PROJECT PERFORMANCE ASSESSMENT REPORT

MOROCCO

Integrated Coastal Zone Management Project

Report No. 192962
DECEMBER 23, 2024

IEG
INDEPENDENT EVALUATION GROUP

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Integrated Coastal Zone Management Project (P121271)

December 23, 2024

Finance, Private Sector, Infrastructure, and Sustainable Development

Independent Evaluation Group

Abbreviations

GEF	Global Environment Facility
ICR	Implementation Completion and Results Report
ICZM	integrated coastal zone management
IEG	Independent Evaluation Group
INRH	National Institute of Fisheries Research
PDO	project development objective

All dollar amounts are US dollars unless otherwise indicated.

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This report was prepared by Elizabeth Dodds (consultant) with oversight from Lauren Kelly (task team leader) and support from Khadija Saoudi (consultant) following a mission in April and May 2024. The report was peer-reviewed by Steve Fletcher and panel reviewed by Stephen Hutton. Jean-Jacques Ahouansou provided administrative support.

Note: IEG = Independent Evaluation Group; PPAR = Project Performance Assessment Report.

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This is a Project Performance Assessment Report by the Independent Evaluation Group (IEG) of the World Bank Group on the Morocco Integrated Coastal Zone Management Project (P121271). This instrument and the methodology for this evaluation are discussed in appendix B.

Following standard IEG procedure, copies of the draft Project Performance Assessment Report were shared with relevant government officials for their review and comment. IEG did not receive comments from the government.

Morocco Integrated Coastal Zone Management Project (P121271)

Basic Data

Country	Morocco	World Bank financing commitment	US$5.18 million
Global Practice	Environment, Natural Resources, and Blue Economy	Actual project cost	US$25.48 million
Project name	Integrated Coastal Zone Management	Expected project total cost	US$25.18 million
Project ID	P121271	Actual amount disbursed	US$5.12 million
Financing instrument	Investment project financing	Environmental assessment category	Partial assessment (B)
Financing source	Global Environment Facility TF-012284		

Dates

Event	Original Date	Actual Date
Approval	July 5, 2012	July 5, 2012
Effectiveness	October 1, 2012	November 5, 2012
Restructuring	—	October 13, 2016
Mid-Term Review	—	March 24, 2015
Closing	March 31, 2017	December 31, 2017

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Summary

Background and Description

Morocco's coastal zones face significant threats from environmental degradation and climate change, which have been exacerbated by weak coastal planning and management. Coastal areas and key economic sectors including fisheries, tourism, and aquaculture rely on coastal natural resources, which are under threat from urbanization, pollution, resource depletion, and climate-related risks such as drought and sea-level rise. Together these factors are leading to rapid coastal degradation, a decline in biodiversity, and endangerment of the livelihoods of millions of people. The rapid expansion of Morocco's coastal development has historically occurred in a context where sectoral activities were planned and implemented in isolation from each other—often with conflicting objectives. This has contributed to inefficient use of resources, gaps in accountability, and negative impacts on the environment.

In response, the government of Morocco has taken several steps to strengthen integrated coastal zone management (ICZM). ICZM can be defined as "a dynamic process for the sustainable management and use of coastal zones, taking into account at the same time the fragility of coastal ecosystems and landscapes, the diversity of activities and uses, their interactions . . . and their impact on both the marine and land parts" (UNEP et al. 2008, 20). By 2012, the government of Morocco had prepared a national coastal zone law, signed the Madrid Protocol on ICZM in the Mediterranean, and implemented a number of donor-financed ICZM initiatives in the Mediterranean. Despite these ambitious efforts, Morocco continued to struggle with a lack of sectoral and spatial coordination of coastal development.

In this context, the World Bank approved the ICZM Project in 2012 to pilot an integrated approach to coastal zone management. The ICZM Project was designed to support the government of Morocco in piloting innovative methods and measures for sustainable coastal development in sensitive areas on the eastern Mediterranean coast that could catalyze further investment and replication in other coastal areas. The project consisted of (i) capacity building and technical assistance to integrate ICZM into the local development planning of six communes and (ii) pilot investments in a range of environmental restoration and coastal livelihoods activities, including rehabilitation of sensitive wetlands and dune ecosystems, installation of an artificial reef, establishment of aquaculture farms, planting of fruit trees, and promotion of apiculture and ecotourism. The project was implemented between November 2012 and December 2017.

This Project Performance Assessment Report forms part of a cluster assessment of three World Bank projects that informed the Independent Evaluation Group evaluation *Making Waves: World Bank Support for the Blue Economy, 2012–23.*

Results

The project helped the government integrate ICZM in local development plans and strengthen engagement across sectors. All of the commune governments targeted by the project integrated ICZM into communal development plans, and the majority continue to use ICZM approaches. However, the implementation of ICZM projects at the commune level since the project ended has been hindered by a lack of resources. The project also facilitated cross-sectoral dialogue and sharing of information across project-implementing agencies through project coordination mechanisms. These changes contributed to a greater recognition and acceptance of the need for interagency collaboration on coastal planning and management. Although these project-specific mechanisms are no longer in place, interagency commissions on ICZM are now being established at the regional level as part of the development of regional coastal plans.

The project likely contributed to the conservation of coastal ecosystems and biodiversity; however, these results are difficult to validate. Anecdotal evidence suggests that by investing in the restoration of wetland, coastal, and marine habitats, the project contributed to improvements in water quality and the regeneration of fish stocks and biodiversity in project areas. The project also helped reduce land degradation and coastal erosion, as confirmed through Independent Evaluation Group site visits and satellite imagery. However, the project did not measure, monitor, or track environmental outcomes; therefore, many of these findings cannot be directly attributed to the project.

Income benefits have so far been limited for most of the subprojects. Only two subprojects—the artificial reef and the seaweed farm—are currently profitable and have either met or exceeded the project's medium- to long-term income estimates. The other subprojects have not yet achieved significant income benefits, due to either the need for longer timelines to realize benefits or the lack of sustainability of the subprojects.

While the project contributed to diversifying revenues, it did not create "alternative livelihoods." The project succeeded in diversifying the revenues of local fishers and farmers by providing new income streams from aquaculture, apiculture, and agroforestry activities. As fishing, farming, and aquaculture can be performed in alternate seasons, there is no evidence to suggest that the introduction of new livelihoods has led to a reduction in or substitution of traditional fishing and farming.

The comanagement arrangements established by the project between local cooperatives and government agencies continue to be upheld. The project established comanagement agreements between local cooperatives and associations and government agencies for the seaweed and shellfish farms and for the artificial reef. Since the close of the project, all parties have continued to carry out their roles and responsibilities in line with these agreements.

The project made some progress on increasing women's autonomy and agency in at least one commune. The project supported four beekeeping cooperatives with female members and helped increase women's voices and agency in at least one commune.

The project is achieving longer-term outcomes through replication or scaling up some subprojects by the government of Morocco, the private sector, and the World Bank. The subprojects were designed as pilots that could be replicated in other coastal areas of Morocco. Following success under the project, the government, private enterprises, and the World Bank have been supporting the establishment of additional seaweed farms in other areas and using similar techniques. The government has also supported the expansion of the project's land- and dune-restoration efforts.

Strengthening Institutional Capacity for ICZM

The project helped create the enabling conditions for the adoption of an ICZM policy framework. Using the knowledge of and expertise on ICZM gained through the project, the World Bank supported the government of Morocco in adopting the national coastal management law in 2015 through a development policy operation and in drafting the first Regional Coastal Plan in 2020 through technical assistance.

Yet, the project's institutional-strengthening efforts at the commune level were superseded by policy and institutional shifts at the national and regional levels. The project supported a model of integration of ICZM at the commune level, but this model was designed before the formal establishment of Morocco's ICZM legal framework, which would allocate institutional mandates, responsibilities, and budgets for ICZM to national and regional governments. Consequently, the integration of ICZM in communal action plans will have limited sustainability without a connection to higher-level policy and institutional frameworks.

While the project increased cross-sectoral engagement, the design and implementation of subprojects was sectoral, with limited consideration of opportunities and trade-offs across sectors. Each subproject understandably focused on a single sector and was implemented by a sectoral agency, but coordination or engagement across sectoral agencies in the design and implementation of specific subprojects was limited.

Improving Conservation of Coastal Ecosystems and Biodiversity

The project is unlikely to have a lasting impact on coastal and marine ecosystems without continuous adaptation and larger-scale efforts to address the drivers of environmental degradation. The project's small-scale environmental restoration activities are likely to be overwhelmed by rapid and large-scale environmental degradation from major forces such as climate change and industrial pollution. Since the project ended in 2017, severe drought has negatively affected project outcomes.

The project could have leveraged participatory, community-based monitoring to measure and track environmental outcomes. Continuous environmental monitoring was identified by several project stakeholders as a critical need. In light of ICZM's participatory approach, the project could have taken advantage of community-based approaches to monitoring environmental impacts (for example, biodiversity tracking done by community members), which have been shown to be relatively sustainable (GEF 2024). Using such approaches would have allowed for baseline and ongoing data collection.

Increasing the Resilience of Local Livelihoods

The project contributed to diversifying livelihoods but did not adequately consider market linkages to help ensure the sustainability of income-earning opportunities. Key barriers to the sustainability of income-earning opportunities provided by the project included the lack of certification by food safety authorities, the lack of in-depth market research for each supply chain, and limited formal relationships established with commercial buyers and exporters. Because of weak market linkages, most beneficiaries are either consuming the products they harvest themselves or selling them informally in small quantities through local networks or to Moroccans abroad. In particular, the ecotourism subproject was not based on a realistic assessment of the tourism market in the area and was not able to sustain any income, livelihood, or environmental benefits.

Inclusion of Natural Resource Users and Vulnerable Groups

While the project effectively supported a decentralized, participatory form of natural resources management, decision-making in the fisheries sector has remained largely top-down. The project successfully supported comanagement arrangements by establishing the legal rights of local cooperatives to manage their fisheries or aquaculture farms and by providing the flexibility for cooperatives to apply their local knowledge and learn by doing. However, these changes were not connected to the power structures and decision-making processes happening at the provincial or regional levels.

Lessons

This assessment offers the following lessons:

- The use of small pilot projects to demonstrate the benefits of ICZM can be an effective starting point to overcome resistance from different sectors and resource users, catalyze investment, and create buy-in for ICZM at the policy level. The project's demonstration of shared benefits and win-win solutions helped overcome local resistance and catalyze further investment from the government of Morocco and the private sector. The process of project preparation and coordination also helped build the client's and the World Bank's exposure to and knowledge of ICZM, which subsequently shaped the development and approval of an ICZM policy framework.

- Small-scale ICZM projects are unlikely to achieve lasting benefits without sustainable funding, continuous adaptation, and wider efforts to address rapid, large-scale changes occurring in coastal areas. While the project helped strengthen local capacity to integrate ICZM into development planning, local communities have not been able to fully realize the benefits of ICZM because of the lack of sustainable funding sources to implement these plans and support continuous adaptation to dynamic climate conditions. The rapid pace and large-scale nature of the changes occurring in coastal areas will continue to undermine project results unless significant action is taken at a higher level.

- Livelihood subprojects may require deeper analysis of markets and support to create market linkages to produce viable economic enterprises. Some of the livelihood subprojects lacked the in-depth sector-specific economic analysis, market research, and support needed to successfully integrate livelihoods with supply chains and generate sustained income over time.

- Results frameworks that do not measure environmental, economic, and social outcomes will fail to capture the mutual benefits resulting from ICZM approaches. The project did not capture environmental, economic, and social outcomes in its project development objective or its results framework. Although the mutual benefits of the subprojects were understood locally by beneficiaries, these benefits could not be directly attributed to the project or captured and shared more widely to make the case for ICZM.

Carmen Nonay
Director, Finance, Private Sector, Infrastructure, and Sustainable Development
Independent Evaluation Group

1. Background, Context, and Design

Background and Context

1.1 Morocco's coastal zones and associated marine environments form the backbone of its economy. With access to the Mediterranean Sea and the Atlantic Ocean totaling 3,500 kilometers of coastline, Morocco has a wealth of marine resources and biodiversity (World Bank 2012). More than 65 percent of Morocco's population and 90 percent of industry are concentrated on the coastline (World Bank 2022b). Some of Morocco's key economic sectors depend on these coastal areas and related ecosystems, including fisheries, tourism, agriculture, and aquaculture. The fisheries sector alone accounts for 1.5 percent of the GDP and 700,000 jobs, and tourism in coastal areas generates more than 300,000 jobs (World Bank 2022a). These economic activities rely on natural resources in coastal settings, which are threatened by degradation.

