subsidies

There is a wide range of external factors that influence biodiversity and protected area funding opportunities and financial status. These include market, price, policy, and institutional conditions in economic sectors that have indirect but often significant impacts on biodiversity areas. The existence of public subsidies can make biodiversity-depleting or environmentally harmful activities more profitable than those that are compatible with biodiversity conservation. Such policies can also increase the financial opportunity costs of conservation in terms of alternative uses foregone. It is estimated that the number of subsidies harmful to biodiversity worldwide that have to be eliminated and redirected is between US $500 to 800 billion.

Fiscal instruments, i.e., taxes and subsidies, are mechanisms for raising and transferring funds between sectors. Although traditionally focused on 'productive' sectors of the economy, in recent years there has been a growing emphasis on the use of fiscal instruments to generate revenues and influence behaviors to meet environmental goals. During the last two decades, in particular, many governments have modified their environmental and natural resource tax and subsidy systems to support PAs and biodiversity conservation. Some countries have gone even further, by removing or reducing government support for economic activities that compete with conservation.

International experience has confirmed the potential of Environmental Fiscal Reforms (EFRs) to reduce the degradation and pollution of natural resources. Such reforms may include the introduction of taxes on natural resource extraction, the removal of environmentally damaging product subsidies, the introduction of new product taxes and user charges, and modifications of other taxes and charges. Properly designed EFR can: create economic

[70] Citizen's budget is your right to know your country's budget for the year 2022-2023. Published by Ministry of Finance. www.mof.gov.eg
[71] https://www.egypttoday.com/Article/3/113315/Egypt-aims-to-increase-green-investments-to-50-in-24

incentives for more efficient resource use and pollution abatement, by driving up the cost of environmentally harmful activities or increasing the returns to sustainable approaches (e.g. environmental taxes and charges); mobilize funds for environmental protection and natural resource management (e.g. via environmental charges and fiscal transfers); and ensure a more equitable distribution of benefits and costs from the management of environmental resources (e.g. improved access to environmental public goods via public investments and pricing reforms). Fiscal instruments can be used to finance protected areas and biodiversity conservation directly or indirectly. Taxes and other charges can generate substantial revenue for conservation.

Context. There are several biodiversity-impacting subsidies in Egypt including fossil fuel subsidies, mining, agriculture, and oil and gas development[72]. Through direct subsidies, tax breaks, and other support, GoE incentivize companies to mine for minerals, extract fossil fuels, invest in industrial agriculture, and build roads and pipelines. However, such economic activities are very critical to the economic development of the country, reducing subsidies and encouraging environmentally sustainable practices is currently being encouraged.

Egypt had long-standing fossil fuel subsidies that maintained low consumer prices for a range of petroleum products, including gasoline, diesel, kerosene, and natural gas. Subsidy reforms had been in the pipeline for years but had been repeatedly stalled due to political instability. There was a broad recognition among Egyptian government ministries, the public, companies, academics, and foreign investors that fossil fuel subsidies were a key part of the country's fiscal problems[73].

Although fuel shortages had been central to an economic crisis in 2013, an enormous share of Egypt's budget went to fuel subsidies: $21 billion in 2013, equivalent to 22% of the budget or 6% of Egypt's GDP.

Policies to Phase out Harmful Subsidies

For decades, Egypt has promised to phase out harmful subsidies as part of the country's sustainable development efforts and the Aichi goals. More recently, the GoE has increased its commitments as follow:

- In 2014, the Egyptian government implemented wide-ranging subsidy reform for the first time in decades, allocating about $14 billion for fuel subsidies in the 2014-2015 budget and raising the prices of gasoline, diesel, kerosene, natural gas, and several other petroleum products - though keeping them well below the prices in much of the world[74].
- In 2014, Egypt reformed its long-standing fossil fuel subsidies, raising the price of widely consumed petroleum products, including gasoline (by 78%), diesel (which Diesel is widely used in mass transport and agriculture (by 64%) and kerosene (by 64%).

[72] Ministry of Planning and Economic Development: https://mped.gov.eg/GrossDomestic
[73] https://www.wri.org/update/egypt-transitioning-away-subsidizing-fossil-fuels
[74] https://www.wri.org/update/egypt-transitioning-away-subsidizing-fossil-fuels

- Fuel subsidies consumed more than a fifth of the 2013 budget, so the reforms aimed to help close a budget deficit and free up fiscal space to address rising unemployment and slowing growth. Several measures helped offset the disproportionate impact of higher fuel prices on the poor, including expanded food subsidies and social security pensions, as well as an increase in the public-sector minimum wage and higher taxes on wealthier households and businesses[75].
- To encourage reform, the price of fuel has been set under quarterly reviews since 2019. This will take into account global markets and the exchange rate, after Egypt phased out subsidies on most fuel products under reforms agreed with the International Monetary Fund (IMF)[76].
- In 2021, Egypt's bill for fuel subsidy fell to EGP17 billion compared to EGP128 billion in 2017[77].
- In 2022, the total fuel subsidy in the new budget 2022/2023 fell to approximately EGP 30[78] billion to subsidies fuel and butane, explaining that the government is continuing to its plan to reduce fossil fuel subsidies[79].
- The country also takes several measures to minimise harmful subsidies, including taxes on gas, electricity and butane consumption, taxes on cars, tobacco, and mining and quarry fees (Table 7)
- Furthermore, Egypt is planning to completely phase out electricity subsidies gradually through 2024-2025[80].

TABLE 7 EXAMPLES OF GOVERNMENT TAX AND CHARGES ON ENVIRONMENTALLY HARMFUL ACTIVITIES/SECTORS AS STATED IN EGYPT'S STATE GENERAL BUDGET 2022/2023

Item	EGP
The stamp on the consumption of gas, electricity, and butane	1,980,000,000
Car taxes and fees	10,878,856,000
Development fees on quarries	1,716,000,000
Development fee on all types of gasoline and diesel products	7,000,000,000
Development poison in raw or unprocessed tobacco and tobacco waste in all its forms	120,000,000
Customs taxes on cigarettes, tobacco, and smoke	535,000,000

The analysis of governmental subsidies and incentives in Egypt related to biodiversity conservation and protected areas suggests that the government is working to reduce or eliminate public subsidies that encourage pollution and intensive resource extraction.

[75] https://www.wri.org/update/egypt-transitioning-away-subsidizing-fossil-fuels

[76] https://www.reuters.com/business/energy/egypt-subsidising-diesel-cost-nearly-3-billion-annually-pm-2022-07-14/#:~:text=CAIRO%2C%20July%2014%20(Reuters),prime%20minister%20said%20on%20Thursday.

[77] https://www.reuters.com/business/energy/egypts-fuel-subsidy-bill-falls-almost-90-four-years-says-pm-2021-12-23/

[78] This figure might look higher than 2021, though it is actually lower in value as there is several impacting factors including soaring Brent prices and fluctuations in the value of the dollar against the Egyptian pound in 2022.

[79] https://www.youm7.com/

[80] https://english.ahram.org.eg/News/471494.aspx

4.4. Biodiversity-Based Revenues and Finance Solutions in Egypt

Securing sufficient financial resources is vital to fulfil Egypt's commitment in the conservation of biodiversity. Different sources of funding have different characteristics. Some are more reliable than others; some sources are easier to raise than others, and some can be used freely according to management priorities while others come with strings attached. Some funding mechanisms take a long time and a lot of effort to establish; they do not provide a short-term return, but over the longer term they offer the possibility of steady, reliable financing to meet recurrent costs. Some sources of funding have short-term time horizons, and others have longer-term horizons. An effective financing strategy identifies these characteristics and creates a revenue stream that meets both the short- and long-term requirements of the protected area. Biodiversity-based revenues and finance solutions offer promising pathways to protect and restore ecosystems in Egypt, while simultaneously benefiting local communities and economies.

There are several financial mechanisms supporting protected areas and biodiversity in Egypt. These include donor projects, government budget allocations, protected area entry fees, protected area commercial use concessions, penalties, fines and compensations related to environmental violations, resource extraction fees, environmental trust fund, debt-for-nature swaps, etc. All these financial mechanisms can complement each other strategically and should act in synergy within the framework of a comprehensive biodiversity financing strategy. These financing sources can be divided into three main categories: site level solutions, national level solutions, and international flows (Figure).

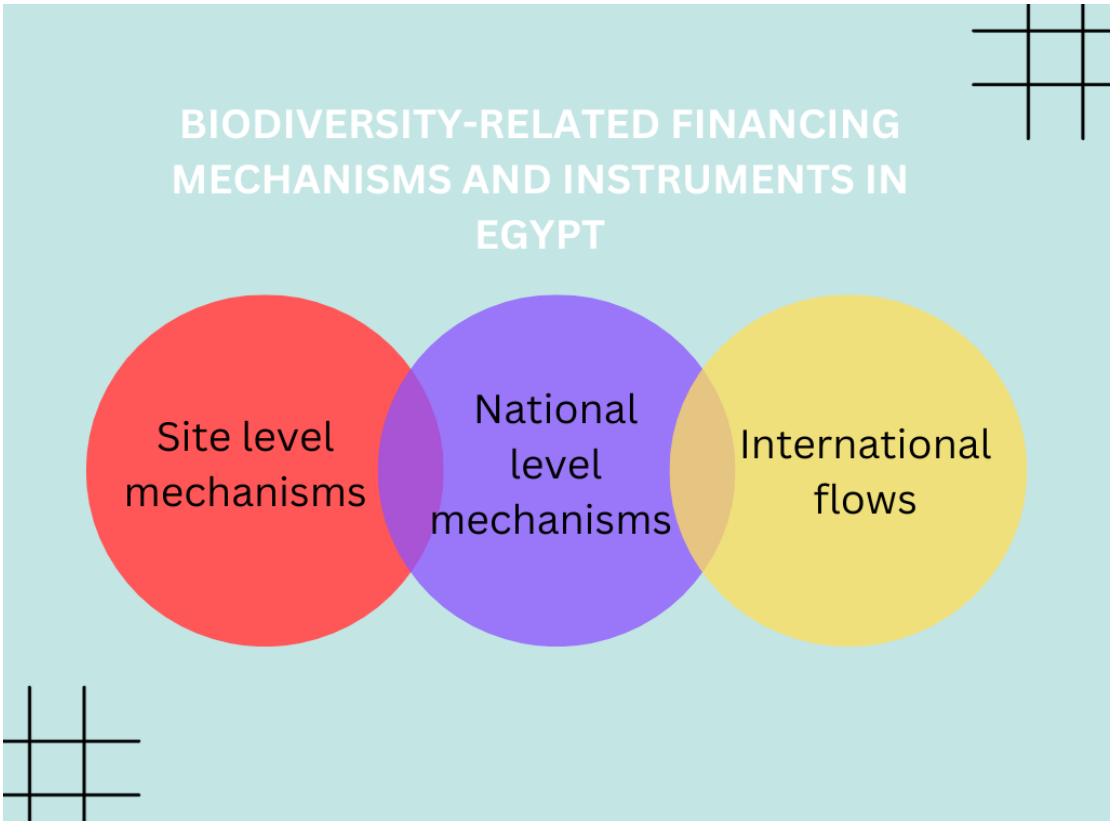

FIGURE 10 TYPES OF BIODIVERSITY FINANCE MECHANISMS IN EGYPT

According to a review of biodiversity income and funding sources in Egypt, there are a number of funding mechanisms at the site level (protected area revenues, private donations, local government budgets), the national level (government budget, EIA permit fees, CSR), and at the international level (ODA, debt-for-nature swaps) as shown in Figure .

