

ADAPTATION FUND

Portfolio Monitoring Mission - Mauritius and Seychelles

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PORTFOLIO MONITORING MISSION REPORT

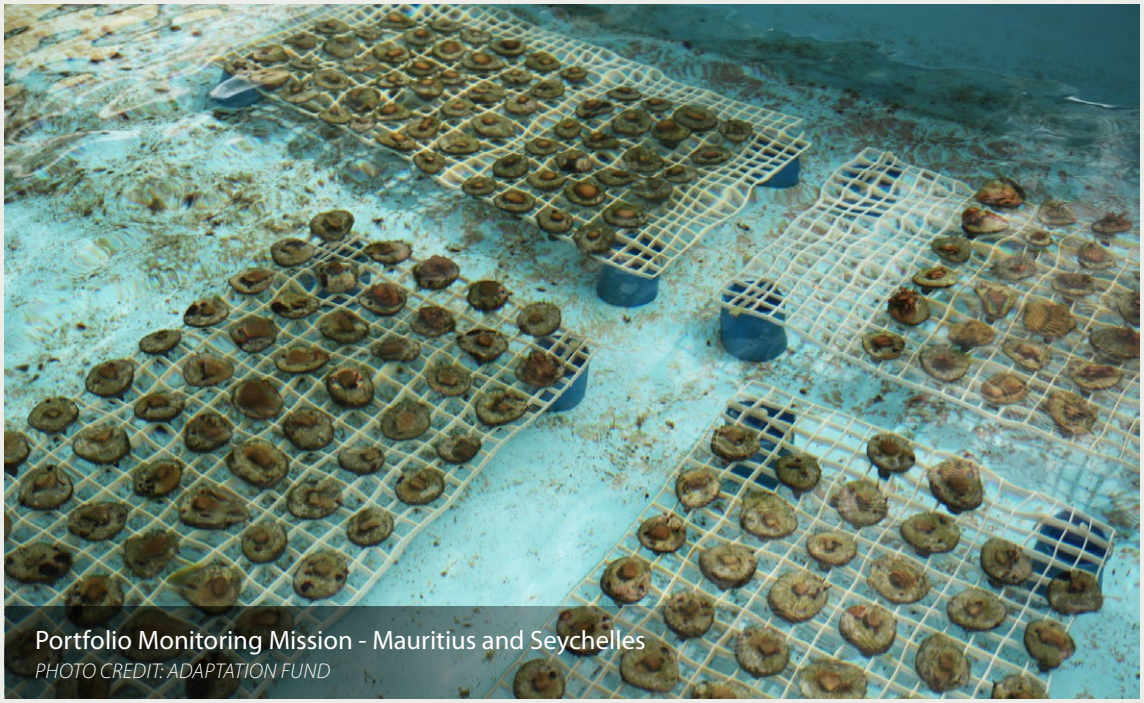
RESTORING MARINE ECOSYSTEM SERVICES BY REHABILITATING CORAL REEFS TO MEET A CHANGING CLIMATE FUTURE IN MAURITIUS AND SEYCHELLES

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PROJECT INFORMATION

Project Title	**Restoring marine ecosystem services by rehabilitating coral reefs to meet a changing climate future in Mauritius and Seychelles**
Country	**Mauritius, Seychelles**
Sector	**Food security**
Implementing Entity (name and type)	**United Nations Development Programme – Multilateral Implementing Entity**
Executing Entity(ies)	**Government of Mauritius, through the Ministry of Ocean Economy, Marine Resources, Fisheries and Shipping, with national project partners comprising Eco-Sud, Reef Conservation, Shoals, SEMPA and the Rodrigues Regional Assembly; and Government of Seychelles, through the Ministry of Environment, Climate, Energy and Natural Resources, with national project partners comprising Nature Seychelles, the Seychelles Parks and Gardens Authority, and the Marine Conservation Society Seychelles**
Funding Amount	**US$ 10,000,000**
Project start date	**2020**
Project completion date	**2026**
Portfolio Monitoring Mission Dates	**9–18 March 2026**

COUNTRY CONTEXT AND PROJECT OBJECTIVES

Small Island Developing States (SIDS) such as Mauritius and Seychelles are highly exposed to climate-induced degradation of marine and coastal ecosystems. Coral reefs play a critical role in supporting fisheries, tourism, coastal protection and livelihoods. However, these reefs are increasingly threatened by rising sea surface temperatures, coral bleaching events, ocean acidification, coastal development and extreme climatic events.