1.2 Morocco's coastal ecosystems face numerous threats, including urbanization, pollution, resource depletion, and climate-related risks such as drought and sea-level rise. The Moroccan coasts host a variety of ecosystems that are particularly vulnerable, including forests, wetlands, steppes, dunes, coastal lagoons, and estuaries (UNECE 2022). Competition over land and poorly planned coastal development have led to the decline of vulnerable coastal habitats. Unsustainable practices harming these ecosystems include overfishing, the rapid depletion and contamination of water tables with increased salinity, and land-based pollution such as industrial waste, municipal sewage discharge, and solid-waste disposal. Morocco's coastal zones are also highly vulnerable to rising sea levels brought about by climate change, with 54 percent of Morocco's coastline subject to erosion (World Bank 2022a). Coastal erosion is particularly acute along Morocco's eastern Mediterranean coast (Heger et al. 2022). Other climate-related risks include frequent and prolonged droughts and increased temperatures, which also negatively affect the attractiveness and viability of these ecosystems. Together, these factors contribute to the decline of biodiversity, changes in fish species composition, and the degradation of seagrass meadows and coastal wetlands.

1.3 Coastal degradation and climate change endanger the livelihoods of millions of people dependent on fisheries, tourism, and agriculture. Coastal and marine degradation costs $260 million per year, which is equivalent to 0.27 percent of Morocco's GDP (World Bank 2022a). The negative effects of overfishing, pollution, and increasing ocean temperatures are particularly acute for small-scale fisheries, which compose 60.7 percent of total employment in fisheries along Morocco's Mediterranean coast and are a critical source of income and employment for low-income households in the region (FAO 2019). Coastal erosion and the pollution of Morocco's beaches reduce tourism numbers and

associated revenues and jobs. Agriculture is by far the largest consumer of fresh water in Morocco, making the sector particularly vulnerable to water scarcity. Because 40 percent of the population is dependent on agriculture (85 percent in rural areas), water scarcity and drought directly threaten many livelihoods (World Bank 2019). Vulnerable and low-income populations are most at risk from climate-related natural hazards such as sea-level rise, floods, and droughts because they often lack the resources to adapt (World Bank 2022a).

1.4 The threats to coastal and marine ecosystems have been exacerbated by sectoral activities working in isolation from each other, often with conflicting objectives. The rapid expansion of Morocco's coastal development has historically occurred in a context of weak coastal planning, where sectoral activities were planned and implemented in isolation from each other. While there have been numerous sectoral policies governing this space, they were often at odds with each other in terms of implementation and lacked cross-sectoral coordination.[1] Siloed, sector-based approaches to coastal management led to an inefficient use of resources, gaps in accountability, user conflicts, unintended negative impacts on the environment, and reduced investment and job-creation opportunities (Morocco 2012). For example, tourist development on the coast in Saïdia was undertaken without accounting for the significant coastal erosion threatening its beaches; a tourist station was placed near the Moulouya estuary, a sensitive ecological site known for its wealth of biodiversity, which led to further environmental degradation and infrastructure problems (World Bank 2013).

1.5 By 2012, the government of Morocco had already taken several steps to strengthen integrated coastal zone management (ICZM). ICZM can be defined as "a dynamic process for the sustainable management and use of coastal zones, taking into account at the same time the fragility of coastal ecosystems and landscapes, the diversity of activities and uses, their interactions . . . and their impact on both the marine and land parts" (UNEP et al. 2008, 20). By 2012, the concept of ICZM was already well established in Morocco. The national coastal zone law was first prepared in 2006 and established ICZM principles and restrictions, such as prohibiting damage to the natural state of the seashore, pollution of the coastline, and construction within 100 meters of the coast. In 2008, Morocco signed the Madrid Protocol on ICZM in the Mediterranean, which was the first legally binding instrument of its kind applied to a regional sea context, under the guidance of the Mediterranean Action Plan of the United Nations Environment Program. In 2012, the government of Morocco was in the process of ratifying the protocol, which committed Morocco to ensuring compliance and enforcement of its legally binding provisions as part of a national law, and the bill on national coastal zone management was pending before parliament. In addition to the Mediterranean Action Plan, Morocco was involved in a number of initiatives in the Mediterranean region related to ICZM.[2]

1.6 Building on these steps, the World Bank's ICZM Project was designed to pilot the ICZM approach in targeted areas along Morocco's Mediterranean coast in the east. Despite the ambitious efforts of ICZM initiatives in the Mediterranean region, Morocco continued to struggle with a lack of adequate regulation and sectoral coordination of coastal development (UNECE 2014), and the national coastal zone law had yet to be adopted by the time of project preparation in 2012. In this context, the World Bank supported the design of the ICZM project to help the government of Morocco meet its obligations and address priorities defined under Mediterranean regional initiatives while piloting innovative methods and measures for sustainable coastal development in sensitive areas on the Mediterranean coast that could catalyze further investment and replication in other coastal areas (Morocco 2012).

1.7 This Project Performance Assessment Report forms part of a cluster assessment of three World Bank projects that has informed the Independent Evaluation Group (IEG) evaluation *Making Waves: World Bank Support for the Blue Economy, 2012–23*. This cluster covers three World Bank projects with similar features that have supported marine and coastal development and aims to provide a more granular understanding of the World Bank's engagement in marine conservation and alternative livelihood activities in three regions. The cluster includes the Morocco ICZM (P121271); the Marine Conservation and Climate Adaptation Project for Belize (P131408); and the Indonesia Coral Reef Rehabilitation and Management Program Phase II (P071316) and the Coral Reef Rehabilitation and Management Program—Coral Triangle Initiative (COREMAP-CTI; P127813). Each project has an individual assessment, and there will also be an overall synthesis.

Objectives, Design, and Financing

1.8 The formal objective of the project was "to pilot the application of an integrated coastal zone management (ICZM) approach in the project areas on the eastern Mediterranean coast of Morocco" (World Bank 2012, vii). The project development objective (PDO) was defined in terms of the project's process—the piloting of the application of an ICZM approach—as opposed to the outcomes of the process, such as the environmental, economic, and social results. In response to a request from the Global Environment Facility (GEF) Secretariat to include references to pollution reduction and conservation, the PDO in the Project Appraisal Document also included a more specific objective following the formal PDO: "ICZM implemented at local level by all users of the coastal resources will leverage rural pollution reduction and protection of biodiversity and ecologically sensitive areas" (6). However, this more specific PDO was not reflected in the project's results framework. The PDO did not change throughout the life of the project (although only the formal PDO was referenced in project documentation). The project was

under implementation for five years. It was approved in July 2012, made effective in November 2012, and closed in December 2017.

1.9 The project consisted of two components: the first focused on capacity building and institutional strengthening to integrate the ICZM approach into local development planning, and the second focused on investments to strengthen coastal resources management and livelihoods. The first component aimed to strengthen institutional capacity to integrate ICZM approaches into the local development planning of six communes through technical assistance, awareness raising, training, and workshops. The second component aimed to demonstrate the application of ICZM through investments in coastal resource infrastructure and income-generating activities. Subprojects under the second component included (i) civil works for the protection of the Moulouya estuary and the regeneration of its biodiversity; (ii) installation of an artificial reef; (iii) the establishment of one pilot shellfish farm and one pilot seaweed farm; (iv) the planting of fruit trees and the promotion of apiculture; and (v) the promotion of ecotourism, which included the transformation of historic houses into small-scale ecotourism lodges.

1.10 While the causal links in the project's theory of change were direct and valid, they were not reflected in the PDO or results framework. The theory of change was based on the premise that piloting an ICZM approach through a combination of institutional capacity building to integrate ICZM in development planning and pilot investments in coastal resource conservation and management would demonstrate the approach's benefits to public and private sector actors by leading to environmental, economic, and social outcomes at the local level. These outcomes would include the conservation of natural resources, biodiversity, and sensitive ecosystems; the sustainable use of fisheries; and an increased resilience of community livelihoods to the impacts of climate change. Attention would also be paid to creating livelihoods for vulnerable groups, such as women. The achievement of these outcomes would be expected to lead to the replication of best practices and pilot projects in other coastal areas of Morocco (World Bank 2012). These project would achieve these outcomes by applying key ICZM approaches, such as sharing resource management with local stakeholders (that is, comanagement between government agencies and local cooperatives and associations) and diversifying income-generating activities to minimize dependence on a single resource of uncertain sustainability (Morocco 2012). While project documents described the theory of change in various ways, many of the objectives were not captured by the PDO or in the results framework. A revised theory of change is presented in appendix A.

1.11 PDO indicators were defined more at an output level rather than outcome level. For example, PDO indicators included the number of civil works to restore wetlands instead of the increased coverage of wetland habitat or presence and density of native

plant species. Although significant revisions were made to the indicators when the project was restructured in 2016,[3] the final PDO indicators were still not defined at an outcome level, although they were measurable, achievable, and time bound. Final outcome indicators were (i) civil works to restore and rehabilitate degraded wetlands and dune ecosystems at Moulouya completed; (ii) sites in the project area with artificial reefs under comanagement; (iii) seaweed and shellfish farms piloted in project area under comanagement; and (iv) land area where sustainable land management practices have been adopted as a result of the project. Six ecolodges were originally targeted for rehabilitation, but the indicator was dropped during restructuring due to delays that prevented completion during the project's time frame.

1.12 The project was implemented at two levels: the central level and the communal level. Project implementation and coordination were led by the Department of Environment in the Ministry of Energy Transition and Sustainable Development, with several other sectoral institutions involved in the implementation of specific subprojects.[4] A technical coordination committee was established to provide a technical forum for partner agencies to share information and harmonize their actions. At the subnational level, the project was implemented in six communes in the Oriental region along the Mediterranean coast, four of which are rural.[5] A regional Project Management Unit was also established to coordinate the implementation of project activities with regional staff from the partner agencies and with local authorities and communities.

1.13 The project's design of activities and the selection of project locations were informed by previous ICZM initiatives undertaken in the region. Project sites had previously been identified in studies carried out by the regional programs as priority hotspots and sensitive areas under particular pressure from economic development and coastal erosion. These included the Ramsar sites (Wetlands of International Importance) of Nador lagoon, Cap des Trois Fourches, and the Moulouya River estuary (also a Site of Biological and Ecological Interest). ICZM action plans had previously been developed to target these sites.[6] In this context, the project was designed to focus on implementing certain actions at specific project sites included in the ICZM action plans. The final selection of project activities and locations was conducted after a series of public consultations with local stakeholders to ensure the list reflected the different resource-use challenges along the Mediterranean coast.

1.14 At appraisal, the project cost was adequately estimated, and the project closed without needing significant additional financing or cancellation of funds. The project was financed by a $5.16 million grant from the GEF (TF012284; $5.18 million approved). The government also provided $20.36 in parallel financing for activities,[7] including installation of a purification station, forestry work, agricultural and fisheries projects, and a feasibility

study on the environmental and social impact for the seaweed and shellfish farms. The World Bank did not supervise these activities or include them in its project results framework or evaluation, so they are not covered by this Project Performance Assessment Report. The World Bank's project documentation was not as clear as it could have been in articulating the boundaries of the project scope: project documentation included the government's financing as part of the project when describing components and project cost but not when discussing project activities, their delivery and results, or economic analysis.

2. What Worked, What Didn't Work, and Why?

2.1 This chapter assesses project performance and is structured around key elements of ICZM. ICZM aims to achieve an optimal balance between environmental protection and economic and social prosperity. ICZM is a holistic approach that requires consideration of many elements, including policy and institutional, environmental, economic, and social dimensions. To assess how effectively the project supported the piloting of ICZM, this report assesses each dimension on its own while also considering how well they fit together as part of an overall ICZM approach. Given that the project was designed as a pilot, the report also assesses how well the project demonstrated the benefits of ICZM by leading to replication and scale-up.

Results

Strengthening Institutional Capacity for ICZM

2.2 The project succeeded in helping the government integrate ICZM principles and approaches into local development plans. The project trained local, regional, and national stakeholders on the ICZM approach and various ICZM topics and also provided technical assistance to integrate ICZM into six communal action plans.[8] By project close, the six communes targeted had revised their development plans to incorporate ICZM approaches, meeting the project's intermediate outcome target. As of April 2024, most of the communes had used ICZM as a tool to support planning and to elaborate priorities and partnerships to achieve sustainable coastal development goals (box 2.1).

Box 2.1. Use of Integrated Coastal Zone Management in Communal Action Plans

The Independent Evaluation Group interviewed representatives involved in local development planning, including commune presidents and technical staff from five of the six participating communes. In most of the communes (four out of five), representatives demonstrated familiarity with integrated coastal zone management principles and approaches and had applied (and were continuing to apply) this knowledge to local development planning. For example,

- One commune reported using spatial and ecological information to define communal planning priorities and identify activities that would maximize benefits for the environment and for job creation, such as a project to clean up beaches and prohibit development in certain ecologically sensitive areas.
- One commune gave a presentation on the incorporation of integrated coastal zone management into their communal action plan and the process they used to develop several projects aligned with integrated coastal zone management principles.
- One commune presented a three-year agreement signed in 2023 by regional, provincial, and communal governments; the Moulouya Hydraulic Basin Agency; and a local development company to develop a partnership framework and management plan to continue the rehabilitation of the Moulouya estuary with funding from the Ministry of Energy Transition and Sustainable Development.