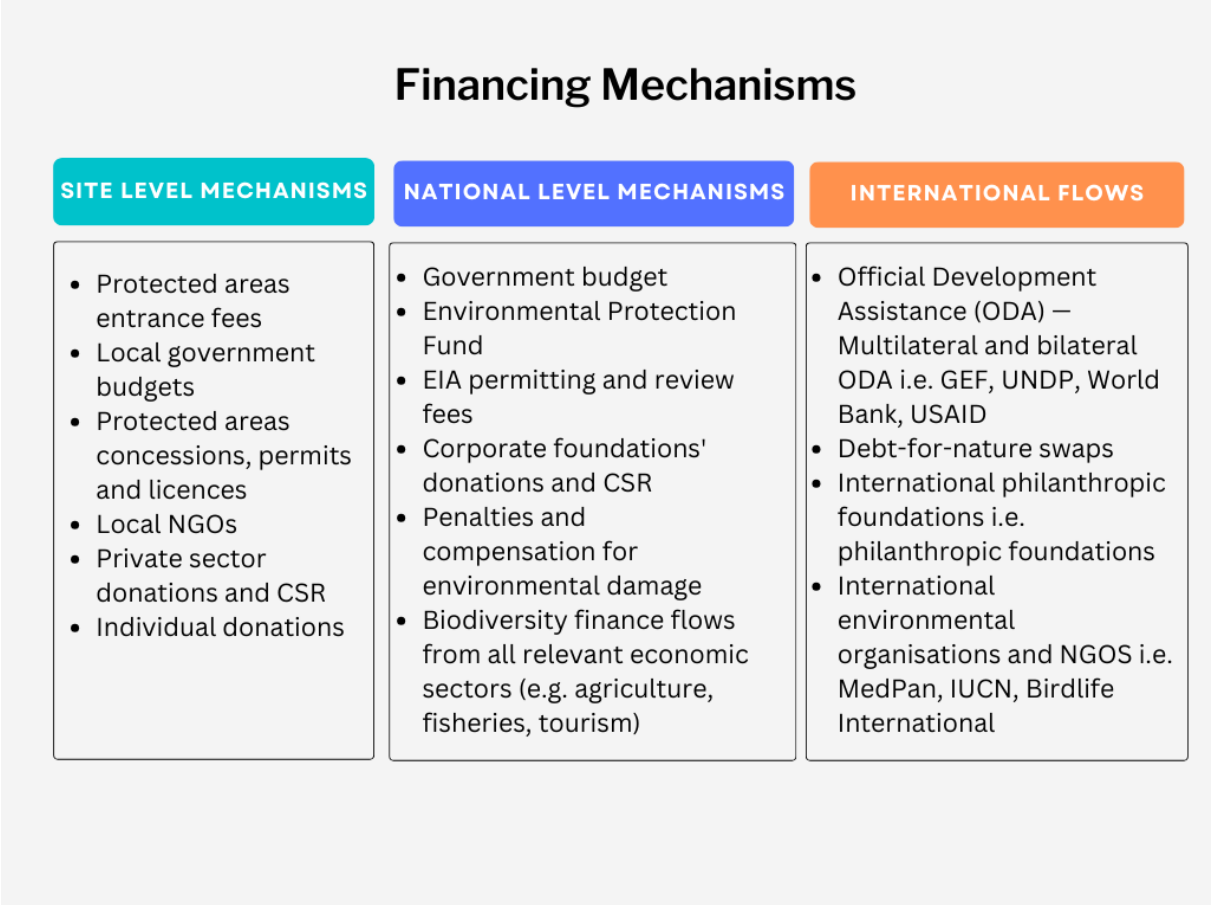

FIGURE 9 BIODIVERSITY FINANCE MECHANISMS IN EGYPT

4.4.1. Site-Level Revenues and Solutions

There are many tools in place to raise revenues at the site level within protected areas and biodiversity hotspots in Egypt. This includes protected area entrance fees; PA camping fees; PA concessions, permits and commercial use fees; local government budgets and spending on PAs and biodiversity; local NGOs support for PAs, private sector donations and CSR; and individual donations for nature conservation (Figure) some of which are explained below.

Revenue from protected areas

Protected area entry fees and concessions are probably the most important financing sources at the site level. For the fiscal year spanning July 2022 to June 2023, entrance fees amounted to approximately EGP 222 million and US$2.2 million. Furthermore, during the calendar year of 2022, PA concessions brought in around EGP 9.4 million. In some cases, they generate enough revenue to pay for a large portion of the operating costs of a PA, especially where the visitor numbers are high and the entry fees are also relatively high, such as Ras Mohamed National Park. A visitor WTP survey has been prepared before the introduction of entry fees

in some PAs in Egypt. The following table provides examples of the entry fees values of protected areas in Egypt:

TABLE 8 VALUES OF ENTRANCE FEES IN SOME PAS IN EGYPT

Area	PA	Ticket			Reference Legislation
		Type	Value	Currency	
South Sinai	Ras Mohamed, Nabq, Abu Gallum, Taba, and Saint Katherine	Egyptian	25	L.E	204/2019
		Foreigner	5	USD	
		Compact vehicle-Egyptian	25	L.E	
		Large vehicle-Egyptian	50	L.E	
		Compact vehicle-Foreigner	5	USD	
		Large vehicle-Foreigner	10	USD	
	Blue Hole (Abu Gallum)	Egyptian	25	L.E	
		Foreigner	10	USD	
Red Sea	Northern Islands and Gifftun Islan	Egyptian	25	L.E	
		Foreigner	5	USD	
	Far Islands	Egyptian	150	L.E	
		Foreigner	40	USD	
	Erg and Fanous (Hurghada)	Egyptian	50	L.E	
		Foreigner	10	USD	
	Wadi El Gemal	Egyptian	25	L.E	
		Foreigner	5	USD	
		Compact vehicle-Egyptian	25	L.E	
		Large vehicle-Egyptian	50	L.E	

Area	PA	Ticket			Reference Legislation
		Type	Value	Currency	
		Compact vehicle-Foreigner	5	USD	
		Large vehicle-Foreigner	10	USD	
Western PAs	White Sahara	Egyptian	5	L.E	69/2005
		Foreigner	5	USD	
		Camping	10	L.E	
		Vehicle-Egyptian	5	L.E	
		Vehicle-Foreigner	5	USD	
Central PAs	Wadi Degla	Egyptian	10	L.E	188/2020
		Foreigner	20	L.E	
		Vehicle-Egyptian	10	L.E	
		Vehicle-Foreigner	20	L.E	
		Camping-Egyptian	25	L.E	
		Camping-Foreigner	200	L.E	
	Wadi El Rayan and Qarun	Egyptian	10	L.E	
		Foreigner	5		
		Vehicle-Egyptian	10	L.E	
		Camping-Egyptian	50	L.E	
		Camping-Foreigner	200	L.E	
	Wadi El Hitan	Egyptian	25	L.E	
		Foreigner	10		
		Vehicle-Egyptian	10	L.E	
		Camping-Egyptian	50	L.E	
		Camping-Foreigner	200	L.E	
Boats in Red Sea	All marine protected	17-20 m	10	USD	204/2019
		21-25m	20	USD	

Area	PA	Ticket			Reference Legislation
		Type	Value	Currency	
and South Sinani	areas in Red Sea and South Sinai	26-30m	40	USD	
		>30 m	60	USD	
		Glass-bottom boats	1	USD	

Local Environmental NGOs

NGOs are now playing an important role in the formulation of environmental policies, mobilising public support for environmental conservation, and protecting endangered species of plants and animals in Egypt. In Egypt, there are more than 50,000 NGOs working for different causes[81]although there are a limited number of NGOs working in the field of environmental and biodiversity conservation. The fundamental objectives of these NGOs are to act as catalysts in bringing about local, national, and international initiatives and community participation in overall improvement in environmental conservation. They help the government to obtain relevant information to promote and facilitate the implementation of major environmental programmes. Most environmental NGOs rely on local, regional, and international donor financing to implement projects that support protected areas and biodiversity conservation. NGOs not only represent a source of support, but also bring expertise and capacity to arrange or provide services to the park. NGOs could reduce the funding needs of the PA by doing some of the work it should otherwise do. Some of examples of active conservation NGOs in Egypt include Nature Conservation Egypt (NCE), Environment Without Borders, and Hurghada Environmental Protection and Conservation Association (HEPCA).

Site-Level Private Sector Donations and CSR

CSR has gained momentum in Egypt during the last decade. CSR in Egypt is perceived as a long-standing charitable, informal, paternalistic, and voluntary practise. The modern, secular, and corporate concept of CSR emerged in Egypt in the early 2000s, due to involvement of multinational companies, which introduced the concept in Egypt. CSR is currently being used primarily as a public relation (PR) and marketing tool with signs of lack of a CSR partnership model and lack of a CSR vision. Several companies and organizations dedicate part of their CSR programs to supporting biodiversity and environmental conservation. This is very noticeable in the oil and gas sector, which invests in supporting conservation projects primarily through partnerships with local NGOs. In addition to CSR, at the site level, some individuals or organizations provide donations that support a conservation cause. Although this is very

[81]https://www.shorouknews.com/news/view.aspx?cdate=02122021&id=22a0f161-0d91-4edd-a656-110a9ba49639

limited practise, it should be encouraged where supportive institutional frameworks are required (Refaat, S. 2014)[82].

4.4.2. National-Level Mechanism

At the national level in Egypt, there are several mechanisms that support the provision of financing for biodiversity and protected areas. This includes the annual governmental budget for nature conservation, the MoE's Environmental Protection Fund, the restitution of protected areas revenues, EIA permitting and review fees, CSR, and penalties for environmental damage.

Government Budget

The government provide permanent funding for biodiversity and protected areas through the State budget, whereas foreign assistance and protected areas and biodiversity-related revenues provide additional and essential financial resources that support conservation efforts. GoE gives higher priority to allocate funding to support economic development and social programs compared to environmental protection and nature conservation. Though, it is recommended that the government may be persuaded to increase its budget allocations for nature conservation as biodiversity provides ecosystem services that are the foundation of the country's economic and sustainable development.

Environmental Protection Fund (EPF)

The mission of the EPF is to provide the necessary funds for investment in sustainable environmental projects. Specifically, it aims to support investments in pollution control, the use of cleaner technologies, and environmental management and capacity building projects. Furthermore, it is entrusted with establishing and operating environmental monitoring networks and assessing environmental impacts, addressing environmental disasters, transferring low-cost environmentally sound technology, and establishing and managing nature reserves. The EPF also provides concessional financing, such as grants and loans with interest rate support, ownership-guaranteed loans, and concessional loans[83]. The beneficiaries of the financing include entities belonging to the private and public sectors, local bodies, and NGOs. Potential sources of funds' revenues include amounts allocated in the state's general budget, grants and donations received from national and foreign donor organizations, fines and penalties imposed for breaching Environmental Protection Law No. 4 of 1994 and Law No. 102 of 1983 on Natural Protected Areas, compensation for environmental damage, and revenues received from the Environmental Affairs Agency for services provided to third parties. For several years, the EPF has faced challenges due to the inflexibility of government regulations in the area of its scope, and it may be time to enhance its effectiveness by giving it more flexibility in managing its resources.