Both countries have experienced severe coral bleaching episodes, notably in 2015–2016 and again during the fourth global bleaching event in 2024. These bleaching events caused widespread coral mortality, particularly in northern Mauritius and parts of Seychelles, underscoring the urgency of developing climate-resilient coral restoration approaches.

The Adaptation Fund project "Restoring marine ecosystem services by rehabilitating coral reefs to meet a changing climate future" in Mauritius and Seychelles, builds on previous coral restoration efforts in both countries. In Seychelles, the project draws on experiences from initiatives such as the Reef Rescuers programme led by Nature Seychelles since 2010. In Mauritius, coral farming activities were first piloted in 2008 by the Albion Fisheries Research Centre, with subsequent initiatives expanding technical knowledge and restoration capacity.

Building on earlier pilots is important because it helps align restoration approaches with national marine conservation priorities, avoids restarting from zero and allows the project to scale methods previously tested by national institutions and local partners.

The overall objective is to restore degraded coral reef ecosystems and enhance their resilience to climate change, while safeguarding ecosystem services that underpin livelihoods, food security and biodiversity. The project adopts a regional approach, combining science-based restoration techniques, community engagement, capacity-building and knowledge-sharing between Mauritius and Seychelles.



Spider-frame installation in Blue Bay Marine Park, Mauritius. Portfolio Monitoring Mission - Mauritius and Seychelles
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Reef restoration community beneficiaries clean and maintain rope nurseries in Mauritius. Portfolio Monitoring Mission - Mauritius and Seychelles
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PROJECT COMPONENTS

The project is structured around three interlinked components:

- **Component 1: Mauritius – Enhancement of food security and reduction of risks from natural disasters through the restoration of degraded reefs**
- **Component 2: Seychelles – Enhancement of food security and reduction of risks from natural disasters through the restoration of degraded reefs**
- **Component 3: Knowledge management and sharing, training and sensitization to build regional capacity for sustainable reef restoration**

The first two components focus on restoring degraded coral reefs in Mauritius and Seychelles to strengthen food security and reduce disaster risk in coastal communities. Coral reefs provide essential habitats for reef-associated fish and other marine species that support local diets, artisanal fisheries and coastal livelihoods. Their degradation affects the availability of fish, the income of fishing communities and the resilience of households that depend on marine resources. Beyond their direct contribution to food security, coral reefs also function as natural climate adaptation assets. They help dissipate wave energy and storm surges, reduce coastal erosion, protect communities and infrastructure, and support tourism revenues that are increasingly exposed to climate variability and climate change. By maintaining these ecological, social and economic

functions, reef restoration contributes to ecosystem-based adaptation. It also strengthens the resilience of both marine ecosystems and the communities that depend on them.

The project applies the "coral gardening" concept for the active restoration of coral reefs through a two-step process. First, coral fragments or "nubbins" are raised in nurseries until they reach a target size and suitable health condition, after which they are harvested and transplanted into degraded reef areas. The project supports the upscaling of coral reef rehabilitation by using the best available science, lessons learned from pilot initiatives in both countries, and knowledge from coral restoration research undertaken globally. It focuses on coral colonies that have survived bleaching events and are therefore considered more likely to be resistant or resilient to climate change.

Nurseries and restoration sites have been targeted mainly within Marine Protected Areas (MPAs) in both countries. In Seychelles, however, Anse Forbans was selected as a pilot site outside an MPA to test the feasibility of reef restoration beyond protected areas. The selected locations provide a relatively protected and monitored setting in which to assess the effects of restoration activities scientifically. They also benefit from ecotourism infrastructure, making them suitable sites to demonstrate coral reef restoration for educational, capacity-building and ecotourism purposes. Locating activities within MPAs further helps reduce risks from uncontrolled fishing and other damaging practices. However, anchoring, tourism pressure and multi-use conflicts remain relevant stressors at several sites.