Source: Independent Evaluation Group.

2.3 The project also helped strengthen dialogue and engagement across sectoral agencies during project implementation. ICZM should involve institutional and strategic coordination across all relevant sectors, levels of administration, and land and marine spatial components, as well as the participation of local stakeholders (Post and Lundin 1996). The project was designed to enable coordination between various government agencies at the central, regional, and local levels, with different mandates related to the coast, although this was not defined as an objective in the project's results framework. During implementation, the project achieved greater interagency engagement through project-specific coordination mechanisms, including national and regional Project Management Units and a technical coordination committee that included focal points identified by all partner agencies. According to interviews with representatives from central and regional agencies, this engagement led to greater dialogue, information sharing, and awareness of other agencies' plans and projects, which was unprecedented at the time. By providing a platform for sectoral agencies to engage on a common goal, agencies reported that the project contributed to an increased recognition and acceptance of the need for interagency collaboration on coastal planning and management. Although the expectation was that the implementation structures would continue functioning in some form after the project closed, they were no longer in place in April 2024. However,

interagency commissions on ICZM are being established at the regional level as part of regional coastal plans (UNECE 2022).

2.4 Opportunities for communes to continue using ICZM in development planning after the project ended have been hindered by limited access to resources. Interviewees from four of the five communes stated that their communes were involved in the design and implementation of the pilot subprojects under the project's second component. Communal representatives reported that after years of defining ICZM priorities and elaborating plans under other donor-funded initiatives, this project allowed them to put this knowledge into action and learn by doing through piloting the conservation and livelihoods subprojects. However, the ICZM plans developed as part of communal action plans were not fully realized in most of the communes, primarily due to the lack of resources after the end of the project. For example, one commune pointed to its inability to address coastal erosion by building wave breakers (a solution identified through the ICZM approach) given their lack of access to local project financing. One exception was the Saïdia commune, where representatives from different government agencies continue to work together through a partnership agreement for the rehabilitation of the Moulouya estuary with government funding.

Improving Conservation of Coastal Ecosystems and Biodiversity

2.5 According to anecdotal evidence, the project contributed to the conservation of wetland, coastal, and marine ecosystems and increased biodiversity in targeted areas. To support the conservation of coastal and marine resources, the project achieved the following outcome indicators: (i) restored 20 hectares of degraded wetland and dune ecosystems; (ii) installed an artificial reef under comanagement; and (iii) established one seaweed farm and one shellfish farm under comanagement.[9] Although defined as outcome indicators, these indicators are more at the output level, as the project did not measure or track environmental outcomes in terms of ecosystem health and biodiversity (for example, through water quality or fish stock monitoring at project sites). Anecdotally, beneficiary cooperatives and associations, commune representatives, and the National Institute of Fisheries Research (INRH) reported improvements in water quality, restoration of fish stocks, reduction in illegal and hazardous fishing, and increased biodiversity, including the return of certain species in project areas. At the artificial reef, underwater video taken in 2022 by the INRH confirmed that the reef was in good condition, with abundant and diverse fish stocks, although there was no baseline against which to compare. Fishers also reported changes in fish species and in catches—which increased from 10 kilograms to between 20 and 40 kilograms per boat per day—as a result of the reef. At the Moulouya estuary, the beneficiary nongovernmental organization reported the return of various species of flora and fauna to the restored wetlands and dunes (such as otters, flamingos,

and red junipers) as a result of the project's interventions. These changes were also observed during IEG's site visit.

2.6 The project helped reduce land degradation and coastal erosion, contributing to local communities' resilience in the face of climate change. The project rehabilitated (i) 500 hectares of land in mountainous regions near the coast through the planting of olive and carob trees adapted to local climatic conditions using sustainable land management practices, and as noted previously, (ii) 20 hectares of degraded wetlands and dune ecosystems. IEG confirmed the expansion of restored land area through site visits and before-and-after satellite imagery of project sites (see appendix C). As fruit tree planting in Morocco helps fight erosion by conserving soil and water (Vianney Nsabiyumva et al. 2023), the increase in olive and carob tree cover has helped guard the land against soil erosion, desertification, and landslides. This protection is critical for the region, as one commune reported that 76 percent of the land area had previously been eroded. At the Moulouya Site of Biological and Ecological Interest, the restoration of dunes has contributed to the return of sand to the beach, as indicated by markers placed in the sand to measure the increased height of the beach and as observed by IEG in April 2024.

2.7 However, these findings cannot be validated or attributed directly to the project due to the lack of environmental monitoring of project activities. Marine and coastal ecosystems are influenced by complex environmental and geographical factors, making it difficult to attribute changes in ecosystem health, such as water quality, to a given subproject. While the INRH carries out regular surveys to measure water quality and levels of contamination in seaweed and shellfish in the areas surrounding the aquaculture projects, it could not provide data specifically related to subproject sites—in this case, the area surrounding a single shellfish or seaweed farm—as the studies concern a wider area, such as the whole Nador lagoon. Several biomonitoring studies conducted by the INRH in the areas around subproject sites show that seaweed and shellfish in these areas can help reduce pollution in the marine ecosystem and are safe for human consumption (Ngadi et al. 2022; Oujidi et al. 2021; Rahhou et al. 2023a, 2023b).

Increasing the Resilience of Local Livelihoods

2.8 Only two subprojects (the artificial reef and the seaweed farm) are currently profitable. While the project could not measure results related to livelihoods—as almost all of the income benefits were generated after the project closed—the 2018 Implementation Completion and Results Report (ICR) included estimates of income generation and job creation from the project based on forecasts (see table 2.1). The ICR estimated that the installation of the artificial reef would lead to an increase in income of 50 to 100 percent in the medium to long term for beneficiary fishers. In line with ICR estimates, the beneficiary association of fishers reported in interviews with IEG that their income had increased by

an estimated 60 to 70 percent since the installation of the reef. The project also established Morocco's first industrial seaweed farm, which was a significant achievement since previous efforts to establish seaweed farms had reportedly failed due to resistance from fishers, tourism operators, and the government. The project was able to overcome resistance through outreach, multistakeholder consultations, and restrictions on fishing. The seaweed farm increased profits over time and now generates sustainable revenue through the regular sale of seaweed to the one seaweed export company (Setexam) in Morocco, exceeding ICR estimates. While the ICR estimated that the farm's seaweed annual harvest could reach 20,000 kilograms in the medium to long term, the farm has been able to grow and harvest over twice that amount in some years (for example, 53,000 kilograms in 2023, generating DH 269,000 in revenue, or about $26,900).

2.9 Medium- to long-term income benefits from the other subprojects have not yet materialized. Interviews and field visits to project sites have revealed that medium- and long-term socioeconomic benefits have so far been limited for the other subprojects due either to limited sustainability or the need for longer timelines to realize these benefits. Income benefits have not yet increased substantially for the shellfish farm or the olive and carob tree farmers, although they are anticipated to do so in the near future once certain conditions are met (for example, licensing for the shellfish farm to allow the cooperative to harvest and sell the shellfish, and once trees reach maturity and drought subsides).[10, 11] In the case of the beekeeping cooperatives and ecotourism lodges, profitability has continued to decline over time after project closure. While all of the beekeeping cooperatives had successfully produced and sold honey by the end of the project, drought and bee sickness led to many bees dying or flying away since that time, significantly reducing the number of hives and increasing costs to try to revive the dying hives. While three ecolodges were rehabilitated and had opened to tourists in 2018, only one remained operational as of April 2024, and the owner of that ecolodge had gone into debt to maintain the business; the other two lodges stopped taking guests due to the lack of profitability.

2.10 The project contributed to the diversification of revenues and increasing resilience of local livelihoods in the face of climate change; however, it did not generate alternative livelihoods. Alternative livelihoods in natural resource management are those that are considered to result in the substitution of one activity for another activity that will cause less harm. Project documentation noted the expectation that aquaculture activities would generate alternative livelihoods (World Bank 2012, 2018b, 2018c). This expectation implicitly assumes that seaweed and shellfish farming were anticipated to serve as substitutes for fishing, thereby reducing pressure on fish stocks. However, the substitution of one activity for another has not occurred, as fishing and aquaculture farming are seasonal activities that can be alternated in different seasons, while continuing to do both. Other project documents noted that the goal of the livelihoods subprojects is to support

"diversification of the coastal economy" in terms of the addition rather than the substitution of livelihoods activities (World Bank 2012, 13). In this sense, the project succeeded in diversifying revenues of not only the beneficiary fishers but also farmers by providing additional crops (olive and carob trees). These activities have increased communities' resilience in response to climate change by helping them preserve natural resources and providing other sources of income that are less vulnerable to climate-related risks. There is no evidence, however, that suggests these changes have reduced the impact of traditional sources of income on the environment.

Table 2.1. Estimated Income Increases for Each Subproject According to the ICR (2018) and PPAR (2024)

Subproject	ICR: 2018 Estimates of Future Income Increase in the ST and M-LT (%)	PPAR: 2024 Estimates of Actual Income Increases
Rehabilitation and restoration works at Moulouya	ST: 10–25 M-LT: 25–30	Not estimated
Artificial reef	ST: 0 M-LT: 50–100	60–70% (according to interviews)
Seaweed farm	ST: 10 M-LT: 20–25	More than double ICR estimates (cannot estimate in percentage terms)
Shellfish farm	ST: 0 M-LT: 20–25	0% (income gains not yet realized)
Olive and carob tree plantations	ST: 0 M-LT: 100–500	0% (income gains not yet realized)
Apiculture	ST: 5–10 M-LT: 25–30	0% for most of the cooperatives (income gains have largely been lost due to drought, bee sickness, and so on)
Ecotourism	ST: 0 M-LT: 20–50	0% (income gains have not been maintained)

Source: Independent Evaluation Group.
Note: ICR = Implementation Completion and Results Report; M-LT = medium to long term; PPAR = Project Performance Assessment Report; ST = short term.

Inclusion of Natural Resource Users and Vulnerable Groups

2.11 The comanagement arrangements established by the project between local cooperatives and government agencies continue to be upheld. Comanagement is an approach often used in ICZM that allows local stakeholders—organized into cooperatives and associations—to participate in the process of managing natural coastal resources. The project met its established outcome targets related to the comanagement arrangements put in place for the artificial reef and the seaweed and shellfish farms.[12] Based on IEG's review of the comanagement agreements for the aquaculture farms, the agreements specify the rights of the cooperatives to operate the farms, as well as their obligations (such as

compliance with health and hygiene regulations and the requirement to share information related to production and sale), for a period of 10 years. They also specify the role of the respective government agencies in terms of scientific and technical monitoring and control.[13] Based on interviews and information shared by the cooperatives and associations involved in comanagement, these groups continue to carry out the same responsibilities in line with these agreements in 2024 as they did in 2017. The heads and members of the cooperatives and associations expressed a high degree of ownership over managing these subprojects, although the level of support provided by government agencies after the project closed was variable across subprojects.

2.12 The project made some progress on increasing women's autonomy and agency and shifting gender attitudes in at least one commune. The project supported four cooperatives with female members to undertake beekeeping activities by providing them with beehives, equipment, and training in three communes. Although the project did not measure results related to women's economic empowerment from these activities, it did intend to increase the involvement of vulnerable groups (such as women) in natural resources management. In one commune, IEG found that the project helped increase women's collective agency through their participation in beekeeping cooperatives and engagement in income-generating activities. This increased agency is a notable achievement considering the region is characterized by conservative social values that often expect women to remain at home. This commune's all-women cooperative is still operational and has inspired and supported the creation of two additional beekeeping cooperatives without project support. The commune's male leaders and female beneficiaries who were interviewed reported an increase in women's voices and autonomy as a result of their participation in the cooperatives. For example, due to their membership in a cooperative, the women became eligible to obtain bank loans, increasing their access to finance. They also reported that men in their communities became more accepting of the idea of women working outside the home due to the additional income they could earn. However, progress was less evident for other beekeeping cooperatives, one of which is no longer active, reportedly due in part to resistance from men in the community. In another cooperative that included men and women, women mainly engaged in traditionally female roles such as cooking and preparing tea instead of pursuing beekeeping. Women also tended to leave the cooperatives once they were married, leading to high turnover and a loss of knowledge and skills.