[82] Refaat, S. (2014). Corporate social responsibility in Egypt: A study on the current practice, challenges, and potentials [Master's Thesis, the American University in Cairo]. AUC Knowledge Fountain.

[83] ESP-EEAA 2007. Business Plan 2007-2010 for the Environmental Protection Fund

The EPF was established under Law 4/1994 (amended by Law 9/2009). The EPF works to stimulate investment in the environmental sector in Egypt to support the government's environmental, social and economic policies. To achieve this goal, the EPF provides competitive financial assistance for projects that benefit the environment. The EPF provides financial support through different forms of mechanism according to the Fund's policies and each project needs. The following includes the environmental priorities of the EPF, noting that the EPF encourages projects that adopt cleaner production methods and recycling. Participation is also available for funding and support along with other support programs/parties:

- Environmental Priorities in the Area of Solid Waste Management
- Environmental Priorities in the Area of Hazardous Waste Management
- Environmental Priorities in the Area of Nature Conservation

The EPF receives revenues from the protected areas, entrance fees, concessions, fines, and penalties imposed for breaching Law No. 102 of 1983 on Natural Protected Areas. This should reinvest part of them into the PAs system to support PAs management, as well as supporting revenues generation programs to improve fee collection and concessions systems and develop visitor facilities and infrastructures.

Revenue retention

An analysis of the pertinent policies showed that all of Egypt's national parks now have little to no direct or actual control over the revenue they generate. All revenue generated by individual parks must go to the EEAA's the EPF. As a result, raising money from sources like entrance fees and concessions does not ensure that it, or any portion of it, would remain in the PA or return to the park via EPF.

Corporate Social Responsibility (CSR).

CSR is a booming concept worldwide, and all companies are shifting toward undertaking some CSR activities. CSR has gained momentum in Egypt over the past decade. There is a shift in the concept of CSR from charity giving to sustainability; taking into consideration the economic, social, governance, and environmental aspects of the society. CSR could be very important sources of revenue generation for biodiversity and PAs in Egypt. Banks, telecommunication companies, oil & gas companies and most large corporations (local and multinationals) have their own CSR programs. Conservation of biodiversity can receive support from corporations in kind or in cash (in the form of a project). Corporates that have active CSR include: mining companies, Sawiras Foundation, Vodafone, Shell, Pepsi, Coca Cola, Toyota, HSBC bank, Commercial International Bank, National Bank of Egypt, and Misr Bank. However, a capacity development is required for senior officials at EEAA, NCS, and PAs managers to improve their knowledge, skills, and capacities in fundraising and CSR fields.

Embassies Working in Egypt

Several foreign country embassies in Egypt have their own small grant programs and schemes. These include small grants at embassies of USA, Ireland, Australia, Netherlands, and Canada. For example; The U.S. Ambassadors Fund for Cultural Preservation (AFCP) supports the preservation of cultural sites, cultural objects, and forms of traditional cultural expression. The

grant value is up to $200,000. The Irish Aid small grants programme of Embassy of Ireland in Egypt grants of up to $26,000. Environmentally focused NGOs can use these funds to implement projects and activities that complement the work of the protected area. NCS and protected area management could reach experienced and reliable NGOs to collaborate in this field.

Biodiversity offset

Biodiversity offset is a system used predominantly by planning authorities and developers to fully compensate for biodiversity impacts associated with economic development, through the planning process. In some circumstances, biodiversity offsets are designed to result in an overall biodiversity gain. Offsetting is generally considered the final stage in a mitigation hierarchy, whereby predicted biodiversity impacts must first be avoided, minimised, and reversed by developers, before any remaining impacts are offset. The mitigation hierarchy serves to meet the environmental policy principle of "No Net Loss" of biodiversity alongside development[84].

Individuals or companies involved in arranging biodiversity offsets will use quantitative measures to determine the amount, type, and quality of habitat that is likely to be affected by a proposed project. Then, they will establish a new location or locations (often called receptor sites) where it would be possible to re-create the same amount, type and quality of habitat. The aim of biodiversity offsets is not simply to provide financial compensation for the biodiversity losses associated with development, although developers might pay financial compensation in some cases if it can be demonstrated exactly what the physical biodiversity gains achieved by that compensation will be. The type of environmental compensation provided by biodiversity offsetting is different from similar systems in that it must show measurable and long-term biodiversity improvements that can be demonstrated to counteract losses.

In Egypt, there have been a few examples of biodiversity offsets, although the majority are voluntary, inadequately documented, and have not been put into practice via an official or institutional arrangement. Therefore, it is advised that Egypt's biodiversity offset efforts be reviewed and further promoted.

4.4.3. International flows

Egypt is a signatory to several international conventions and agreements that promote the protection of biodiversity and the establishment of protected areas. These include, for instance, the CBD and the Ramsar Convention on Wetlands. Through these agreements, Egypt receives technical and financial support, access to best practices, and collaboration opportunities with other countries facing similar conservation challenges. The international support for protected areas in Egypt has been crucial in strengthening their management, improving biodiversity conservation efforts, and promoting sustainable development. Collaboration between international organizations, donors, NGOs, and local stakeholders has fostered knowledge exchange, capacity building, and the implementation of best practices.

[84] OECD (2014), Biodiversity offsets, Effective Design and Implementation, Policy Highlights

This support has contributed to the preservation of Egypt's unique ecosystems, ensuring the long-term protection of its biodiversity for future generations.

The largest funding source for biodiversity conservation in Egypt are international donor agencies. This includes multilateral finance institutions such as the WB, the UNDP, and the GEF. It also includes bilateral aid agencies such as the USAID, the German Technical Cooperation Agency (GIZ), the Dutch International Cooperation Agency (DGIS), the EU, the Danish and Norwegian government aid agencies (DANIDA and NORAD), the Department for International Development of the United Kingdom (DFID), and the Canadian International Development Agency (CIDA).

Since 1980, the biodiversity sector and protected areas of Egypt have initiated hundreds of projects financially and technically supported by international organizations such as GEF, UNDP, UNEP, USAID, EU, DANIDA, and other donors. International donor agencies are very committed to providing financial support to biodiversity conservation. International support for protected areas in Egypt has played a significant role in conserving the unique biodiversity of the country and promoting sustainable development. Here are some examples of international support for protected areas in Egypt.

Global Environment Facility (GEF): The GEF has provided substantial funding for conservation projects in Egypt, including support for protected areas. The GEF has supported initiatives focused on strengthening protected area management, biodiversity conservation, sustainable tourism, and community participation. The GEF-funded projects have contributed to improving local authorities' capacity, improving infrastructure within protected areas, and promoting sustainable livelihoods for local communities. Through the CBD, the GEF and other donors offer small grants to NGOs to further their work on biodiversity and protected area projects. The GEF and its Small Grants Programme are the largest contributor to biodiversity financing with the current GEF country portfolio of 27 projects with investments of $112,713,891[85].

TABLE 9 GEF ACTIVE PROJECT PORTFOLIO[86]

Trust Fund	Project Type	Number of Projects	Total financing	Total Co-Financing Ratio
GEF	National	21	$87,509,821	6.74
GEF	Regional	4	$12,069,927	2.80
LDCF	National/Regional	-	$0	0.00
SCCF	National/Regional	2	$13,134,143	4.32
Total			$112,713,891	

- **United Nations Development Programme (UNDP):** For more than 50 years, UNDP has supported the Government of Egypt in its development pathways, providing essential

[85] https://www.thegef.org/projects-operations/country-profiles/egypt
[86] https://www.thegef.org/projects-operations/country-profiles/egypt

policy support to help identify innovative approaches and mechanisms to secure the dignity, prosperity and well-being of Egyptians while conserving natural resources for future generations. Over the past few years, UNDP has focused on three main areas: Inclusive Growth and Innovation; Climate Change and Environment; Social Inclusion and Local Development. The UNDP has been actively involved in supporting biodiversity and protected areas in Egypt through various initiatives. It has provided technical assistance, capacity building, and financial support for the establishment and management of protected areas. The UNDP has also supported projects aimed at improving the resilience of protected areas to climate change and promoting sustainable biodiversity financing and sustainable tourism practices.

UNDP is an important agency in nature conservation. It supports 18 of the 30 protected areas in Egypt that are of global significance. This includes basic services in protected areas to help upgrade these areas to world-class eco-touristic sites, in addition to public awareness and capacity building. Examples of UNDP projects supporting biodiversity in Egypt include; the Protected Areas Financial Sustainability Project; The Egyptian Italian Environmental Cooperation projects; The Sustainable Transport Project; Mainstreaming the Conservation and Sustainable Use of Biodiversity into Tourism Development and Operations in Threatened Ecosystems in Egypt; National Biodiversity Planning to Support the implementation of the CBD 2011-2020 Strategic Plan in Egypt; Adaptation to Climate Change in the Nile Delta Through Integrated Coastal Zone Management; Conservation and Sustainable Use of Medicinal Plants in Arid and Semi-arid Ecosystems; and the Migratory Soaring Birds Project[87].

- **United States Agency for International Development** (**USAID):** The decades-long partnership of USAID with the Egyptian government has ensured ongoing protection and long-term strategies to preserve the natural environment and helped local residents build resilience to the shocks of climate change. USAID has invested nearly $300 million in environmental education and awareness, conservation of wildlife reserves, eco-friendly tourism, and continued partnership with the private sector and NGOs[88]. USAID support resulted in the protection of 14 islands, scholarships for underprivileged students to study ecotourism, construction of solid waste and recycling systems, and the establishment of the Wadi El Gemal Protectorate along the southern coast of the Red Sea. Additionally, USAID works with the fishing communities in North Sinai to promote sustainable fishing practises, minimise marine degradation, protect fish stocks, and use waste from fishing activities to fertilize the medicinal herbs growing locally. USAID is also establishing water reservoirs to harvest rainwater for irrigation and domestic purposes in North Sinai.

[87] https://www.thegef.org/projects-operations/country-profiles/egypt
[88] https://eg.usembassy.gov/u-s-government-provides-15-million-to-launch-red-sea-initiative/

The newly announced USAID Red Sea Initiative is a partnership with the Government of Egypt, as well as the Global Fund for Coral Reefs. It aims to support the resilience of Egyptian Red Sea communities and their reef ecosystems. To advance the work of the Red Sea Initiative, USAID will build on this initial $15 million contribution by collaborating with the United Nations Global Fund for Coral Reefs (GFCR) to recruit additional donors and investors from the public, private, and nonprofit sectors to preserve the coastal ecosystem of the Red Sea for future generations. The GFCR is the largest global blended finance vehicle dedicated to Sustainable Development Goal 14, Life Below Water. Backed by the United Nations and a coalition of partners, the GFCR is designed to scale financial solutions and sustainable marine economic growth that bolster the resilience of coral reefs and adjacent coastal communities[89].

- **International Union for Conservation of Nature (IUCN):** IUCN has collaborated with Egyptian authorities and local stakeholders to strengthen protected area management and conservation efforts. It has provided technical expertise, guidance, and training to improve the effectiveness of protected area management plans. The IUCN has also worked to raise awareness about the importance of protected areas and their role in biodiversity conservation.