The project approach relies on the engagement of coastal communities, conservation organizations, protected area authorities and technical partners. By combining reef restoration with training, awareness-raising and local participation, the project seeks to strengthen national and community capacity to maintain restored reef areas over time.

Component 3 supports this approach by focusing on knowledge management, training and regional learning. It aims to document and disseminate lessons learned from implementation, facilitate exchange between Mauritius and Seychelles, and support development of practical tools and good practices for future coral restoration efforts. This component is important for building regional capacity and promoting the replication of sustainable reef restoration approaches in other vulnerable coastal and island contexts.



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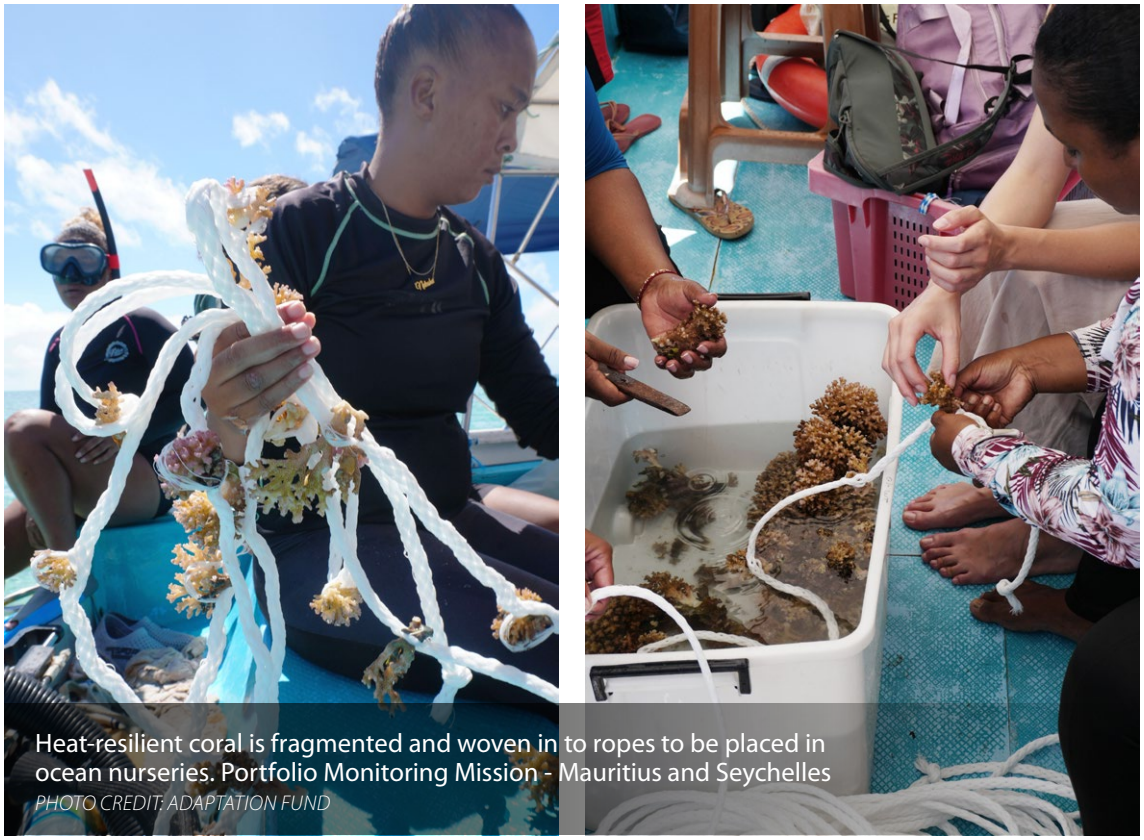
4. PROJECT PERFORMANCE

The Portfolio Monitoring Mission confirmed that the project has made substantial progress in advancing coral reef restoration as a practical ecosystem-based adaptation measure across Mauritius and Seychelles. Reef rehabilitation activities are under way across multiple sites through ocean-based and land-based coral nurseries, direct outplanting, microfragmentation, monitoring, applied research, outreach and complementary restoration techniques.