Piloting and Demonstration

2.13 The project is achieving longer-term outcomes through the replication or scaling up of some subprojects by the government of Morocco, the private sector, and the World Bank. The subprojects were designed as pilots that could be replicated in other coastal

areas of Morocco (World Bank 2012). While project documents did not specify how replication was expected to occur and which stakeholders were expected to support this process, the replication of subprojects has occurred in a variety of ways by the public sector, by local farming cooperatives with support from the public sector, by the private sector, and by the World Bank. According to interviews and information shared by the National Aquaculture Development Agency, after the success of Morocco's first seaweed farm supported by the project, 34 additional seaweed farms have been established in other areas of Morocco with the National Aquaculture Development Agency's support.[14] The beneficiary seaweed cooperative has also shared knowledge and guidance on their innovative techniques for seaweed cultivation with other seaweed farmers. The income potential of the shellfish farm due to high demand from domestic and foreign markets and fishing restrictions in the vicinity of the farm encouraged private companies to establish nine other shellfish farms clustered in the area (see map 2.1). The World Bank's current Blue Economy Program-for-Results now supports the establishment of additional seaweed and shellfish farms in other coastal areas of Morocco. The government has also supported the expansion of land and dune restoration under the project through (i) the planting of an additional 100 hectares of olive trees next to the project-supported olive plantations and (ii) a partnership agreement among several government agencies to continue the rehabilitation of the Moulouya Site of Biological and Ecological Interest, which will expand the dune restoration work, among other activities.

Map 2.1. The Cluster of Shellfish Farms Established by the Project and by Private Enterprises

Source: National Aquaculture Development Agency Geoportal (http://geoportail.anda.gov.ma).
Note: The original shellfish farm supported by the project is indicated by the red square with stripes, while the additional shellfish farms established by private enterprises are indicated by the solid red squares. This map only depicts seven shellfish farms (six additional farms after the establishment of the original); however, in interviews with the commune, beneficiary cooperative, and the National Aquaculture Development Agency, it was stated that nine other farms had been established. The two red crosses indicate two zones that are still available for shellfish farms to be established, while the blue squares with stripes are fish farms.

What Worked, What Didn't Work, and Why?

Strengthening Institutional Capacity for ICZM

2.14 By increasing exposure to and knowledge of ICZM, the project helped create enabling conditions for the adoption of the ICZM policy framework. When the project was designed, the national coastal management law had been in draft form since 2006. World Bank staff reported that exposure to and knowledge of ICZM gained through the project were important for the inclusion of ICZM as a policy reform area in the World Bank's development policy operation approved in 2013 (the First and Second Inclusive Green Growth Development Policy Loans).[15] The ICZM reform actions in the development policy operation were shaped by the preparatory analytical work completed under the project and by the World Bank staff and consultants on the ICZM project team. Using ICZM knowledge and expertise developed through the project and development policy lending, the World Bank was able to increase the visibility and importance of ICZM and bring

environmental and nonenvironmental agencies to the discussion table, which ultimately contributed to the approval of the national Coastal Law in 2015 and the National Coastal Plan in 2020 (World Bank 2018a). The World Bank continued to build on its ICZM knowledge and expertise by providing technical assistance to the government of Morocco to develop Morocco's first Regional Coastal Plan (for the Rabat-Salé-Kénitra region) in 2020.

2.15 The project's institutional-strengthening efforts at the commune level were superseded by policy and institutional shifts at the national and regional levels. The project was designed before the formal establishment of Morocco's ICZM legal framework, with the enactment of legislation, creation of institutional arrangements, and development of national and regional coastal management plans coming either during or after project implementation.[16] While the responsibilities for managing the beaches and coastlines had already been assigned to communes by the communal charter when the project was designed, communes continue to have little involvement in major coastal planning and development projects (UNECE 2022). The lack of involvement in planning reflects the challenge of central–local government coordination and the weak financial and institutional capacity of subnational authorities in Morocco, as highlighted in IEG's evaluation of the World Bank Group's engagement in Morocco during the fiscal years 2011–21 (World Bank 2023). Interviews with communal and regional representatives made it apparent that the model of localized ICZM supported by the project is not connected to or directly supported by high-level policy frameworks and national ICZM plans. Given that institutional mandates, responsibilities, and budgets will be determined by these national and regional ICZM plans, the integration of ICZM into communal action plans will have limited sustainability without a connection to the higher-level policy and institutional frameworks being developed and to additional financial resources. This connection could be facilitated by establishing a link between the communal action plans supported by the project and the regional interagency commissions and regional coastal plans currently under development, in line with the World Bank's current efforts to overcome coordination and uptake challenges and engage subnational partners (World Bank 2023).

2.16 While the project increased cross-sectoral engagement, the design and implementation of subproject pilots were sectoral, with limited consideration of opportunities and trade-offs across sectors. An effective application of ICZM involves institutional and strategic coordination across relevant sectors and levels of administration in terms of ICZM governance, strategies, and investments. While the institutional-strengthening activities under component 1 and the project's institutional arrangements for coordination led to greater cross-sectoral engagement, connection between these activities and the design and implementation of pilot subprojects under component 2 was

weak. As expected, the design and implementation of each subproject was focused on a single sector and led by a sectoral agency (for example, the fisheries subproject implemented by the Department of Maritime Fisheries). However, there was limited coordination or engagement across sectoral agencies to consider the potential benefits and trade-offs of subprojects for other sectors. For example, feasibility studies were carried out by a single sectoral agency without inputs from other sectoral agencies. If potential benefits across sectors were referenced—for example, the potential for the artificial reef and aquaculture farms to be used for ecotourism—this was not explored through additional, complementary project activities or interagency coordination. Overall, this approach limited the project team's ability to consider the interconnections between sectors and land and coastal areas, as well as the opportunities and trade-offs of subprojects across sectors and areas. This gap is evident from the environmental degradation caused by upstream agricultural activities at the Nador lagoon (the site of the seaweed farm) and the river dams affecting the flow of water to the Moulouya estuary (the site of wetland and dune restoration). To address these issues in these subprojects would require expanding the scope of ICZM to include higher-level agencies and stakeholders in other sectors.

Improving Conservation of Ecosystems and Biodiversity

2.17 The project is unlikely to have a lasting impact on coastal and marine ecosystems without wider efforts to address drivers of environmental degradation. The project's environmental restoration efforts took place on a relatively small scale, while these ecosystems are continuously subjected to rapid and large-scale environmental degradation. For example, the INRH studies recently conducted in the Nador lagoon (the location of the seaweed farm) show that despite environmental restoration efforts, the lagoon continues to be adversely affected by pollution, particularly the discharge of untreated wastewater and pollution from intensive agricultural activities (Kaddouri et al. 2024; Ngadi et al. 2023; Oujidi et al. 2021, 2024). Oujidi et al. (2024) cite the need to align the management of the Nador lagoon with ICZM principles, which would involve efforts at the provincial and regional levels to take into account the watershed and the lagoon as parts of an interlinked ecosystem and the need for upstream restoration efforts to prevent negative impacts on the lagoon. While the INRH's recommendation to use ICZM to improve the management of this ecosystem is promising, it also demonstrates that ICZM has yet to be applied on a wider scale in project areas since the project ended. ICZM at the communal level and through small pilots, such as seaweed farms, are unlikely to have lasting environmental impacts without being accompanied by broader efforts to take into account the major forces of environmental change.

2.18 The project also did not account for the dynamic nature of climate conditions and risks to ensure sustainability. During the past six years, severe and prolonged drought have affected Morocco, including the Mediterranean coast. Climate change has also increased precipitation variability and the likelihood of drought and extreme temperatures (World Bank 2018). According to interviews with representatives of farmer associations, beekeeping cooperatives, and communes, these factors have negatively affected the project's agricultural activities (for example, planting of fruit trees and apiculture) since project closure, undercutting the growth and yield of fruit trees and reducing the survival rates of bees. Support for sustainable land management practices, such as works and equipment to facilitate the irrigation of tree plantations, has been relatively insignificant in the face of drought.[17] While the project could not have predicted that Morocco would experience one of its worst droughts in decades soon after the project ended, considering the length of time for the trees to bear fruit,[18] the project also did not factor in how changes in climate conditions could result in the need to continuously adapt land management and beekeeping practices, such as by monitoring and updating studies on soil conditions to determine where to plant new trees, offering subsidies for more water sources, or providing training on how to deal with variable weather conditions. This lack of adaptation limited the impact of project interventions on building farmers' resilience in response to climate change. For example, according to beneficiary farmers, the irrigation interventions designed by the project were no longer feasible once a prolonged drought occurred.

2.19 There was a missed opportunity to support community-based monitoring of environmental outcomes. Monitoring of environmental results during or after project implementation has been limited, and no baseline or end-line data were collected (for example, on changes in fish stocks or biodiversity). Continuous environmental monitoring and follow-up was identified by several project stakeholders as a critical need. In light of ICZM's participatory approach, the project could have taken advantage of community-based approaches to monitoring environmental impacts, such as the use of biodiversity tracking tools through which community members report sightings of fish, bird, and plant species to measure their prevalence, which would have allowed for baseline and ongoing data collection. According to a GEF evaluation of community-based approaches in GEF projects, GEF projects are increasingly involving communities in ecological status monitoring, the sustainability of which has been high, with community-based ecological monitoring often continuing after project close and without additional financial support in some cases (GEF 2024). This form of data collection could have been used to provide more concrete evidence of results and to inform strategies and decision-making on resource management, including in the design of World Bank operations (such as the current Blue

Economy Program-for-Results), although this form of data collection would need to be aligned with community capacity and resources.

Increasing the Resilience of Local Livelihoods

2.20 The project contributed to diversifying revenues but did not adequately consider market linkages to help ensure new income-earning opportunities would be sustainable. For many beneficiaries, the income and jobs generated by the project reduce the reliance on a single source of income that can be highly unpredictable and vulnerable to climate change. However, beneficiary associations and cooperatives reported that a key barrier to taking full advantage of these new income-earning opportunities was their lack of certification by the Moroccan national food safety authority (National Office of Food Safety), which would enable them to sell their products wholesale (in the case of the shellfish farm, beekeeping cooperatives, and fruit tree farmers). Given that the project covered a wide range of livelihoods subprojects across different markets, there was also a lack of in-depth market analysis to understand the different supply chains and how to facilitate linkages with the private sector, including support to develop a comprehensive marketing strategy that could help establish relationships and contracts with buyers. With the exception of the seaweed farm, the other subprojects have struggled to establish formal relationships with commercial buyers and exporters, and instead they either consume the products themselves or sell them informally through local networks or to Moroccans abroad.

2.21 The project's decision to promote ecotourism was not based on a realistic assessment of its potential in the area and had limited connection to other project activities. While the project converted three historic buildings into ecotourism lodges and provided training to ecolodge owners, it was unsuccessful at sustaining any income, livelihood, or environmental benefits from the ecotourism activities. This subproject was also poorly connected to other project activities and to the overall goal of contributing to the preservation of marine and coastal resources, as the lodges were located in remote mountainous areas only somewhat near the coast. Given the significant challenges related to the lack of an established tourism market or tourism expertise in the targeted commune, the limited accessibility and remoteness of the region, and insufficient support for lodge owners (who are illiterate and had no previous background in tourism or small business ownership), it is unclear why this subproject was selected.

Inclusion of Natural Resource Users and Vulnerable Groups

2.22 The project's support for a decentralized, participatory form of natural resources management through comanagement helped improve the sustainability of aquaculture subprojects. A key principle in the comanagement of small-scale fisheries is allocating both

the rights to the fisheries and responsibility for their management to the fishers. The aquaculture subprojects were effective in establishing the legal rights of the cooperatives to install and grow their aquaculture farms while supporting the organizational capacity development of cooperative members and providing opportunities for local fishers to contribute their knowledge and expertise to the design and implementation of subprojects. The project's comanagement arrangements also provided the flexibility for cooperatives to apply adaptive learning. For example, in the case of the project's seaweed farm, the beneficiary cooperative had no experience growing seaweed. In partnership with the National Aquaculture Development Agency, cooperative members used their local knowledge of fishing and experimented with different nets and production cycles, and through trial and error, they were able to produce enough of the compound sought after by the one Moroccan seaweed buyer. The cooperative members have now shared their innovative techniques with other seaweed farms in Morocco. Through its formal organization, the seaweed cooperative has also served as a communication channel between the government of Morocco and local fishers.

2.23 However, decision-making in the fisheries sector has remained largely top-down. The increase in community members' participation in coastal resources management supported by the project through comanagement arrangements was not connected to the power structures and decision-making processes happening at a higher (provincial or regional) level. At these levels, fishers have few opportunities to be heard. Recently, this top-down decision-making has temporarily undermined the results of the artificial reef subproject. For example, government authorities recently removed the artisanal fishers' storage for fishing engines, nets, canes, and fuel on the Boudinar coast near the artificial reef, stating that they plan to build piers to replace them. However, according to the fishers interviewed, the removal of the storage was done without their involvement and without a temporary solution, making it challenging for them to work. They estimated that only about 5 percent of their fishing association is currently working as a result.