- **Multilateral and bilateral donors:** Various multilateral and bilateral donors, such as the European Union, the World Bank, and individual countries, have provided financial and technical support for protected areas in Egypt. They have supported projects that focus on biodiversity conservation, habitat restoration, capacity building, and sustainable tourism development within protected areas. These donors have played a crucial role in strengthening the management and governance of protected areas in Egypt. For example, The WB Group approved a new Country Partnership Framework (CPF) for Egypt, laying out the WB Group's strategy in the country for FY2023–2027. The new CPF aligns with the Government of Egypt's Sustainable Development Strategy (SDS), "Egypt Vision 2030," and the NCCS 2050. The CPF seeks to accomplish its objectives by achieving three high-level outcomes:

  1. More and better private sector jobs: through supporting the creation of an empowering environment for private sector-led investments and job opportunities as well as creating a level playing field for the private sector.
  2. Enhanced human capital outcomes: through supporting the provision of inclusive, equitable and improved health and education services as well as effective social protection programs.

[89] https://eg.usembassy.gov/u-s-government-provides-15-million-to-launch-red-sea-initiative/

3. Improved resilience to shocks: through strengthened macroeconomic management, and climate change adaptation and mitigation measures.

   The CPF will be implemented jointly by the World Bank, the International Finance Corporation (IFC), and the Multilateral Investment Guarantee Agency (MIGA), building on the three institutions' current portfolios and adopting a flexible approach to lending. The CPF will be supported through a financial envelope of US$7 billion in lending (US$1 billion per year from IBRD and about US$2 billion during the entire CPF period from IFC), in addition to guarantees from MIGA. Partnerships remain a crucial component of the strategy[90].

- **International NGOs and Foundations with an International Remit**

International organizations and conservation NGOs, such as the World Wildlife Fund (WWF), Conservation International (CI), The Mediterranean Protected Areas Network (MedPan) and BirdLife International, have been actively involved in supporting protected areas in Egypt. These organizations have provided financial resources, technical expertise, and on-the-ground support to enhance conservation efforts within protected areas. They have collaborated with local communities and stakeholders to promote sustainable practises and empower local communities to actively participate in conservation activities.

- **Debt for Nature Swap**

Bilateral Debt-for-Development Swaps: Selected Examples from Egypt as mentioned earlier in this paper, bilateral debt swaps are relatively simple mechanisms that involve agreement between debtor and creditor governments to swap a certain amount of external debt in exchange for commitments on investments toward achieving development goals by the debtor countries in domestic currency. These often do not require the involvement of any broker or other intermediaries. It is like a part of the foreign currency debt or debt service is written off by the external creditor in exchange for the debtor country to invest an equivalent (or agreed upon) domestic currency for purposes of social, economic or environmental development. Such arrangements may contain a grant component as part of the aid finance from the creditor. Egypt has benefitted from several bilateral debt swaps, including from creditors such as Germany, Italy, Switzerland, and France. These are discussed below[91].

[90] https://www.worldbank.org/en/country/egypt/overview

[91] UN (2020) Debt Swap for Climate and SDGs Finance in the Arab Region

Egypt and Germany

On 15 November 2001, Egypt signed an agreement with Germany to exchange an amount of EUR 204.5 million, which represents part of the debt service charges owed to Germany for the period 1 January 2002 to 1 January 2016. The agreement consisted of allocating 50% of the amount to finance projects in the areas of poverty reduction by financing public works programs, improving water and sanitation infrastructure in low-income areas, improving basic education, and environmental protection, and the other 50% to support the state budget. The operation covered eight stages from the beginning to the end of the dates, allowing for verification that Egypt was fulfilling its obligations before each stage of the swap was executed[92].

Egypt and Italy: The Italian-Egyptian Debt Swap Programme

Two agreements were signed between Egypt and Italy that swapped part of the premiums and interest owed to Italy. The first debt swap agreement was signed on 19 February 2001 whereby $149.09 million were swapped. The second debt swap agreement was signed on 3 June 2007 whereby $100 million were swapped for financing development projects. The third debt swap agreement was signed on 10 May 2012, whereby $100 million was exchanged. According to the swap agreements, a special account for each instalment was to be opened at the due date to be used for projects approved by a committee in accordance with the following priorities: environmental, health, food security, rural development, poverty reduction, and support to NGOs abroad and in Egypt. Under the first tranche, 54 projects were funded in more than 23 governorates. In the second swap that was being implemented, it was agreed to finance 26 projects in the amount of EGP 494.427 million[93]. The Debt Swap Programme is one of the most important instruments of cooperation between Italy and Egypt, not only for the number of resources mobilized but also for the strong local ownership in development processes. The Programme was established in 2001, when the first debt swap agreement was signed between the Government of the Republic of Italy and the Government of the Arab Republic of Egypt, amounting to USD 149 million of debt generated from aid credits, converted into resources to finance fifty-three initiatives, operating in sectors such as environmental protection, cultural heritage, rural development, small and medium enterprise development, education, social protection, etc.[94].

[92] UN (2020) Debt Swap for Climate and SDGs Finance in the Arab Region

[93] UN (2020) Debt Swap for Climate and SDGs Finance in the Arab Region

[94] https://ilcairo.aics.gov.it/home/country/debt-swap/

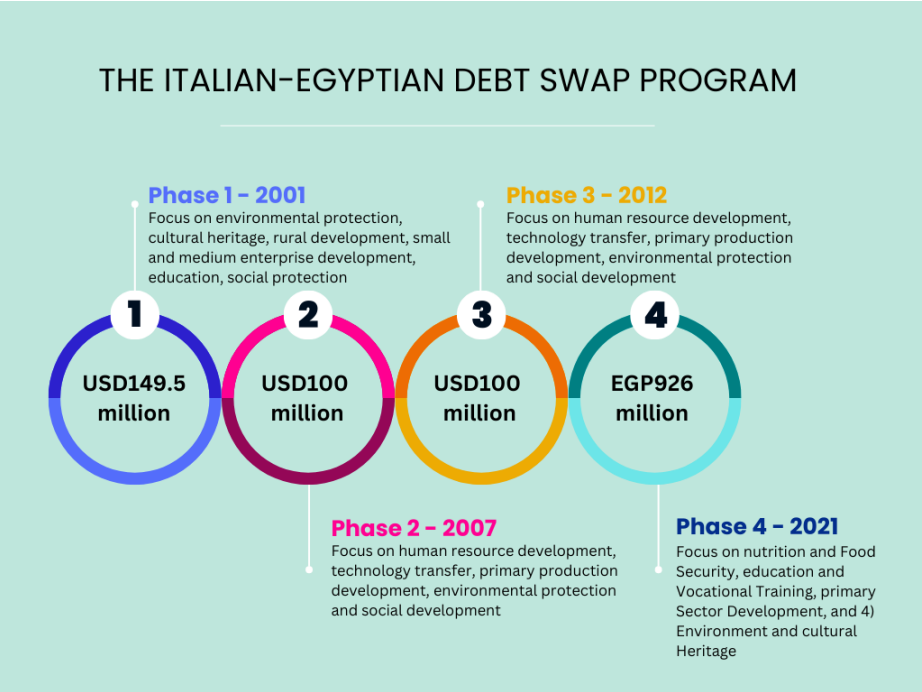

FIGURE 10 THE HISTORICAL DEVELOPMENT OF THE ITALIAN-EGYPTIAN DEPARTMENT SWAP PROGRAMMEME

In light of the success of the first phase, a second intergovernmental agreement, signed in 2007, provided for the conversion of an additional debt instalment of USD 100 million. These resources enabled the implementation of thirty-one projects that, in continuity with the initiatives implemented under the first agreement, worked on issues such as human resource development, technology transfer, primary production development, environmental protection, and social development[95].

The current phase of the programme, on the other hand, is based on the third debt swap agreement, signed on May 10, 2012, with an expected term of 11 years and a total value of USD 100 million (specifically corresponding to USD 82,755,369 plus EUR 13,087,911). During 2021, the conversion process was officially concluded: the entirety of the debt instalments included in the agreement was then paid into the Counterpart Fund at the Central Bank of Egypt, generating a total counter value in local currency of LE 926,017,366. These funds, according to the agreement, are intended to finance initiatives that act in four priority sectors: 1) nutrition and food security, 2) education and vocational training, 3) development of the primary sector, and 4) environment and cultural heritage. In addition to these areas of intervention, 2 percent of the funds, on the other hand, are earmarked to cover the Program's operational costs and Technical Assistance activities, which, by decision of the Programme Management Committee, are managed through a dedicated Technical Support Unit[96].

[95] https://ilcairo.aics.gov.it/home/country/debt-swap/

[96] https://ilcairo.aics.gov.it/home/country/debt-swap/

Egypt and Switzerland

On 25 May 1995, an agreement was signed between Egypt and Switzerland to swap debts amounting to CHF 150 million, which represented part of the debt burden owed by Egypt to Switzerland. Forty percent was allocated to budget support and 60% to the establishment of the Egyptian Swiss Fund for Development, which oversees financing development projects that could create jobs and increase of income and improve the environmental and social situation through public health, especially maternity and childhood. The projects were selected and monitored by the Fund and implemented by NGOs through deposits in commercial banks. The original amount allocated to the Egyptian Swiss Fund for Development totaled EGP 265 million. The amount was deposited with the Commercial International Bank with interest and capital accrued at EGP 668.105 million. Until the Fund closed on 30 April 2010, the remaining balance was applied to support projects successfully implemented through NGOs by ensuring their sustainability in the areas of water, sanitation, and microcredit[97].

Egypt and France

On 30 March 1994, an agreement was signed between Egypt and France to swap debts amounting to FRF 58 million, which was part of the debt owed to France by Egypt for the period 1 April 1994 to 1 January 1998. This period covered the period during which Egypt was exempted from paying instalments, provided that the Social Fund for Development of Egypt received the equivalent of the payments due in the EGP. The resources were used to implement development projects in Egypt, including qualification for job opportunities and the revival of heritage handicrafts. Concerning debt-for-investment, the French company Inoivo expressed its interest to invest in Egypt and bought EUR 1.250 million of the Egyptian debt owed to France. Earlier this year, Egypt announced that the government is bringing in the British company Actis to help attracting investment[98] [99].

These bilateral debt swaps of Egypt with Paris Club creditors show the amount of debt that is exchanged over a multi-year period and channeled to finance many development projects aimed at achieving development outcomes, including poverty reduction and environmental protection. Given the nature of the available information, it is not conclusive to quantify the effectiveness of the Egyptian debt swaps. However, it should be noted that these are relatively small transactions compared to Egypt's external debt burden. However, the multiple debt swaps of Egypt with the Paris Club creditors show the potential of debt swaps as an instrument to be considered for larger projects and interventions to support climate and sustainable

[97] UN (2020) Debt Swap for Climate and SDGs Finance in the Arab Region
[98] UN (2020) Debt Swap for Climate and SDGs Finance in the Arab Region
[99] Emerging Market Sovereign NEWS Number 4, 2020, p.21

development finance that can, in parallel, reduce debt in middle-income countries in the region. The advantage of these swaps is their simple implementation mechanisms as compared to the complex procedures and high transaction costs that are incurred in commercial debt swaps[100].

4.5. Biodiversity finance Solutions in Egypt

It is equally clear that conventional sources of biodiversity funding, by themselves, will not be sufficient to maintain and expand conservation in the future, or to meet the growing demands placed upon them. To meet this challenge, there is an urgent need to develop and expand innovative and effective biodiversity financing mechanisms that have emerged in recent years. Such mechanisms offer the greatest chance of substantially increasing conservation funding in Egypt and can also help stimulate broader improvements in conservation management and sustainability.

To ensure the long-term protection of critical ecosystems, the MoE in Egypt looks for ways to pay for conservation efforts that last. That means tapping into new funding sources and developing innovative financing that puts money to work for nature. In Egypt, there are several innovative biodiversity financing mechanisms that have been implemented to protect and conserve the rich biodiversity of the country. Here are a few examples:

The Power Purchase Agreement

In Egypt, a significant flyway for migratory soaring birds globally, the government has entered into a Power Purchase Agreement (PPA) with private sector entities that operate wind farms in the Gulf of Suez. The objective of this agreement is to mitigate the risk of migratory soaring birds colliding with wind turbines. As per the agreement, private wind farm operators are required to contribute 1000 Euros per megawatt (MW) annually in cash towards conservation efforts. These funds are primarily allocated to implementing a Radar-Assisted Shutdown on Demand (SOD) process. Through this process, birds are detected in advance of their arrival, and certain turbines are selectively shut down, thereby ensuring the safe passage of birds through the wind farms. Moreover, these funds are used in carcass monitoring & biodiversity surveys to assess the effectiveness of the SOD process. In addition to migratory soaring birds' conservation, the process provides more clean energy that could be lost if all turbines are completely shut down.

The agreement is the outcome of collaborations between the UNDP, New & Renewable Energy Authority (NREA), EEAA, Egyptian Electricity Transmission Company (EETC), Regional Center for Renewable Energy and Energy Efficiency (RECREEE) and Birdlife International.

Eco Egypt Project

ECO EGYPT Experiences is a campaign that aims to reconnect adventurous travelers with Egypt's countless ecological sites and protected areas. With the goal of prompting natural

[100] UN (2020) Debt Swap for Climate and SDGs Finance in the Arab Region

rediscovery and boosting the importance of ecological conservation, the ECO EGYPT Experiences campaign sheds light on all the wildlife, plant diversity, and natural landscapes on offer throughout Egypt. The campaign encourages sustainable, responsible tourism for travelers seeking unique, out-of-the-box experiences. By centering the voices, experiences, and customs of local tribespeople, from Nubians to Bedouins, ECO EGYPT advocates support for local livelihoods by giving a platform for the unique practices, traditions, and crafts of local communities. From camping to diving, and stargazing to birdwatching, Egypt's ecological sites promise unparalleled experiences for the curious, young, and old.[101]
ECO EGYPT; a nationwide campaign led by the Egypt's MoE. Started in March 2019, ECO EGYPT campaign is part of LiveGreen campaign which is developed by the Egyptian Environmental Affairs Agency (EEAA) and the United Nations Development Programme (UNDP) and funded by the Global Environment Facility (GEF). The campaign will last for three years[102].

ECO EGYPT is an initiative of the "UNDP/GEF Mainstreaming the Conservation and Sustainable Use of Biodiversity into Tourism Development and Operations in Threatened Ecosystems in Egypt" project that was approved in 2015. The project's GEF grant value is $2,574,338 with co-financing of $49,200,000[103].

Samadai Reef Dolphin House: Co-Management and Revenue Generation Scheme

An experimental and precautionary management scheme has been implemented since 2004 in a small place called the Samadai Reef 'Dolphin House', Red Sea, Egypt. The management goal is to ensure the future indefinite enjoyment of the biodiversity of the Red Sea for the benefit of the local community in a sustainable way. The successful effort is a pioneering experiment opening the way to the development of an innovative approach to eco-tourism that generates direct government revenues every year and much greater revenues for the local tourism industry. The management of Samadai provides a strong case for the conservation of marine biodiversity in Egypt and elsewhere.

In 2003 a multipronged management scheme was proposed by Red Sea Marine Parks and accepted by the government for implementation from 2004 onwards. This management scheme employed a combination of strategies, including zoning, time area closures, a permitting system, service fees, approach guidelines, and a cap to the maximum number of tourists allowed to visit the reef each day. This management scheme was originally coordinated by a branch of the Egyptian Environmental Affairs Agency. However, since 2013 ticketing, enforcement, and operations have been the responsibility of the NGO, the HEPCA. This NGO has also issued a code of conduct, later formalised into a Decree enforced

[101] https://ecoegypt.org/
[102] https://www.undp.org/egypt/stories/bringing-light-%E2%80%9Ceco-egypt%E2%80%9D-egypt%E2%80%99s-hidden-gems
[103] https://www.thegef.org/projects-operations/projects/5073

in the Red Sea Governorate, for vessel and swimmer interactions with wild dolphins. Failure to comply with this code can incur a fine of 10,000 Egyptian pounds (approx. 560 USD)[104].

The management approach adopted by the authorities in the case of Samadai Reef presents one of the best available examples of the adoption of a precautionary approach to whale watching. In 2004 very little precise information was available about the population of dolphins or the exact nature of the impacts of swimming tourism on their well-being. However, authorities used common sense to surmise that the large number of tourists and unregulated contact with the dolphins had the potential to cause harm. A conservative management approach was implemented, using almost every regulatory tool available, and 20 years later, the approach is proving to have many strengths[105].

Reaching sustainable financing in the Red Sea, is one of most important issues concerning the top management in responsible agencies. Charging service fee at Samadai was a step towards this goal as an economic instrument (fee) to generate revenues to support high costs of biodiversity conservation by sharing generated revenue among three key players Red Sea Governorate authority (public entity), Red Sea Marine Parks (public entity) and HEPCA (private entity) working for biodiversity conservation in Red Sea Governorate. To achieve this, *Samadai Service Fee Program* was designed and implemented in January 2004 to collect a service fee from Samadai users, according to the site's carrying capacity. The program has been designed to adapt with the governor's decree and Samadai management plan. The generated revenues are sufficient to cover conservation costs not only at Samadai but also support Wadi El Gemal National Park and other biodiversity areas in the Red Sea Marine Parks providing a good example of sustainable financing through public-private partnership and engagement of the local community[106].

The Samadai reef 'Dolphin House' has proven to be an ideal model for applying policy to conserve biodiversity and to reach sustainable finance for biodiversity conservation through revenue generation using an economic instrument (service fee). It demonstrates that protection of nature and development can coexist and provides a strong care for the conservation of marine biodiversity in Egypt and elsewhere.

[104] https://wwhandbook.iwc.int/en/case-studies/egypt-samadai-reef

[105] https://wwhandbook.iwc.int/en/case-studies/egypt-samadai-reef

[106] Sarhan, M., Fouda, M., and Hanafy, M. (2004). Economics and Sustainable Use of Samadai Reef "Dolphin House". The 6th annual BIOECON Conference, King's College, University of Cambridge

Public-Private Partnership for Ecotourism Development in Wadi El Gemal National Park in Egypt[107]

Egypt has developed an effective protected area system with significant investments in the development of staff capacity and protected area information, plans, and infrastructure. The dominant tourism model, particularly in national parks, is mass tourism activities (e.g., bus tours in the park) that do not create substantial income for the local communities living in and around the park, nor contribute to the protection of the park's biodiversity. Wadi el Gemal National Park is the third largest national park in the Arabian Desert and was officially declared a national park in 2003. It is a home of about 7,000 Bedouins from the Ababda tribe which mostly live on shepherding camels, sheep, and goats. Tourism activities do not contribute significantly to their income. The park's tourism infrastructure is poorly developed and no locally produced sustainable ecotourism products are offered. The Park hardly generates any income and faces growing environmental problems such as increased waste disposal in the park region and along the coastline. Also, any visitor information system is completely missing within the park; thus, visitors and even locals are not aware that they are visiting a fragile protected area. Especially the untouched nature and marine biodiversity are the main attractions of hotels and resorts in the Wadi el Gemal National Park and the surrounding Marsa Alam area.

It was crucial to advocate for a well-maintained Wadi el Gemal National Park offering unique authentic local tourism products. This would be an "USP "(unique selling proposition) for the region, attracting a different, nature and culture-orientated target group, replacing cheap all-inclusive mass tourism.

To reach that target, a public-private partnership (PPP) project was launched in 2014 between Wadi el Gemal National Park, Gorgonia Beach Resort in Marsa Alam, Egypt, and DEG - KFW Development Bank to develop ecotourism business in the area and promote the Park as an ecotourism destination for international tourists. The main target of the Ecotourism PPP is to develop the framework conditions for the commercial and sustainable development of ecotourism services based on the ecological and socio-cultural resources of the park and distributed through a privately and public run ecotourism business within the park area and thus encounter the slow deterioration of the national park.

The initiative was successful in enhancing local capacities and policy frameworks to support ecotourism through partnerships. Participatory thematic workshops and site visits were conducted were conducted with relevant cooperation partners and local stakeholders to propose and discuss feasible ecotourism products and to define suitable areas in the park. On-site experts' missions were conducted to assess the ecotourism potential of the park area and

[107] https://www.iucn.org/news/commission-environmental-economic-and-social-policy/201608/public-private-partnership-ecotourism-development-wadi-el-gemal-national-park-egypt

visitor centre. Several evaluation trips and site visits were also conducted of experts (e.g., bird watching) and network partners (e.g., trekking and mountain biking) were also conducted. The project developed a few plans and studies that provide vision for ecotourism in the area, including an Ecotourism Development Plan for the Park, a Renovation and Operation Plan for the Visitor Centre, a Sustainable Business and Management Model for the Visitor Centre. In addition, a website was developed to promote ecotourism. Visitor information materials were developed to increase awareness and education, including a high-quality Park Documentary, Park Map, Park Pocket Guide and Archaeology Book.

A corporate design and brand (logo and slogan) were created for the park. Implementation of marketing and promotion measures to market the ecotourism services of the park, e.g., participation on the international tourism fairs and events and publishing articles more than 20 in tourism magazines (e.g., National Geographic) and eventually making a two-year agreement with an international Public Relations company to promote the Park for the international tourists.

In doing so, ecotourism in Wadi El Gemal PPP has the potential to become a sustainable management model for ecotourism in the park and other protected areas in Egypt.

Green bonds

In 2019, the Egyptian Financial Supervisory Authority developed guidelines on green bonds based on the Green Bond Principles issued by the International Capital Markets Association. Examples of green projects included in these principles are renewable energy, energy efficiency, wastewater treatment, reduction of air emissions, mitigation of greenhouse gas emissions, soil disinfection, waste prevention and reduction, waste-to-energy recycling projects, products compatible with the circular economy and climate change adaptation measures[108].

In 2020, Egypt's MoF issued the first green bonds in the Middle East and North Africa, an innovation that puts Egypt on the sustainable financing map in the region. The total value of the bonds is $750 million over five years, with a yield of 5.25 percent, due in October 2025[109]. The issuance attracted investors from Europe (47%), the United States (41%), East Asia (6%) and the Middle East (6%). Final applications registered the subscription of 220 investors, including 16 new first-time investors in US dollar bonds, reflecting the efforts to diversify and improve the existing investor base[110].

[108] Ministry of Finance. Green Financing Working Group. EGYPT SOVEREIGN GREEN BOND ALLOCATION & IMPACT REPORT 2021

[109] https://www.ca-cib.com/pressroom/news/egypt-issues-first-ever-sovereign-green-bond-middle-east-north-africa-region

[110] https://www.worldbank.org/en/news/feature/2022/03/02/supporting-egypt-s-inaugural-green-bond-issuance#:~:text=Egypt%20became%20the%20first%20country,issuance%20under%20the%20GDRM%20Program.