2.24 The project missed an opportunity to adopt a gender lens in other livelihood activities. Although the fisheries and aquaculture sectors are heavily male dominated, women can still play an important professional role, such as by participating in the collection of seaweed and shellfish and in processing and marketing fish catches (UNECE 2022). However, women's contributions are often not visible or recognized. While the project achieved notable results with regard to the gender focus of apiculture activities, it missed an opportunity to adopt a gender lens for other livelihood activities, such as fisheries and aquaculture.

3. Lessons

3.1 The use of small pilot projects to demonstrate the benefits of ICZM can be an effective starting point to overcome resistance from different sectors and resource users, catalyze investment, and create buy-in for ICZM at the policy level. At the time of project preparation, Morocco was part of several ICZM initiatives but had yet to put ICZM into practice or achieve tangible results in the field. The passage of the national ICZM law and ICZM plan had also stalled. The project allowed national and local stakeholders involved in ICZM to put their knowledge into practice and learn by doing, leading to tangible environmental, economic, and social benefits. The project's demonstration of benefits helped overcome local resistance—for example, from fishers in the context of the aquaculture farms when it became apparent that the farms were helping to regenerate fish stocks—and catalyze further investment from the government of Morocco and the private sector. The process of project preparation and coordination also helped build the client's and the World Bank's exposure to and knowledge of ICZM, which subsequently shaped the development and approval of the ICZM policy framework.

3.2 Small-scale ICZM projects are unlikely to achieve lasting benefits without sustainable funding, continuous adaptation, and wider efforts to address rapid, large-scale changes occurring in coastal areas. While the project helped build local capacity to integrate ICZM into development planning, communes have not been able to fully realize their ICZM plans without sustainable funding sources. The project also helped build local resilience in the face of climate change, including through the planting of climate-adapted trees to reduce erosion and the use of aquaculture to improve water quality and biodiversity. However, the project did not consider that the rapid pace and large-scale nature of the changes—for example, the warming of the oceans, sea-level rise, severe and prolonged droughts, and pollution from multiple sources, among others—would limit the sustainability of these benefits. The project is therefore unlikely to have lasting environmental and livelihood outcomes without support for continuous adaptation of interventions to variable climate conditions and significant actions taken at a higher level.

3.3 Livelihood subprojects may require deeper analysis of markets and support to create market linkages to produce viable economic enterprises. Project analytical work and resources were spread across several sectoral subprojects, with limited attention paid to fostering market linkages. Some of the livelihood subprojects lacked the in-depth sector-specific economic analysis, market research, and support needed to successfully integrate livelihoods into supply chains and generate sustained income over time. Evidence from the World Bank's global community-driven development project experience indicates that successful livelihood enhancement or diversification efforts require a deeper analysis of

markets, links to business support services and institutions, and a longer time horizon than that of a typical donor-financed project to show success.

3.4 Results frameworks that do not measure environmental, economic, and social outcomes will fail to capture the mutual benefits resulting from ICZM approaches. The PDO was framed in terms of a process—the piloting of ICZM—rather than the outcomes of that process. The results framework, although revised during project restructuring, still managed to only include output and intermediate outcome–level indicators. As a result, the project did not capture any of the environmental, economic, and social outcomes that could demonstrate the win-win nature of ICZM solutions, such as the regeneration of fish stocks, cleaner water, and more diversified livelihoods that all likely resulted from the introduction of aquaculture farms. Although these mutual benefits are understood locally among many of the project stakeholders, the lack of outcome measurement meant that these results could not be directly attributed to the project nor shared more widely to make the case for ICZM. This also highlights the need for continuous environmental monitoring to increase data and understanding of these outcomes.

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[1] Such policies included the Tourism Development Strategy, the Halieutis Strategy, the National Port Strategy, Plan Maroc Vert (Green Morocco Plan), and the Preservation and Sustainable Forest Management Strategy, among others.

[2] Initiatives included (i) the Mediterranean Environmental Sustainable Development Program funded by the Global Environment Facility and implemented by the World Bank, which aimed to enhance the sustainability of the Mediterranean ecosystem by addressing common challenges and transboundary water issues of the Mediterranean Sea; (ii) the third phase of the Short- and Medium-Term Priority Environmental Action Program, financed by the European Union, which provided technical assistance to ensure a fair balance among environmental, economic, and social aims in the development of Mediterranean coastal zones; and (iii) the MedWetCoast project focused on the conservation of wetlands and coastal ecosystems in the Mediterranean.

[3] The project was restructured in October 2016 to extend the closing date and revise the project performance indicators. PDO outcome and intermediate indicators were significantly revised, as the indicators were not defined at the right level, with PDO-level indicators moved to the intermediate level and some intermediate-level indicators moved to the PDO level.

[4] Institutions included the High Commission for Water and Forests and the Fight Against Desertification (currently the National Agency for Water and Forests); the Department of Maritime Fisheries under the Ministry of Agriculture and Fisheries; the National Aquaculture Development Agency; the Agency for Agricultural Development; and the Ministry of Tourism.

[5] The six communes are Arekmane, Beni Chiker, Boudinar, Madagh, Ras El Ma, and Saïdia, and they are located in the provinces of Driouch, Nador, and Berkane.

[6] The European Union–funded third Short- and Medium-Term Priority Environmental Action Program (2006–08) developed local ICZM action plans for four selected project sites in the Nador, Driouch, and Berkane provinces, and the Climate Change Adaptation in Africa research and capacity development program (2007–10), jointly funded by the United Kingdom's Department for International Development and Canada's International Development Research Centre, updated the action plans to incorporate climate adaptation.

[7] Parallel financing, as opposed to cofinancing, is financing provided by a third party that is complementary to but falls outside the scope of a World Bank–administered operation. Parallel-financed activities do not receive services from the World Bank and are not subject to the policies and procedures of the World Bank.

[8] Technical assistance included, for example, training communal officials, nongovernmental organizations, and cooperatives on topics such as integrated water and land management practices.

[9] The achievement of these indicators was validated by IEG through site visits; interviews with beneficiary cooperatives and associations, fishers, and implementing partners; and reviews of comanagement agreements.

[10] The shellfish farm is successfully growing shellfish; however, the cooperative cannot harvest or sell any shellfish, as they are not yet certified to do so and are still in the process of building the necessary processing facilities.

[11] The tree plantations have not yet reached maturity, which takes about 10 years and requires a significant investment of time and labor until that time (for pruning, trimming, watering, and so on). Farmers currently use the small amounts of olives they harvest mainly for their own household consumption.

[12] These targets included (i) sites in the project area with artificial reefs under comanagement and (ii) seaweed and shellfish farms piloted in project area under comanagement.

[13] For the artificial reef, the relevant agency was the Department of Maritime Fisheries, and for the aquaculture farms, it was the National Aquaculture Development Agency and the Department of Maritime Fisheries.

[14] The National Aquaculture Development Agency assists investors and local entrepreneurs with establishing aquaculture projects by assigning zones to specific kinds of aquaculture to be developed in that area, simplifying administrative procedures, and lifting taxes on aquaculture inputs.

[15] The World Bank's First and Second Inclusive Green Growth Development Policy Loans (FY14–15, FY16–17) aimed to (i) improve the management of natural capital, (ii) green physical capital, and (iii) strengthen and diversify the rural economy by leveraging human capital. The development policy loan series included approval of the draft national Coastal Law as a prior action, approval of the National Coastal Zone Management Plan as a policy action, and approval of two regional coastal zone management plans as outcomes.

[16] When the national Coastal Law was approved in 2015, it created a foundation and prescribed a methodology for the development of national and regional coastal zone management plans. These plans would define the rights and obligations of each authority related to ICZM, set up the regional and territorial bodies responsible for coastal governance, and provide a budget devoted to coastal and maritime spaces (UNECE 2022). The project's institutional-strengthening activities were designed before the framework and plans were put in place, as the law was approved halfway through project implementation, the National Coastal Plan was approved in 2020, and no regional plan has yet been developed for the Oriental region of Morocco.

[17] This finding is confirmed by studies noting that the severity of climate-related pressures, and recurrent droughts in particular, on farming in this region of Morocco cannot always be mitigated through irrigation alone and will likely require more radical shifts to new agroforestry systems that can sustainably meet future needs (O'Connell et al. 2016; Pagella et al. 2014).

[18] At least three to five years are needed for olive trees, and at least seven years are required for carob trees.

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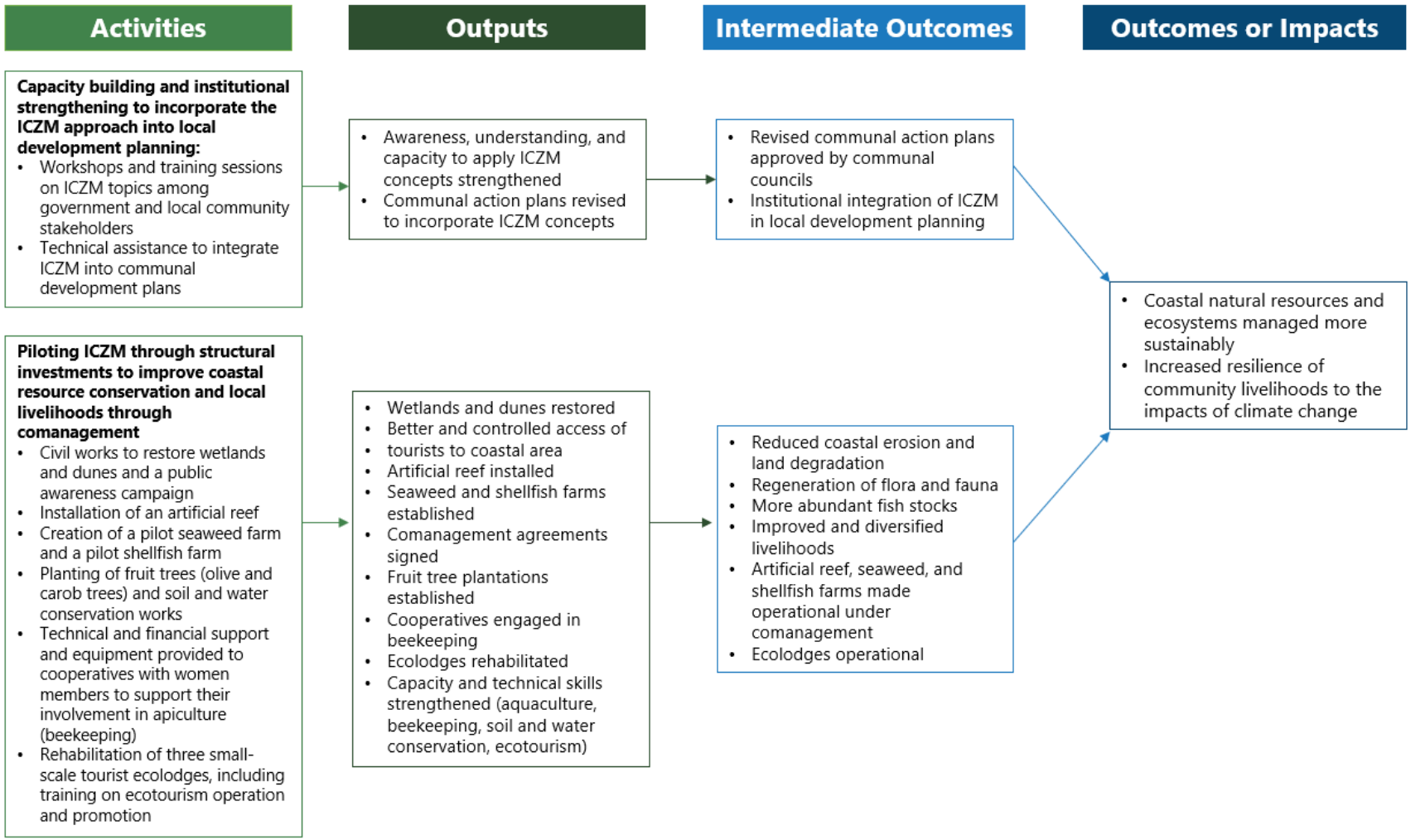
Appendix A. Theory of Change



Source: Independent Evaluation Group.
Note: ICZM = integrated coastal zone management.

Appendix B. Methods and Evidence

This report is a Project Performance Assessment Report. This instrument and its methodology are described at https://ieg.worldbankgroup.org/methodology/PPAR.

Evaluation Methodology

This assessment builds on the project documentation, including Project Appraisal Documents, Implementation Completion and Results Reports, Implementation Completion and Results Report Reviews, aide-mémoire, and a socioeconomic impact study conducted in 2017. Alongside a literature review, the Independent Evaluation Group (IEG) used satellite imagery to visualize changes in land cover and vegetation over time. IEG conducted a field mission to Morocco between April 18 and May 3, 2024, during which structured individual and group interviews were conducted with key stakeholders—including project implementation unit staff, national and local government authorities, technical staff from key ministries and agencies, representatives from nongovernmental organizations, and other stakeholders—to gather technical data and feedback. These interviews were supplemented by site visits and interviews with members of cooperatives and associations that benefited from the project's environmental conservation and sustainable livelihood subproject pilots. These interviews allowed IEG to test assumptions and report on benefits among several groups of people at the local level (for example, fishers, nonfishers, farmers, men and women, rural and semiurban communities) and to explore the extent and sustainability of outcomes from these subprojects.

Desk Review and Key Informant Interviews in Washington, DC

1. A desk review of relevant literature, analytical work, and project documentation (Project Appraisal Document, Implementation Status and Results Report, Implementation Completion and Results Report, Implementation Completion and Results Report Review, and a socioeconomic impact study)

2. Key informant interviews with relevant World Bank staff and subject matter experts based on project documentation, literature reviews, and interviews

Key Informant Interviews in Rabat

IEG carried out key informant interviews in Rabat between April 30 and May 3, 2024. Interviewees included World Bank staff working on natural resource management and blue economy, former project staff, and representatives from relevant government ministries and agencies working on marine conservation and sustainable livelihoods.

Field Assessment and Informant Interviews of Project Beneficiaries and Other Stakeholders

The team conducted a field assessment between April 18 and April 26, 2024, which included key informant interviews, group interviews, subproject assessments, and visits to subproject sites in the communes of Arekmane, Beni Chiker, Boudinar, Madagh, Ras El Ma, and Saïdia. The field assessment included the following:

- Semistructured interviews with provincial and commune government representatives in charge of integrating integrated coastal zone management (ICZM) in communal action plans.
- Group interviews, individual interviews, and site assessments to ascertain information on the status and performance of the subprojects. This included site visits to the olive and carob tree plantations, beekeeping farms, cooperative headquarters for the seaweed and shellfish farms, and the Moulouya Site of Biological and Ecological Interest.
- Triangulated interviews with subproject grant recipients and members of the beneficiary cooperatives and associations involved in subproject management for all of subprojects listed in appendix C.

Semistructured interviews included the following evaluation questions:

1. How effective has the ICZM approach been in supporting environmentally sustainable development opportunities in vulnerable coastal and marine environments?
2. Relatedly, how well have lessons from the ICZM approach been integrated into wider marine and coastal national and regional development planning efforts (including into current marine spatial planning efforts supported by the World Bank)?

To answer these evaluation questions, we will answer the following subquestions:

a. Sustainability

- To what extent have project outcomes been sustained or enhanced since project closure? Has there been a demonstration effect in terms of uptake in other neighboring communes or at the province level?

b. Replication/Scale

- How has the project informed ICZM approaches in other regions or at the national level? Is the project's design replicable in other regions of Morocco?

c. Governance

- How well did the World Bank support local governance arrangements needed to identify and manage trade-offs using an ICZM approach?
- What were the different models of comanagement that the project employed, and how well did they function in managing trade-offs and empowering local cooperatives (for instance, agricultural, beekeeping, and aquaculture) as part of land restoration, water management, and sustainable fisheries management?

d. Marine conservation

- To what extent was the project able to address underlying causes of environmental degradation and contribute to coastal restoration and biodiversity preservation in the longer term?

e. Livelihoods:

- How effective was the project in enhancing the livelihoods of direct beneficiaries and nonbeneficiaries in project sites, and are these effects still in place?

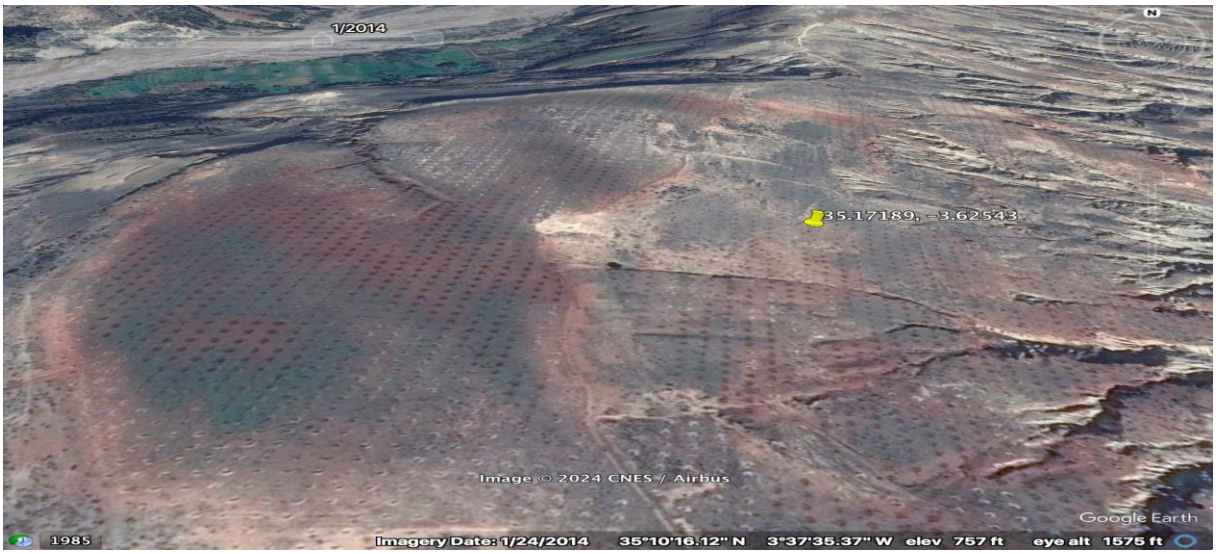
Appendix C. Satellite Imagery of Project Sites

The photos in this appendix show one of the olive tree plantations and the restoration of dunes supported by the project at three different points in time: before the project's intervention, soon after the intervention, and in 2023 (the latest available images). In the photos of the olive plantation (photos C.1, C.2, and C.3), the presence of the olive plantation and the maturation of the trees can be observed in photos C.2 and C.3 (after the project's intervention), with the plantation more clearly visible in photo C.3 as the olive trees have matured. In photos of the coastal dunes at Moulouya (photos C.4, C.5, and C.6), the regeneration of dune vegetation is clearly visible in photo C.6.

Photo C.1. Site of Boudinar Olive Tree Plantation in September 2011 (before planting)

Source: Google Earth Pro 7.3.6.9796 (imagery dated September 5, 2011). Boudinar, Morocco. https://earth.google.com (accessed June 26, 2024).

Photo C.2. Site of Boudinar Olive Tree Plantation in January 2014 (soon after planting)



Source: Google Earth Pro 7.3.6.9796 (imagery dated January 24, 2014). Boudinar, Morocco. https://earth.google.com (accessed June 26, 2024).

Photo C.3. Site of Boudinar Olive Tree Plantation in November 2023

Source: Google Earth Pro 7.3.6.9796 (imagery dated November 24, 2023). Boudinar, Morocco. https://earth.google.com (accessed June 26, 2024).

Photo C.4. Site of Dune Restoration near Moulouya Estuary in 2015 (before restoration)

Source: Google Earth image provided by the National Agency for Water and Forests (imagery dated 2015). Moulouya Saïdia, Morocco.

Photo C.5. Site of Dune Restoration near Moulouya Estuary in 2018 (soon after restoration)

Source: Google Earth image provided by the National Agency for Water and Forests (imagery dated 2018). Moulouya Saïdia, Morocco.

Photo C.6. Site of Dune Restoration near Moulouya Estuary in 2023 (after restoration)

Source: Google Earth image provided by the National Agency for Water and Forests (imagery dated 2023). Moulouya Saïdia, Morocco.

Appendix D. Institutions Visited

Institutions are presented in alphabetical order.

Agency for Agricultural Development
Al Amal Cooperative of Artisanal Fisheries
Al Binae Cooperative
Al Fath Cooperative
Al Ikhlass Cooperative
Al Maghreb Al Akhdar Association
Arekmane Commune
Assadaka Association
Association Al Amal of Artisanal Fisheries
Beni Chiker Commune
Berkane Province
Boudinar Commune
Center for the Study of Man and Environment (nongovernmental organization)
Driouch Province
El Fath Cooperative
Gîte Boumaad Saida
Gîte Ighachamene
Gîte Tizza
Maamrane Association
Marchica Cooperative
Ministry of Agriculture and Fisheries
Ministry of Energy Transition and Sustainable Development
National Agency for Water and Forests
National Aquaculture Development Agency
National Institute of Fisheries Research
Oujda Wilaya
Pachalik Saïdia
Ras El Ma Commune
Saïdia Commune
Zegzel Cooperative

Appendix E. Subproject Analysis

Table E.1 presents the outcomes, relative costs and benefits, challenges, and lessons learned from the subproject grants under the Integrated Coastal Zone Management Project's component 2: investments to improve coastal resource management and livelihoods through a comanagement approach.

Component 2 objective: To support specific and appropriate investments that demonstrate the application of key tools available for use in an integrated coastal zone management approach, within the project area.

Total cost: $4.11 million (Global Environment Facility grant funding). Parallel cofinancing from the government of Morocco was also provided under this component in the amount of $19.73 million.[1]

[1] Parallel cofinancing was provided for the installation of a purification station, forestry work, agriculture, and fisheries projects in the Oriental region, as well as for a feasibility study and an environmental and social impact assessment for the installation of seaweed and shellfish farms. These activities were separate from those financed under the Global Environment Facility project; as such, there were no attribution issues concerning the outcomes of the Global Environment Facility–financed project (World Bank 2018).

Table E.1. Subproject Analysis

Subproject Details	Validated or Reported Outcomes	Sources of Validation and Evidence Gaps	Challenges and Lessons
Subcomponent 2.1: Improved conservation and management of sensitive coastal areas			
Subproject: Rehabilitation of degraded wetlands and dune ecosystems at Moulouya for biodiversity protection Objective: Improve conservation and management of sensitive coastal areas Cost: DH 8,126,213 National implementing partner: High Commission for Water and Forests and the Fight Against Desertification—now the National Agency for Water and Forests (ANEF) Grantee: None Direct beneficiaries: 4,700 direct beneficiaries estimated in 2017 (ICR) Not estimated in 2024 Beneficiary groups: SBEI workers (operators, guards), local residents employed in the tourism sector, local community	PDO outcome: Two civil works to restore and rehabilitate degraded wetlands and dune ecosystems at Moulouya completed Other outcomes: • Better and controlled access of tourists to the coastal area • Return of migratory birds to the site and the improvement of plant density • Transit of floodwaters toward wetlands instead of toward the canal and release into the seasonal river Reported (not validated): • Increased potential for developing economic activities such as ecotourism by the local population • Increased visitors to the SBEI • Estimated income-generating benefits of 10–25% in the short term and 25–30% in the medium to long term	Validation sources: • Site visit • Semistructured interviews with commune, the ANEF, and local environmental nongovernmental organization • Satellite imagery provided by the ANEF • Information provided by the ANEF on erosion, drought, and flooding in the area Gaps: • Did not obtain data on changes in biodiversity, such as the number of species of migratory birds, although this could be visually observed • No localized data available on flooding, erosion, or drought • Did not obtain data on changes in tourism numbers or revenue • Did not obtain data on changes in livelihoods as a result of the subproject	Lack of environmental monitoring: Although the local nongovernmental organization reported the return of various species of flora and fauna to the restored wetlands and dunes (such as otters, flamingos, and red juniper), limited environmental monitoring was carried out during or after subproject implementation, and no baseline or end-line data were collected on changes in wetland area, biodiversity, or flooding. While some data on biodiversity at project sites are now being collected, such as an annual count of migratory birds at Moulouya conducted by a small group of scientists, the data are not shared (not even with the government). Sustainability of wetlands threatened by drought and overexploitation: The flow of the Moulouya River began to decline significantly in 2017 because of several factors, including recurrent droughts, increased demand for water for irrigation and domestic use, and overexploitation of groundwater resources. According to ANEF, the flow of the river decreased significantly, from 7 meters per second to 0.5 meters per second, and there used to be three springs feeding the wetlands, but now there is only one. The groundwater is also abnormally low. These issues require meetings organized at the highest levels and covering upstream areas to find ways to reduce the impact of droughts on critical wetlands. Restoration efforts threatened by unmanaged coastal development: The Moulouya estuary is an SBEI and not a nature reserve, which would have legal protection status. According to the ANEF, there are currently no regulations or laws in place to prevent investors from developing the area, as the majority of the territory is either private land or state-owned private land. As a result, tourism continues to threaten the estuary—for example, due to insufficient waste management by the private company in charge of waste collection and landfill disposal, especially during