The proceeds of the green bonds will be used to finance green projects in various sectors, such as transportation, renewable energy, and energy efficiency. The proceeds will also be used to reduce and control pollution, adapt to climate change, increase energy efficiency, and sustainably manage water and sanitation, according to the national sustainable development strategy, which gives priority to green investment projects. The most important projects that will use the proceeds of the green bonds in their financing include the Cairo Monorail Project, which will see the construction of a monorail connecting the New Administrative Capital with 6 October City on the western outskirts of Cairo; the El-Dabaa water desalination plant; and the wastewater treatment plants in Arab Abu Saed and Port Said[111]. Egypt has included a set of green projects that can be financed by these bonds in the draft state budget for 2020/2021, ranging from about 691 projects with a total cost of EGP 447.3 billion. These projects have allocations of about EGP 36.7 billion, which constitutes 14% of the total public investments in the state budget. The sustainable transport sector has the largest share of these projects, with 50% of the allocations listed for green projects in the plan[112].

[111] Ministry of Finance. Green Financing Working Group. EGYPT SOVEREIGN GREEN BOND ALLOCATION & IMPACT REPORT 2021

[112] Egypt's State General Budget - Administrative budget for the fiscal year 2022/2023 Report. Published by Ministry of Finance. www.mof.gov.eg

Institutional Analysis

5. INSTITUTIONAL ANALYSIS

The main challenge of the effectiveness of biodiversity management policy lies in the implementation, which is undertaken by diverse formal and informal institutions in Egypt.

As presented in the previous chapter, implementation of national policies and strategies related to biodiversity finance involves multiple ministries, entities and organizations that have both direct and indirect roles on biodiversity conservation.

This chapter focuses on the institutional analysis to underpin key institutions that are involved in establishing the policy and economic framework in which funding for biodiversity is allocated and implemented or that are responsible for the policy decisions, laws and regulations that generate positive or negative incentives or drivers for biodiversity change.

5.1. Identifying the main institutions and organizations

Since 1983, Egypt has established law 102 to designate certain areas to be declared as protected areas. A Prime Minister's decree defines the limits of each protected area and sets the basic principles for its management and for the preservation of its resources. Until now 30 protected areas have been declared, constituting more than 15% of the total area of Egypt.

As discussed in the previous chapters, public sector institutional mandates and arrangements are defined by national policies and legislations. At the highest level, the Cabinet is responsible for overall government decisions and coordination. All policy and legislative proposals have to be scrutinized and approved by Cabinet before being forwarded to Parliament for debate and approval. Cabinet approval is also required for establishing new institutions, restructuring existing ones and the appointment of Chief Officers. In this regard, any new funding proposals for biodiversity or creation of new financial instruments for funding biodiversity would have to be presented, justified and approved at this level.

In Egypt, the primary entity in charge of protecting the environment is the MoE- EEAA. As part of the EEAA structure issued in 1992, the NCS is the governmental arm in charge of nature conservation. NCS proposes and implements the necessary policies, programs, studies and other actions to protect the nation's natural heritage and biodiversity. NCS is entrusted with overseeing compliance of habitat and species protection legislation and commitments to the regional and international conventions and agreements for the conservation of nature. Full description of the NCS is presented in subsection (2.2.5).

In Egypt, as in most countries in the region, there is not always a clear institutional boundary between organizations that impact biodiversity and those that do not. To some extent, nearly all government ministries have some bearing on biodiversity. For purposes of this analysis, two sets or groupings of institutional actors can be identified:

1. Those institutions with specific mandates to manage components of biodiversity. These include: i) environment; ii) water; and agriculture.

2. Those institutions, while not directly involved in managing biodiversity, have activities with major impacts on biodiversity. These include: i) Housing; ii) tourism; iii) Infrastructure; iv) energy; v) mining and iv) science and technology.

Table 10 presents a pre-identified list of institutions covering the two classes above, which will be the focus of this review and analysis. It is worth mentioning that this list was consulted during the inception phase workshop. These are mentioned below:

TABLE 10 MAJOR ORGANIZATIONS IMPACTING BIODIVERSITY

Category	No.	Institutions /stakeholders	Sector	Category
Governmental Institutions	1	Ministry of Environment – Environmental Protection Fund (EPF)	Protected areas, biodiversity and wild life	Biodiversity and development planning and finance
	2	Ministry of Environment – Nature Conservation Sector (NCS)	Protected areas, biodiversity and wild life	Protected area and others conservation measures
	3	Ministry of Agriculture	Agriculture and fisheries	Access and benefit sharing
	4	Authority for the protection and development of lakes and fisheries	Agriculture and fisheries	Access and benefit sharing
	5	Ministry of Tourism and Antiquities	Tourism	Sustainable use
	6	Ministry of Housing – Tourism Development Agency (TDA)	Tourism	Sustainable use
	7	Ministry of Electricity and Renewable Energy	Energy	Green economy
	8	Ministry of Social Solidarity	Social	Biodiversity awareness and knowledge
	9	Ministry of Petroleum and Mineral Resources	Mining	Pollution management/restoration
	10	Minister of Housing, Utilities and Urban Communities	Housing and Infrastructure	Sustainable use
	11	Ministry of Finance	Finance and economic development	Biodiversity and development planning and finance
	12	Ministry of State for Military Production	Finance and economic development	Biodiversity and development planning and finance
	13	Ministry of Trade and Industry	Finance and economic development	Biodiversity and development planning and finance

	14	Central Agency for Public Mobilization and Statistics	Finance and economic development	Biodiversity and development planning and finance
	15	Ministry of International Cooperation	Planning	Biodiversity and development planning and finance
	16	Ministry of Planning and Economic Development	Planning	Biodiversity and development planning and finance
	17	Ministry of Transport	Transport	Sustainable use
	18	Ministry of Irrigation and Water Resources	Water and sanitation	Protected area and other conservation measures
NGOs	19	Chamber of Tourist Establishment	Tourism	Access and benefit sharing
	20	Hurghada Environmental Protection and Conservation Association (HEPCA)	Biodiversity conservation	Biodiversity awareness and knowledge
	21	Nature Conservation Egypt (NCE)	Biodiversity conservation	Biodiversity awareness and knowledge
	22	Abu Salama Society	Biodiversity conservation	Biodiversity awareness and knowledge
Bi and multilateral organizations, Official Development Assistance and international NGOs	23	UNDP Egypt	International cooperation	Biodiversity and development planning and finance
	24	GEF Small Grants Egypt	Donors	Biodiversity and development planning and finance
	25	International Union for Conservation of Nature	International cooperation	Biodiversity and development planning and finance
	26	European Commission in Egypt	International cooperation	Biodiversity and development planning and finance
	27	USAID Egypt	International cooperation	Biodiversity and development planning and finance
	28	MedPan	International NGO	Biodiversity awareness and knowledge
	29	Birdlife International	International NGO	Biodiversity awareness and knowledge
	30	Centre for Environment and Development for the Arab Region and Europe (CEDARE)	International NGO	Biodiversity awareness and knowledge
	31	German Agency for Development (GIZ)	International NGO	Biodiversity and development planning and finance

	32	International Finance Corporation (IFC)	Lenders	Biodiversity and development planning and finance
	33	The World Bank Group	Lenders	Biodiversity and development planning and finance
	34	Food and Agriculture Organization (FAO)	International cooperation	Biodiversity and development planning and finance
	35	Regional Center for Renewable Energy and Energy Efficiency (RCREEE)	Regional cooperation	Green economy
	36	Worldfish	International NGO	Biodiversity awareness and knowledge
Private sector	37	Oil and gas companies	Hydrocarbon extraction	Pollution management/restoration
	38	Hotel and ecolodge owners and tour operators	Tourism	Sustainable use
	39	Renewable energy companies	Energy	Green economy
	40	Environmental consulting firms	Environment	Biodiversity awareness and knowledge
	41	Environmental architecture companies	Engineering	Biodiversity awareness and knowledge
Projects	42	Biodiversity Mainstreaming into tourism sector project	Biodiversity conservation	Biodiversity awareness and knowledge
	43	Enhancing climate change adaptation in the North coast and Nile Delta Regions in Egypt Project	Water and sanitation	Biodiversity awareness and knowledge
Scientific Community	44	The Desert Research Center	Science	Biodiversity awareness and knowledge

5.2. Institutional Analysis

The list of stakeholders has been analyzed using the typical stakeholder mapping matrix, that involves two main criteria: Interest of a stakeholder in the biodiversity finance, and its power or influence, particularly to affect the decision-making process related to biodiversity finance (Figure 11).

The stakeholder mapping matrix is a systematic tool that assists in identifying where stakeholders stand depending on their power and interest. The power and interest of stakeholders can be classified as low or high.

Stakeholder's interest and power have been expressed on a score of 1-4, with 1 as the lowest

and 4 as the highest score. Results have been plotted on a graph with their corresponding numbers shown in the previous table. Including ministries, agencies, NGOs, private sector associations, donors and other finance sources, key economic actors, etc.

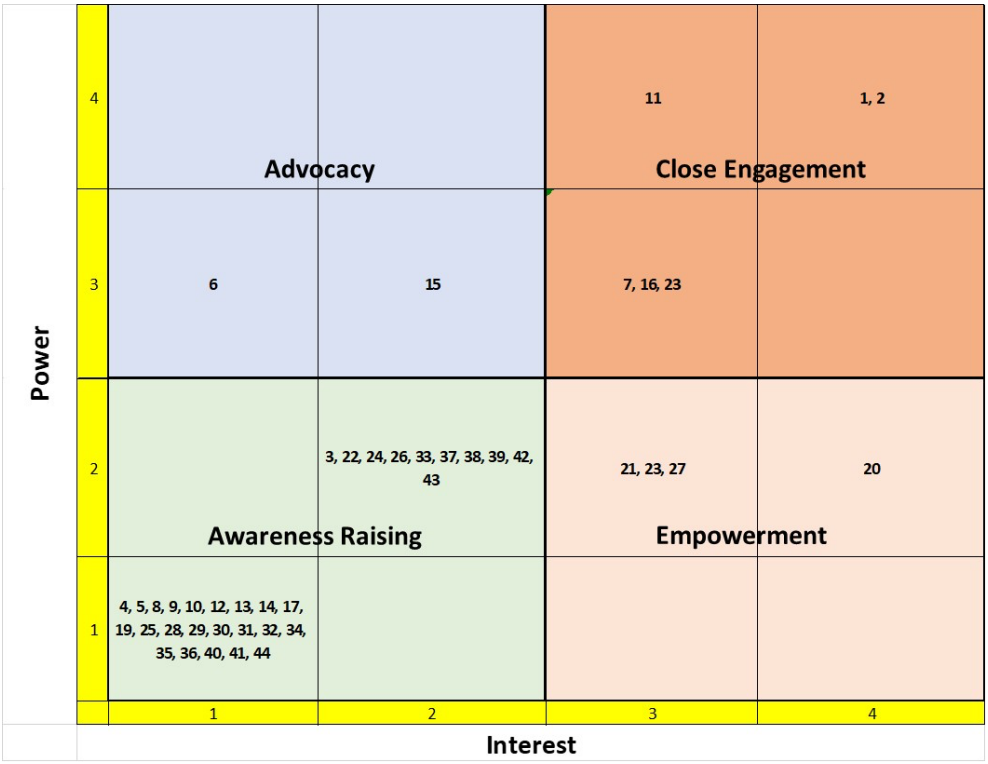

FIGURE 11 STAKEHOLDER MAPPING MATRIX

A definition of each group based on the stakeholder mapping can be summarized as follows:

- **Awareness Raising/Monitor**: low influence and low interest. Typically, this group includes entities with limited interest and influence on the Project including for instance some non-governmental organizations (NGOs).
- **Advocacy/Inform**: high influence and low interest. From an impact assessment perspective, these are stakeholders that have the potential to influence biodiversity finance but may not have a specific interest in project itself. Stakeholders in this group should be kept informed on the progress of the Project development.
- **Empowerment/Engage**: low influence and high interest. This group is an important group and includes those groups or organizations that are not adversely affected, but whose interests determine them as stakeholders. As such, this group should be kept engaged and the Project should maintain an open channel of communications with this group throughout Project phases.
- **Close Engagement/Leverage**: high influence and high interest. This group of stakeholders is the most important to the Project as they have the ability to influence Project outcomes and also have a high level of interest in aspects of biodiversity finance. Stakeholders in this group should be engaged throughout the BIOFIN phases, and during Project life cycle. This group include the following key institutions, which are vital in

biodiversity finance:

- Ministry of Environment – Environmental Protection Fund (EPF).
- Ministry of Environment – Nature Conservation Sector (NCS).
- Ministry of Electricity and Renewable Energy.
- Ministry of Finance (MoF).
- Ministry of Planning and Economic Development (MoPED).
- The United Nations Development Program (UNDP) in Egypt.

The role of main institutions has been defined as following in table:

TABLE 11 KEY INSTITUTIONS AND THEIR ROLES

Ministry or Agency/entity	Role and/or Function
Nature Conservation Sector in the Ministry of Environment (NCS)	▪ Knowledge based management of the protected areas (15-17% of Egypt's area), which represent the marine, coastal, desert, mountainous and wetland environments all over Egypt and is a strategic reserve for the country's natural resources. ▪ Conservation of rare and endangered fauna and flora species and their habitats outside the protected areas (such as coral reef ecosystem in the Red Sea), which are genetic assets and economic wealth that are subject to deliberate or accidental damage. ▪ Participate in setting up and following up national programs for the development of human resources in the fields of biodiversity conservation, and assist in the preparation of education, education and information programs to conserve the Egyptian natural and cultural heritage. ▪ Supporting the social and economic dimension in and around the areas of the protected areas network, promoting the rational use of natural resources through sustainable development activities, and contributing to increasing job opportunities and the participation of local communities in protection activities. ▪ Following up on Egypt's commitments towards international and regional agreements and their appendices concerned with conserving biological diversity, participating in the institutions emanating from them, and benefiting from the resources of international aid provided by these agreements.
Ministry of Finance (MoF)	**The Political Role:** ▪ Proposing and developing the overall fiscal policy so as to ensure the achievement of the objectives of the economic and social development plan, and participating in setting the general monetary policy, in partnership with the concerned authorities, in order to ensure its consistency

	with the fiscal policy. ▪ Developing financial plans and programs that ensure the achievement of national goals. ▪ Preparing the state's general budget projects within the framework of the state's general plan and submitting them to the concerned authorities. **The Supervisory Role**: ▪ Supervising the implementation of the state's general budget upon its approval, then following up and evaluating the relevant results to ensure the achievement of the state's general plan. ▪ Exercising control, follow-up and technical supervision on financial and accounting entities in accordance with the relevant laws and regulations. ▪ Plan and follow up procurement and selling transactions of the state administrative and public authorities. **Legislative role:** ▪ Studying and developing financial legislations and expressing opinion on legislation developed by other ministries that are associated with adding new financial burdens on the treasury. ▪ Conducting studies and research on financial policies in light of the internal and external financial and economic developments and reviewing the necessary legislative reform plans. ▪ Participate in reviewing all international agreements related to grants and loans, in partnership with the concerned authorities. ▪ Conducting the necessary legislative studies, in cooperation with the concerned authorities, to link the state's general plan with financing plans of local and foreign currencies. **The executive role:** ▪ Managing financial resources and collecting surplus revenues and general reserves for financing funds, funds of insurance and investment agencies, domestic and foreign loans and other available funds. Participating in organizing the use of public resources with the Ministry of Planning to provide funding for the economic and social development plans and programs and for the state's general resources. ▪ Assessment, identification, follow-up and collection of public resources and all the collection tasks assigned to the Ministry's agencies.

	▪ Exercising the tasks related to the public treasury. ▪ Management and liquidation of funds turned over to the state by virtue to the nationalization and receivership laws or according to the rulings of the Court of Values.
Environmental Protection Fund (EPF)	The Environment Protection Fund was established in accordance with Law No. 4 of 1994, as amended by Law No. 9 of 2009. These amendments included conferring legal personality on the Environment Protection Fund to give it more powers and capabilities necessary to activate its role in protecting the environment and reducing pollution in all its forms and forms. The fund's goal is to encourage Investment in environmental fields. In order to achieve this goal, the EPF provides financial support for projects with a clear environmental impact, in addition to encouraging participation between financial institutions and all other groups in society, including non-governmental organizations, the private and public sectors, and the government sector, in order to push forward investment in environmental fields. EPF provides funding and follow up the implementation of projects that comply with environmental laws and regulations. EPF encourages projects aimed at protecting natural diversity, including natural reserves. The Fund encourages support for projects such as preserving protected areas, in addition to encouraging the private sector in the field of tourism services, ecotourism, maintenance and operation of ship berths and berths designed to receive sewage.
Ministry of Planning and Economic Development (MoPED)	**Planning:** ▪ Develop long, medium and short-term sustainable development plans and ensure consistency of the implementation of sectoral strategies and plans with the development strategy, the state budget law and the other budget implementation laws. ▪ Implement and monitor the implementation of the provisions of the state general plan preparation Law. ▪ Prepare the development plan's general guide, including central, sectoral and geographical objectives and policies, development program selection criteria, project priorities and key performance indicators. ▪ Study the administrative entities proposals for the preparation of the annual investment plan, evaluate the proposed investment projects for each entity and determine the allocation of their investment plan, while achieving consistency and integration between the central, regional and local plans. ▪ Participate in the development of program and

	performance plans and take the necessary actions to implement them and activate their performance. ▪ Work to diversify financing sources for development plans and programs and motivate partnership mechanisms with the private sector, civil society and development partners to enhance funding for development, without violating the functions of the Ministry of International Cooperation and in coordination with ministries and stakeholders. **Economic Development:** ▪ Formulate and monitor the implementation of the National Sustainable Development Strategy (Egypt Vision 2030) in coordination with ministries and stakeholders, in addition to monitoring the implementation of the UN Sustainable Development Strategy (2030 Agenda) and ensuring compliance with the 2063 Agenda. ▪ Develop periodic reports to assess indicators for the implementation of the sustainable development goals. ▪ Set the overall objectives of economic development and propose economic policies to achieve them and participate in the formulation of sectoral and geographical development strategies at the national level in partnership with ministries and stakeholders. ▪ Develop and improve the GDP structure and increase the competitiveness and productivity of the economy by proposing and pursuing macro-sectoral reforms in cooperation with ministries and stakeholders. ▪ Propose the necessary draft laws and decrees to achieve the objectives of the state's economic development and express opinion on them.

On the other hand, the following are important institutions in the biodiversity finance, which take and advocacy role.

- Ministry of Housing – Tourism Development Agency (TDA)
- Ministry of International Cooperation

5.3. Stakeholder Engagement Plan

To ensure effective stakeholder engagement, a plan should be prepared to setup communication protocols for the different identified groups and categories describe above. One of the aims of the stakeholder analysis is to understand their interest and influence, so as to provide the necessary communication tools.

Based on the results of the above stakeholder mapping, the stakeholder groups have been analyzed to determine the most appropriate method of engagement for each key group. This analysis considered the groups concerns, their level of interest in the Project and their

potential to be impacted (including positive/negative and direct/indirect). The following table shows the stakeholder analysis results, and the proposed group for each.

TABLE 12 STAKEHOLDER ANALYSIS RESULTS

No.	Institutions /stakeholders	Power	Interest	Group
1	Ministry of Environment – Environmental Protection Fund (EPF)	4	4	Close Engagement/Leverage
2	Ministry of Environment – Nature Conservation Sector (NCS)	4	4	Close Engagement/Leverage
3	Ministry of Agriculture	2	2	Awareness Raising/Monitor
4	Authority for the protection and development of lakes and fisheries	1	1	Awareness Raising/Monitor
5	Ministry of Tourism and Antiquities	1	1	Awareness Raising/Monitor
6	Ministry of Housing – Tourism Development Agency (TDA)	3	1	Advocacy/Inform
7	Ministry of Electricity and Renewable Energy	3	3	Close Engagement/Leverage
8	Ministry of Social Solidarity	1	1	Awareness Raising/Monitor
9	Ministry of Petroleum and Mineral Resources	1	1	Awareness Raising/Monitor
10	Minister of Housing, Utilities and Urban Communities	1	1	Awareness Raising/Monitor
11	Ministry of Finance	4	3	Close Engagement/Leverage
12	Ministry of State for Military Production	1	1	Awareness Raising/Monitor
13	Ministry of Trade and Industry	1	1	Awareness Raising/Monitor
14	Central Agency for Public Mobilization and Statistics	1	1	Awareness Raising/Monitor
15	Ministry of International Cooperation	3	2	Advocacy/Inform
16	Ministry of Planning and Economic Development	3	3	Close Engagement/Leverage
17	Ministry of Transport	1	1	Awareness Raising/Monitor
18	Ministry of Irrigation and Water Resources	3	1	Awareness Raising/Monitor
19	Chamber of Tourist Establishment	1	1	Awareness Raising/Monitor

20	Hurghada Environmental Protection and Conservation Association (HEPCA)	2	4	Empowerment/Engagement
21	Nature Conservation Egypt (NCE)	2	3	Empowerment/Engagement
22	Abu Salama Society	2	2	Awareness Raising/Monitor
23	UNDP Egypt	3	3	Close Engagement/Leverage
24	GEF Small Grants Egypt	2	2	Awareness Raising/Monitor
25	International Union for Conservation of Nature	1	1	Awareness Raising/Monitor
26	European Commission in Egypt	2	2	Awareness Raising/Monitor
27	USAID Egypt	2	3	Empowerment/Engagement
28	MedPan	1	1	Awareness Raising/Monitor
29	Birdlife International	1	1	Awareness Raising/Monitor
30	Centre for Environment and Development for the Arab Region and Europe (CEDARE)	1	1	Awareness Raising/Monitor
31	German Agency for Development (GIZ)	1	1	Awareness Raising/Monitor
32	International Finance Corporation (IFC)	1	1	Awareness Raising/Monitor
33	The World Bank Group	2	2	Awareness Raising/Monitor
34	Food and Agriculture Organization (FAO)	1	1	Awareness Raising/Monitor
35	Regional Center for Renewable Energy and Energy Efficiency (RCREEE)	1	1	Awareness Raising/Monitor
36	Worldfish	1	1	Awareness Raising/Monitor
37	Oil and gas companies	2	2	Awareness Raising/Monitor
38	Hotel and ecolodge owners and tour operators	2	2	Awareness Raising/Monitor
39	Renewable energy companies	2	2	Awareness Raising/Monitor
40	Environmental consulting firms	1	1	Awareness Raising/Monitor
41	Environmental architecture companies	1	1	Awareness Raising/Monitor
42	Biodiversity Mainstreaming into tourism sector project	2	2	Awareness Raising/Monitor
43	Enhancing climate change adaptation in the North coast and Nile Delta Regions in Egypt Project	2	2	Awareness Raising/Monitor
44	The Desert Research Center	1	1	Awareness Raising/Monitor