Subproject Details	Validated or Reported Outcomes	Sources of Validation and Evidence Gaps	Challenges and Lessons
			the height of the tourist season. Over the next three to four years, the government plans to convert the SBEI into a nature reserve, which would have laws protecting it; however, this change requires negotiating the purchase of land. Gender: No gender element
Subcomponent 2.2: Improved fisheries management			
Subproject: Installation and comanagement of an artificial reef for improved fisheries and biodiversity Objective: Resource conservation, development of marine flora and fauna, and improved income for artisanal fishers Cost: DH 7,180,378 National implementing partner: Department of Maritime Fisheries (DPM) Grantee: Association Al Amal Ijetti sidi Driss Direct beneficiaries: • 280 direct and 1,840 indirect beneficiaries estimated in 2017 (fishers from the region; ICR) • Roughly 165–224 direct beneficiaries (120 members of the association; 55–56 boat owners, with each boat employing three or four people) Beneficiary groups: Subsistence and semi-industrial fishers	PDO outcome: Artificial reef installed and technically still under comanagement Other outcomes: • Increase in fishers' catch and income. Fishers reported their daily catch used to be 10 kg before the reef was installed and now ranges from 20–40 kg. Fishers estimated incomes increased over time (20% in the short term and 60–70% by 2024). This increase is in line with the project's estimated increase of 50–100% (ICR). Other evidence of the increased value of fishing is the reported increase in the cost of boats. • Based on a follow-up study of the reef conducted in 2022, the INRH reported that the reef was still in good condition and observed repopulation of fish species (however, it could not share the video or study, and there are no data available to confirm). Reported (not validated): • Improved water quality, increase in fish stocks, and returning biodiversity reported	Validation sources: • Semistructured interviews with head of association and fishers • Triangulated interviews with commune representatives and regional INRH representatives • Underwater video footage taken of the reef in 2022 • Fish catches and revenue reported by fishers Gaps: • Did not obtain comanagement convention • Did not obtain data on water quality from the INRH • Did not collect data on fish stocks or biodiversity	Drivers of overfishing unaddressed: The activity is expected to support more sustainable fisheries, assuming the livelihoods of artisanal fishers will be improved by increasing fisheries' production and sales without depleting the natural resource base and local biodiversity. Yet, it is not clear how overfishing will be prevented without more regulations or protected areas being put in place. Lack of follow-up monitoring and attribution issues: Changes in fish stocks and biodiversity as a result of the reef have not been scientifically monitored. While the INRH requested this follow up to take an inventory of flora and fauna, it was not given any budget to do so. This has also made it difficult to attribute any changes in fish stocks to the reef, particularly given that its installation coincides with fishing regulations to reduce overfishing and illegal fishing. Unclear comanagement responsibilities: Neither the project-implementing unit nor the association provided a copy of the comanagement convention. While the head of the association was aware of its existence, they did not have a copy and did not recall what agreements were included. The INRH stated that the artificial reef is now in the hands of the association. According to the association members, they have limited engagement with local authorities and did not receive any follow-up support after the project ended. The main engagement is when the DPM and the INRH inform the fishers when the periods of biological rest will start and end. Lack of storage infrastructure: Local authorities had recently removed the makeshift storage containers that artisanal fishers were using to store

Subproject Details	Validated or Reported Outcomes	Sources of Validation and Evidence Gaps	Challenges and Lessons
	and observed by the INRH, the association, fishers, the commune, and the DPM, but this could not be verified through official data or studies. Before the project, it was reported that the area was almost barren, with some species having vanished. The return of several fish species was observed. Fishers also reported changes in fishing as a result (for example, catching more octopus now as they find refuge in the reef; lower cost and easier to catch). • Decreased illegal fishing (no incidents since they held awareness campaigns about illegal fishing). • Comanagement conventions signed by association and the DPM but not located or shared.		engines, nets, canes, fuel, and so on, as they plan to replace this by building a pier. However, at the moment, this means there is no storage infrastructure to allow fishers to continue fishing, and it was reported that only 5% of the association currently works.
Subproject: Seaweed pilot farm Objective: Enhanced alternative livelihoods for conservation of coastal resources Cost: DH 3,417,409 National implementing partner: ANDA Grantee: MCAF Direct beneficiaries: • 25 estimated in 2017 (ICR); 13 (at least) estimated in 2024 (8 permanent members of the cooperative remaining in 2024; 4–5 temporary hired individuals to help collect and sort seaweed that	PDO outcome: The pilot farm is operating (11 hectares have been planted, and 17 hectares remain to be planted) and under comanagement by the targeted cooperative (MCAF) and the ANDA. Other outcomes: • The seaweed farm is more profitable than estimated in the ICR. The first seaweed production carried out in 2017 realized a harvest of 13 tons and an estimated potential harvest of 20,000 kg (22 tons) per year in the medium to long term. In 2023, the farm	Validation sources: • Site visit • Semistructured interviews with targeted cooperative (MCAF) • Triangulated interviews with seaweed buyer, the INRH, the ANDA, and the commune government • Review of signed comanagement convention • Data collected on seaweed produced and sold (MCAF and Setexam), number of established seaweed	Limited commercialization: Despite high demand for seaweed in export markets, the MCAF is not licensed to export and can only sell seaweed domestically. Only one buyer (Setexam) in Morocco exports the species of seaweed produced by the farm. The MCAF has not been able to sell its seaweed to foreign companies expressing interest. Although the cooperative is profitable and self-sustaining, it requires additional support to further commercialize the operation and get licensed; it needs to build storage facilities and acquire equipment for processing. The MCAF submitted a proposal for government cofinancing to build a warehouse two years ago but has not received a response. Not an alternative livelihood: Although the seaweed farm is profitable, it is treated as an additional source of

Subproject Details	Validated or Reported Outcomes	Sources of Validation and Evidence Gaps	Challenges and Lessons
accumulates on the beach). This does not include the other fishers hired temporarily to help harvest the seaweed. Beneficiary groups: Subsistence and semi-industrial fishers	sold 53,960 kg (59.5 tons) of seaweed for a total revenue of DH 269,800. • The project successfully facilitated the partnership between the cooperative and the private sector. The seaweed is being sold at market prices to one domestic buyer (Setexam) based in Kenitra. • The pilot has directly influenced the creation of more seaweed farms. The pilot farm was the first successful commercial seaweed farm in Morocco, drawing on the iterative process of learning by doing and testing out innovative cultivation techniques. The ANDA used this experience to support the establishment of more seaweed farms (there are now 34), and the president of the MCAF has shared his experience learning how to cultivate seaweed with other fishers establishing farms. The World Bank's Blue Economy Program-for-Results is now piloting 14 aquaculture (seaweed and shellfish) farms, implemented by the ANDA drawing from its ICZM pilot experience. • The comanagement arrangements limited unregulated fishing in the project area. • The project led to an increase in wildlife,	farms (ANDA), and number jobs created (ANDA) Gaps: • Did not obtain data on water quality from the INRH • Did not collect data on biodiversity	income rather than an alternative source. Seaweed is harvested three or four times a year. During the months when there is no seaweed harvest, fishers return to fishing to earn enough income. Limited job-creation potential: The number of jobs created by seaweed farms is relatively limited. According to data provided by the ANDA, they now support 34 seaweed farms and employ 430 people (about 13 people per farm). No monitoring of changes in biodiversity: There have not been any studies related to the impact of the farm on marine flora and fauna. Gender: The cooperative does not have any female members, although some women are hired temporarily to help sort seaweed. This is in contrast to other seaweed cooperatives that more actively employ or are led by women.

Subproject Details	Validated or Reported Outcomes	Sources of Validation and Evidence Gaps	Challenges and Lessons
	and the cooperative is using the boats provided by the project to lead ecotourism trips to view that wildlife. Reported (not validated): • Improved water quality and returning biodiversity (fish and birds) reported by head of the cooperative, the ANDA, and the commune government. This is evident from the change in fishers' attitudes toward the farm (initially resistant until they observed the impact on fish populations).		

Subproject Details	Validated or Reported Outcomes	Sources of Validation and Evidence Gaps	Challenges and Lessons
Subproject: Shellfish pilot farm Objective: Enhanced alternative livelihoods for conservation of coastal resources Cost: DH 3,717,200 National implementing partner: ANDA Grantee: Al Amal Cooperative of Artisanal Fisheries Direct beneficiaries: 20 estimated in 2017 (ICR); 33 estimated in 2024 (including 9 executive board members) Beneficiary groups: Subsistence and semi-industrial fishers	PDO outcome: Pilot farm is operating (but not yet harvesting or selling) and under comanagement by the targeted cooperative (Al Amal) and the ANDA. Other outcomes: • Demonstration effect: Other shellfish farms have been installed by private companies in the same area. • The World Bank's Blue Economy Program-for-Results is now piloting 14 aquaculture farms (seaweed and shellfish), implemented by the ANDA drawing from its ICZM pilot experience. • Limited hazardous fishing in the area. Reported (not validated): • Improved water quality and returning biodiversity (fish and birds) reported by head of the cooperative, the ANDA, and the commune government. This is evident from the change in fishers' attitudes toward the farm (initially resistant until they observed the impact on fish populations).	Validation sources: • Site visit • Semistructured interviews with targeted cooperative (Al Amal) • Triangulated interviews with the INRH, the ANDA, and the commune government • Review of signed comanagement convention • Data collected on number of established seaweed farms (ANDA) and number of jobs created by shellfish farms (ANDA) Gaps: • Did not obtain data on water quality from the INRH • Data not collected on biodiversity	Limited commercialization: While the farm succeeded in cultivating shellfish, the shellfish cannot yet be harvested or sold due to lack of certification from the National Office of Food Safety, despite high demand in domestic and export markets. The ICR pointed out this issue in 2017, indicating that it would likely be addressed in six months; however, it remains a problem seven years later. The shellfish farmed have now grown too big to be sold. Solving these commercialization issues takes time, as there are many requirements that need to be filled, such as the need for cleaning and refrigeration facilities, before they can be certified. As a result, the farm has been operational for seven years but has not been able to generate income. This is in contrast to the socioeconomic impact study, which reported that the aquaculture cooperatives were self-sufficient and generating a satisfactory income. Limited job-creation potential: The number of jobs created by shellfish farms is relatively limited. According to data provided by the ANDA, the agency is now supporting 133 shellfish farms and employing 1,576 people (fewer than 10 people per farm). Not an alternative livelihood: Similar to seaweed, it is likely that once the shellfish farms are profitable, they will constitute an additional, not alternative, source of income for fishers (with the exception of the leaders of the cooperative). No monitoring of changes in biodiversity: No studies related to the impact of the farm on marine flora and fauna have been done. Gender: Women were not involved in the cooperative.
Subcomponent 2.3: Soil and water conservation and income-generating activity			
Subproject: Restoration of degraded land and planting of fruit trees adapted to local climatic conditions (olive and carob trees; three plantations)	PDO outcome: 500 hectares of land area were rehabilitated through the planting of olive and carob trees. While the trees are producing fruit, they have not yet reached	Validation sources: • Visual observation/site visit to rehabilitated land area	Drought has significantly undermined yield: Severe drought for six years after the project closed has limited tree yield and led to a significant underestimation of farmers' water and irrigation needs. Farmers reported that irrigation has been insignificant given extreme water

Subproject Details	Validated or Reported Outcomes	Sources of Validation and Evidence Gaps	Challenges and Lessons
Objective: Diversify income-generating activities from agriculture and improve farmers' incomes, while also combatting soil erosion and conserving water resources. Cost: DH 9,612,204 National implementing partner: Agency for Agricultural Development (ADA) Grantees: Three associations: Maamaran Association (olive tree); Association Al Maghreb Al Akhder (olive tree); Al Sadaka Association (carob tree) Direct beneficiaries: 275 estimated in 2017, of which 11% were women (ICR). At least 229 beneficiaries (number varies) were organized in cooperatives in 2024. The percentage of women beneficiaries is unclear. Beneficiary groups: Smallholder farmers	maturity and are not yet producing enough to achieve profitability. Other outcomes: Currently farmers are mainly using olives and olive oil for their own household consumption. This is better than buying olive oil from the market. Building on the momentum that the ICZM project spurred, the regional Department of Agriculture planted another 900 hectares of olive trees in 2018. Reported (not validated): The area is less susceptible to erosion and landslides due to reduced land degradation resulting from planting. The decreased erosion also allows farmers to plant more.	• Semistructured interviews with beneficiary associations • Triangulated interviews with commune governments and ADA • Satellite imagery • Drought research Gaps: • No data on olive oil production or revenue • No localized data on land erosion	scarcity. In one location, 25 hectares of trees were successfully producing fruit, but farmers estimated this would have been double if they were not faced with drought. Farmers reported that studies are needed to better understand which soil is permissible for planting (the findings of previous studies related to irrigation needs were no longer relevant). While the project contributed to building resilience of farmers to climate change through water conservation activities, given the length of time needed for project activities to mature, there was limited attention to how climate-related scenarios could evolve during this time and could affect the needs of various project activities to adapt to extreme weather scenarios to be sustainable. High input costs and income benefits not yet realized: The project is still considered to be in the early stages. Young plantations cannot bear fruit for at least 5 years and do not reach maturity for at least 10 years, during which the beneficiary farmers have to take care of tree maintenance and irrigation. For example, in one location, trees were planted in 2016 and farmers just started harvesting from them in 2023, producing only 20 liters. Another plantation has only had 2 years of limited production. As the yields are not yet big enough to be sold, the olives and olive oil produced are primarily consumed by the farmers' own households or sold informally to relatives and neighbors. In the meantime, expenses are high, especially for fuel and water. Generally, farmers are just selling olives to cover their expenses and needs or pressing them for olive oil and consuming it themselves, so the plantations are not yet profitable. However, given the increase in the price of olive oil (from DH 30–35 to DH 80–100 per liter), it is expected that the plantations will become profitable once trees reach maturity. Equipment needed: Most of the farmers lack the equipment needed to process olives, such as olive presses, processing and storage facilities, and warehouses. While it was reported in the ICR that

Subproject Details	Validated or Reported Outcomes	Sources of Validation and Evidence Gaps	Challenges and Lessons
			assistance would be provided by the Ministry of Agriculture and Fisheries, the support in terms of subsidies after project closure has been limited and uneven across associations. Lack of market access and limited commercialization: Although there was a surge in the price of olive oil, the farmers have not been able to take advantage of this change, as the plantations are not yet producing enough to sell in large quantities and the farmers are not yet organized enough to be able to group their entire yield. Foreign companies were offering high prices, but they had conditions related to consistent, continuous, and high quantities that the farmers could not yet meet. There has not yet been a focus on marketing, licensing, or identifying the right buyers. While there was an attempt to convert the associations into cooperatives, this did not come to fruition, as there was reluctance from farmers given that there is no culture of organizing themselves in this way. Not an alternative livelihood: All of the farmers had secondary jobs farming other produce or livestock. Olive farming is viewed more as a complementary activity or hobby than as a livelihood. Many families reported that farming is not the main source of income; instead, remittances from family members living in Europe provide the needed income. Limited job-creation or income-generation potential: Because farming is seasonal and other sources of income are needed, the job and income potential (cited in the ICR as 200 permanent jobs and 350 occasional jobs and an increase in income of 100–500% in the medium to long term) seems to be overestimated. Gender: The majority of beneficiaries were men. Although the ICR reported that 11% of beneficiaries were female, women were reported to have limited involvement in the beneficiary association.
Subproject: Diversification of income-generating activities and water and soil conservation in the	PDO outcome:	Validation sources: • Site visits to beekeeping farms	Drought, bee illness, and COVID-19 significantly undermined yield and led to declining production. Because of drought, bee sickness, and the use of

Subproject Details	Validated or Reported Outcomes	Sources of Validation and Evidence Gaps	Challenges and Lessons
context of climate change (apiculture) Objective: Improve the income of the population, especially women, by developing beekeeping and adding value to bee-related products. Cost: DH 2,723,260 National implementing partner: ADA Grantees: Four cooperatives—Al Fath Cooperative, Cooperative Station Zegzel, Al Ikhlass Cooperative, and Al Binae Cooperative Direct beneficiaries: • 251 estimated in 2017, of which 87% are women (ICR) • 192 (rough estimate) in 2024, of which approximately 71% are women Beneficiary groups: Smallholder farmers and women	• There was no associated PDO-level indicator. • Intermediate indicator: Three of the four beneficiary cooperatives are still engaged in apiculture (two of which are 100% women, two with a high percentage of women). Other outcomes: • All cooperatives produced and sold honey after the end of the project. Two cooperatives are still actively selling honey–one is selling 90% to Moroccans abroad and 10% locally at agricultural fairs, and one is selling to an intermediary buyer in Morocco. • One women's cooperative inspired the creation of two more women's beekeeping cooperatives in the same commune, benefiting from the same materials and equipment provided by the project. The original cooperative coached and equipped them with parts of the hives. Reported (not validated): • Women reported an increase in voice, power, pride, and autonomy as a result of their participation in the cooperatives and the income they earned from honey sales. Their membership in a cooperative was also reported to help them become eligible for loans.	and cooperative headquarters • Semistructured interviews with beneficiary cooperatives • Triangulated interviews with commune governments and the ADA Gaps: • No data on apiculture revenue • No localized data on drought	pesticides, many of the bees have died or flown away. In drought years, little to no honey is produced. One of the cooperatives reported that production has declined every year since 2014, with no production in 2016 and between 2019 and 2021 due to drought and COVID-19. While the cooperative had produced 1,057 kg in 2015, they only produced 45 kg in 2022 and 35 kg in 2023. Another cooperative produced 600 kg of honey in its first year of operation but has not produced any honey since 2020. COVID-19 was also a significant challenge given that the bees need to be transported to different locations in different provinces for feeding, but crossing borders was restricted. These challenges were insurmountable for some cooperatives, and two no longer produce honey. High costs and inconsistent, unpredictable, and declining profits: Because of drought and bee sickness, more money needs to be spent to revive the dying hives, with no guarantee of output. During years of drought, cooperatives reported having to spend more than they earned. Yields and profits are also highly variable across the beekeeping farms. Need for additional training to adapt to challenging and unpredictable conditions: While the training provided during the project was successful at helping ensure the beekeeping cooperatives were operational and able to produce honey, continuous training is needed to address emerging challenges (for example, how to deal with variable weather conditions, which interrupts the production cycle; how to divide beehives to compensate for bees that died or flew away; how to recycle beehive waste and extract for cosmetics). Training also needs to be adapted to the needs of the cooperatives in a way that recognizes that most beneficiaries are illiterate. Storage and processing facilities needed: This was an issue for two cooperatives—one needed headquarters, and another needed storage space and a freezer. Other cooperatives were given funding

Subproject Details	Validated or Reported Outcomes	Sources of Validation and Evidence Gaps	Challenges and Lessons
	• Men's attitudes changed as they have become more accepting of and less resistant to the idea of women working outside the home.		for a building but do not currently produce honey. Not an alternative livelihood: Beekeping is viewed more as a complementary activity or hobby to earn additional income, rather than as a livelihood. Limited job-creation and income-generation potential: While the ICR reported that the cooperatives were self-sufficient and generating satisfactory income, this is no longer the case for most of the cooperatives, given declining production, lack of revenue, and the limited operation of at least two of the cooperatives. As a result, the job and income potential of the beekeeping farms is less than initially estimated by the project (the ICR estimated an increase in income of 25–30% in the medium to long term). When jobs are created, it is often temporary—for example, when selling large quantities (60–70 kg) to Moroccans abroad, more women are hired to help assist with the purification and packaging process. Marketing and certification of beekeeping products: There are several competitors in this area, and the beekeeping cooperatives are unknown and lack marketing channels. To market their products, the cooperatives rely mainly on word of mouth. There was no marketing strategy, and no main buyers or wholesale selling options were identified. It is difficult for cooperatives to be autonomous, especially when facing constraints related to packaging, certification and labeling, and marketing. While the socioeconomic impact study (2017) recommended putting the cooperatives in touch with the National Office of Food Safety to certify their products, none of the cooperatives have been certified in the seven years since that study. Certification is expensive and would require a bank loan to cover the costs, and honey production is not stable enough for cooperatives to take the risk. The two cooperatives that still sell honey primarily rely on intermediary buyers—between 15 and 20 Moroccans living abroad and 1 in Morocco—or they sell honey at regional fairs, through social

Subproject Details	Validated or Reported Outcomes	Sources of Validation and Evidence Gaps	Challenges and Lessons
			media, or via word of mouth. They are not able to sell honey at national fairs without certification. Gender: Given that the project area is characterized by conservative social values that expect women to remain at home, it is notable that the project was able to increase women's collective agency and engagement in income-generating activities through the cooperatives. This was particularly the case in the Boudinar commune, where the commune president was strongly supportive of the initiative and actively encouraged the women involved. However, the extent of change for women may have been overestimated in the ICR. Only two of the cooperatives were all women, while the others were a mix of men and women, with men leading the cooperatives. In one of the cooperatives, the women engage in traditionally female roles (for instance, cooking and preparing tea). Many women also leave the cooperative once they get married, leading to high turnover and a loss of knowledge and skills.
Subcomponent 2.4: Promotion of ecotourism			
Subproject: Ecotourism lodges rehabilitated Objective: Promote the development of ecotourism in the project area. Cost: DH 3,826,096 National implementing partner: Ministry of Tourism Grantees: Three small-scale ecolodges Direct beneficiaries: Three families that own the lodges (in 2017 and 2024) and any individuals they employ. Exact number is unclear (approximately 15–20 total beneficiaries). Beneficiary groups: Rural, low-income households	PDO outcome: No PDO-level indicator was associated with this project. The indicator related to this subproject (number of ecolodges established and operating, target: six) was dropped during project restructuring in October 2016, although implementation of the subproject continued. The rationale for dropping the indicator was that the activity could not be completed on time. Other outcomes: • Three small-scale ecolodges were rehabilitated (reduced from an initial target of six). This included installation of equipment to make	Validation sources: • Site visits • Semistructured interviews with lodge owners and employees • Triangulated interviews with provincial and commune officials • Data on bookings, costs, and revenue from lodge owners	Lack of profitability: Costs have so far exceeded revenue generated. Only one of the lodges is still operational, and none of them are profitable. The operational lodge reported having to spend at least DH 120–150 to cover the stay of guests (fuel, food, electricity), while charging about DH 266 per guest per night, barely covering costs if the number of people and length of stay are limited. Given high costs and limited profits, the lodge owner has taken out a loan to sustain operations. The owners of the lodges were previously smallholder farmers and do not have resources of their own to invest. Inaccessibility: The lodges are relatively isolated, far from airports (two-hour drive), with inadequate phone reception, (and difficult to reach, as all are located on unmaintained dirt roads). Two of the lodges require all-terrain vehicles or walking several minutes over rocky and unstable ground to reach the lodge.

Subproject Details	Validated or Reported Outcomes	Sources of Validation and Evidence Gaps	Challenges and Lessons
that own historic properties	them more environmentally sustainable. Currently, only one of the three lodges is still operating. • Lodge owners and tour guides were trained on lodge management and tourism promotion.		Several groups of tourists had either canceled their reservations or turned around when they realized the state of the roads. COVID-19: The lodges became operational in 2018, not long before the pandemic, which significantly undercut the businesses. One lodge recorded 32 bookings since the launch of the project, but there have been no bookings or income generated since 2020. Lack of market for ecotourism in subproject area: There was no market or demand for ecotourism in the project area (rural, mountainous area of Boudinar near the coast). These were the first ecolodges established in the commune, which is not known for mountain tourism. The region is known more for coastal tourism, and therefore the lodges attracted the wrong market—people seeking a cheaper place to stay somewhat near the coast but with no interest in the cultural or environmental aspects of the lodge. In some cases, this led to negative reviews from disappointed guests. Limited job-creation or income-generation potential: The number of beneficiaries for this subproject is limited to the families owning the lodge and a small number of individuals hired for support. None of the lodges are self-sufficient or have generated income. Insufficient and poorly targeted support: All of the lodge owners are illiterate and do not have any previous background in tourism or running a small business. They received one week of training on lodge management and basic principles of ecotourism. Lodge owners do not have the means to comply with government regulations regarding tourism reporting. The lodges also require support with appropriate marketing and tourism promotion; however, little support has been provided by local authorities in recent years (there are no tourism representatives in this commune). One lodge has remained operational largely due to the owner's dedication, willingness to learn, and determination to succeed, rather than because of any

Subproject Details	Validated or Reported Outcomes	Sources of Validation and Evidence Gaps	Challenges and Lessons
			assistance provided after the project closed. The timing and quality of project works: As the timing of repairs happened toward the end of project, rehabilitation works at some of the lodges were rushed and of low quality, so the lodges have fallen into disrepair. Timing should take into account the intrinsic time frames of contract award procedures, particularly those inherent in construction work, impact studies, and public inquiries, which require regulatory deadlines that are often exceeded.

Sources: Independent Evaluation Group; World Bank 2018.
Note: ANDA = National Aquaculture Development Agency; ANEF = National Agency for Water and Forests; DH = Moroccan dirham; DPM = Department of Maritime Fisheries; ICR = Implementation Completion and Results Report; ICZM = integrated coastal zone management; INRH = National Institute of Fisheries Research; MCAF = Marchica Cooperative of Artisanal Fishers; PDO = project development objective; SBEI = Site of Biological and Ecological Interest.

Reference

World Bank. 2018. "Integrated Coastal Zone Management Project." Implementation Completion and Results Report ICR4494, World Bank.