The following summarizes the stakeholder engagement strategy

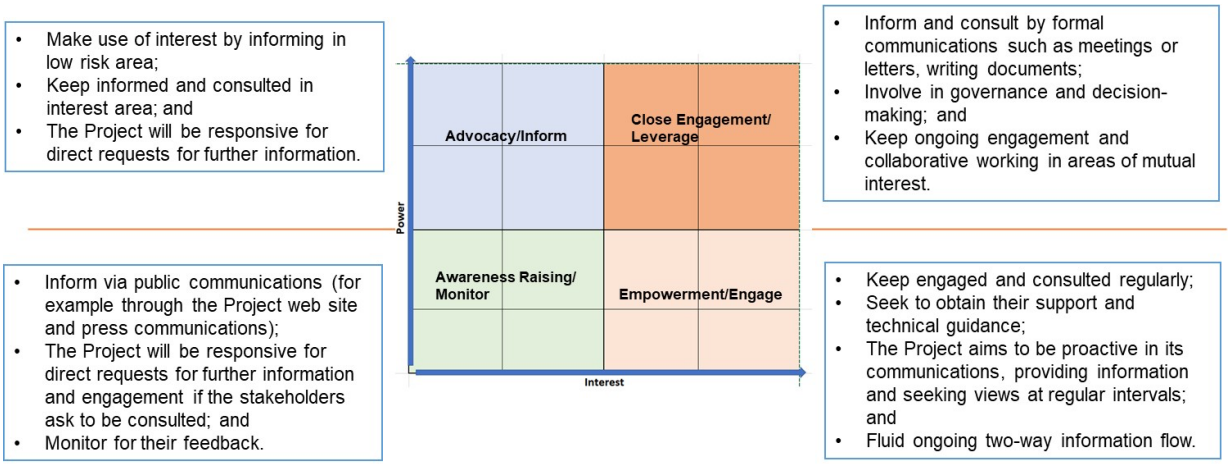

FIGURE 12 STAKEHOLDER ENGAGEMENT STRATEGY

Note that the seven key institutions must be involved for the remaining phases of the BIOFIN Egypt project, while most of the stakeholder would require to be informed and kept monitored.

Summary of Key Recommendations

6. SUMMARY OF KEY RECOMMENDATIONS

The PIR is the first technical report of BIOFIN project, which will be followed by other specific studies aiming to improve biodiversity finance in Egypt. The PIR highlighted specific gaps in the overall policy framework and various sectors in relation to biodiversity finance. This section of the PIR aims to provide a set of conclusions and recommendations for policy makers based on both macro- and sectoral perspectives. It also provides advice on how to mainstream biodiversity into key sectors in the country with a focus on biodiversity-finance and revenue-generating sectors. It provides framework recommendations on how to increase the effectiveness of finance solutions for biodiversity and protected areas and introduce innovative financing solutions. Furthermore, the study provides strategic directions and advice on the recommended national budgeting, resource allocation, and environmental fiscal reform.

6.1. Legal and policy

- The different environmental and biodiversity policies and laws in Egypt provide a strong foundation for biodiversity conservation, but need to be fully implemented and adequately resourced. For example, the NBSAP (2015-2030) establishes national targets for biodiversity conservation; however, many of them are lagging behind specifically national targets No. 2, 5, 7, 11, 12, 15, 16 and 20 (planned for 2020).
- Some institutional arrangements and diffusion of mandates across different institutions reduce the effectiveness of organizations. Likewise, clear distinction needs to be made between regulatory and resource management functions. Examples include among others the management of fisheries, shoreline protection inside protected areas. Each theme is managed by two different entities, which in some cases leads to conflicting objectives and results.
- The priority actions to address these challenges in Egypt include strengthening governance and management of biodiversity, increasing awareness and building capacity among police, coast guards, rangers, and judicial authorities on existing biodiversity laws, expectations for environmental management, importance of enforcement of biodiversity-related crimes, and improved methods for monitoring and enforcement.
- The national PA systems are expected to be more financially sustainable if an independent economic authority (Nature Conservation General Authority, previously considered) is established. The new authority could be able to retain the majority of the protected areas' revenues and reinvest them in the protected areas to support management and operation.
- The EPF could have a significant role if it is upgraded to an economic entity that is able to establish companies and reinvest its resources in implementing environmental protection and biodiversity conservation projects.

- Moreover, Strategic Environmental Assessment (SEA) proves to be an effective assessment tool for policy, plan and program levels, particularly when considering cumulative impacts of projects that make up a plan on biodiversity. The SEA, however, still, is not required by the current legal framework and is highly recommended to be included in the upcoming amendments of the Law of Environment.

6.2. Changes in sectoral policies and practices that would help reduce biodiversity loss, and/or improve biodiversity finance

- Without enforcing environmental regulations in regard to land use and new development activities to save the natural habitats and preserve the monuments of Egypt, loss of biodiversity and nature-derived benefits will continue to decline. Mainstreaming of biodiversity into key economic sectors should be a priority. The priority actions to address these challenges in Egypt include improving intra-governmental coordination, particularly to resolve inter-ministerial conflict over areas of authority and improving accountability for core mandates, such as challenges pertaining to management of fisheries within protected areas. They also include strengthening enforcement of environmental impact assessment commitments, particularly in extractive industries such as quarrying, mining, and energy production.

6.3. Institutional/organizational and capacity development

- Partnering with NGOs represents a highly prospective source of support for biodiversity conservation and Pas in Egypt. Not only do NGOs represent a source of support but they also bring expertise and capacity to arrange or provide services to the park. NGOs could reduce the funding needs of the PA by doing some of the work it should otherwise do. It is recommended that the MoE enhances the enabling environment for NGOs to be much engaged in supporting biodiversity conservation and strengthen the financial sustainability of protected areas. This could be done through providing training and capacity building for environmental NGOs and providing an imitational framework for the avengement of NGOs in conservation. A good example that could be followed in this regard is the GEF Small Grants Programme in Egypt where the programmes are managed to successfully strengthen the capacity of local NGOs and engage them in conservation and community development. The EFP should also provide financial and technical support the empower environmental NGOs and utilize them in implementing conservation and development project that further complement the work of MoE.
- Egypt faces numerous challenges to ecosystem goods and services economic valuation and biodiversity finance. These challenges include limited understanding of cumulative impacts on biodiversity, and inadequate practical national guidelines and capacity or human resources to conduct valuation of ecosystem services. A priority activity to address these challenges in Egypt includes conducting an economic valuation of the country's

biodiversity and ecosystems services according to the international standards. Building capacity among fishermen in sustainable fisheries management and/or aquaculture practices, and among agriculturalists in best management practices for chemical use and post-harvest processing, and among rangers in best monitoring programs.

- At the final consultation workshop, it was highlighted that a new biodiversity financing unit has been unofficially set up within the NCS. This unit is tasked with formally handling biodiversity financing activities and bolstering the biodiversity finance initiative in Egypt. It is recommended that the NCS utilize existing capacity-building tools to train this unit in conservation, innovative finance planning, and communication. This training will enable the unit to engage in science-based discussions with both internal and external stakeholders, promoting and raising awareness on biodiversity financing matters.

6.4. Observations on the potential of existing finance solutions

- CSR could be a very important source of revenue generation for biodiversity and PAs in Egypt. A capacity development is required for senior officials at EEAA, NCS and PAs managers to improve their knowledge, skills and capacities in fundraising and CSR fields.
- Many of the policies and NBSAP plans have not been finalized and/or implemented due to lack of both financial and human resources. Governments fiscal difficulties over the last few years have impacted significantly on resource availability. National responses to the continuing loss of biodiversity are varied and responses so far have not been adequate to address the scale of biodiversity loss or reduce the pressures. Recommended actions include designing and implementing programs to support community-based natural resource management (CBNRM) that encourage sustainable natural resource use, integrating management and derivation of benefits from protected areas into economic planning at national, governorate, and local levels.
- Protected area entry fees and concessions are probably the most important financing sources at the site level. For the fiscal year spanning July 2022 to June 2023, entrance fees amounted to approximately EGP 222 million and US$2.2 million. In addition, during the calendar year of 2022, concessions brought in around EGP 9.4 million. These fees and charges in the protected areas of Egypt must be introduced based on a decree issued by the MoE after reviewing relevant laws and regulations and coordination with other governmental agencies. It is recommended that the protected areas and concessions system in PAs of Egypt to be analyzed and updated benefiting from the international best practice e.g., the IUCN work in this field.
- Biodiversity offsetting has not been formally embraced in Egypt, with only a few potential examples existing, though not documented. Nevertheless, it holds promise as a financing source for biodiversity and PAs. Despite lacking official recognition, there are identified instances that could be considered as biodiversity offsetting. Further analysis is needed in this regard.

6.5. Opportunities for improvements in the budgeting and planning process

- It is obvious that the national budgeting planning process follows national priorities. The SDS and Egypt Vision 2030 sets the national road map to achieve sustainable development. The ninth pillar of the SDS states that "Environment is integrated in all economic sectors to preserve natural resources and support their efficient use and investment, while ensuring next generations' rights. A clean, safe and healthy environment leading to diversified production resources and economic activities, supporting competitiveness, providing new jobs, eliminating poverty and achieving social justice." Therefore, it is recommended to:
  - Spend much efforts in high level education and outreach for parliament people, and
  - Communicate efficiently with the MoF and MoPED to put environmental protection and biodiversity conservation on the national finance priorities. This can be supported by endorsed NBSAP, as well as endorsed PA management plans.
- The main objective of the budgeting process should be to achieve desired outcomes or results, rather than solely allocating funds to activities. It is essential to implement a budgeting process that aligns resources with specific objectives and evaluates the effectiveness and efficiency of expenditures in attaining those outcomes. By connecting budget decisions to results, it facilitates improved decision-making, resource allocation, and performance management. Result-based budgeting (RBB) is a commendable approach that shifts the focus from inputs to outcomes, promoting a more strategic and performance-oriented budgeting process.
- An important step towards promoting biodiversity conservation is to continue the country paces in eliminating harmful biodiversity subsidies from the budget (e.g., fuel subsidies) and instead encourage positive subsidies. By removing the harmful subsidies, the country can reduce the incentives for activities that harm biodiversity and redirect financial support towards initiatives that actively promote conservation, restoration, and sustainable use of natural resources. At the same time, encouraging positive subsidies can provide financial incentives for activities that contribute to the protection and enhancement of biodiversity, such as sustainable agriculture, habitat restoration, and the development of eco-friendly practices. By reallocating budgetary resources in this manner, the country can foster a more sustainable approach to biodiversity management and create long-term benefits for both ecosystems and human well-being.

6.6. Key national entry points, including a rationale for their selection, and the associated agencies and organizations for each entry point

- The PIR involved the identification of entry points that interest government, the private sector and other stakeholders that may be used for generating increased biodiversity financing. The entry points could be the process of changes in policies and incentives to

promote biodiversity to percolate to the top and be given priority attention. The entry points help facilitate the process of modifications and/or development of new laws, policies, regulations, and incentives that could support greater biodiversity protection and mitigation. The Close Engagement/Leverage group includes seven key institutions that should be involved during the implementation of Egypt BIOFIN project.

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