4.1 Quantitative Results

Numbers do not capture the full complexity of coral restoration, particularly in dynamic reef systems affected by bleaching, storms, sedimentation and local pressures. However, available figures help show the scale and direction of progress. They also point to the need to monitor frameworks that measure restored area, coral cover, survivorship, reef health and resilience rather than relying only on coral counts.

Restoration and Reef Recovery	Capacity, Knowledge and Outreach	Institutional and Technical Assets
Total reef area Restoration efforts have reached an estimated 3.5 ha to date.	**Training** More than 1,000 people were reportedly trained in coral restoration, monitoring, diving, nursery management and related skills.	**Aquaculture facility** Nature Seychelles established Africa's first large-scale, land-based coral aquaculture facility to support propagation, microfragmentation, research, training and controlled restoration.
Multiple restoration methods Ocean-based rope and table nurseries, land-based aquaculture, direct outplanting and microfragmentation were tested across different sites.	**Regional learning** Products such as the coral restoration toolkit, as well as partner exchanges, were supported under the knowledge management component.	**Protected area implementation** Many restoration sites are located within Marine Protected Areas (MPAs), with Anse Forbans testing restoration outside an MPA in Seychelles.
Signs of survival Partners reported observing encouraging signs of coral survival in selected sites, including after the 2024 bleaching event.	**Awareness and engagement** Schools, youth groups, volunteers, communities, private sector actors and conservation partners were engaged through outreach and sensitization.	**Monitoring evolution** The mission highlighted the need to harmonize indicators around restored areas, coral cover, survival rates and reef health.



Heat-resilient coral is fragmented and woven in to ropes to be placed in ocean nurseries. Portfolio Monitoring Mission - Mauritius and Seychelles
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4.2 Qualitative Results

The qualitative results below reflect the recurring signals that emerged from the mission. Taken together, they show a project that is restoring reefs and also building a wider adaptation model around technical learning, institutional capacity, environmental stewardship, and community and stakeholder engagement.

- Coral restoration has moved from isolated pilots towards more operational approaches. Partners in both countries have been able to test, adapt and scale different restoration techniques according to site conditions, institutional capacity and climate stressors.
- Restoration is increasingly understood as both an adaptation measure and a conservation activity. Reef rehabilitation is linked to food security, fisheries, coastal protection, biodiversity, tourism and livelihood resilience.
- The project has strengthened local and institutional technical capacity. Training in coral gardening, nursery management, monitoring, diving and restoration practice has expanded the pool of people able to support reef rehabilitation beyond the project period.
- The mission found that adaptive management is essential. Bleaching events, algal growth, sedimentation, anchoring, storm damage and operational delays required partners to adjust nursery depths, relocate structures, pause interventions, increase maintenance and refine site-specific approaches.
- The project has generated knowledge with value beyond the participating countries. Manuals, toolkits, research collaboration and field-based experience can help inform future coral restoration investments in other small island and coastal contexts.



Groups of beneficiaries support the project through maintenance and installation of coral nurseries. Portfolio Monitoring Mission - Mauritius and Seychelles
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SUCCESS FACTORS

The mission provided a clear view of the factors contributing to progress and the conditions that will influence the long-term sustainability of restoration efforts. The project has benefited from a strong technical foundation, experienced implementing partners, growing restoration capacity and increased recognition of coral reefs as critical assets for climate resilience. At the same time, sustaining these gains will depend on long-term financing, institutional ownership, continued technical capacity and effective stakeholder engagement beyond the project lifetime.

Success Factor	Evidence from the Mission	Why It Matters
Technical innovation and adaptive restoration	Partners successfully applied and refined multiple restoration techniques, including ocean-based nurseries, land-based aquaculture, direct outplanting, microfragmentation and the selection of bleaching-resistant coral colonies. The project has also supported coral spawning research, digital monitoring tools such as underwater drones and surveillance systems, and process innovations that link restoration to livelihood support and adaptive management.	Increased ecological resilience and enabled restoration activities to adapt to different site conditions and climate stressors.
Strong institutional and technical capacity-building	Non-governmental organizations, government agencies, protected area authorities, students, volunteers and community actors received training in coral restoration, monitoring, nursery management and diving.	Expanded the pool of national expertise required to maintain and scale restoration efforts beyond project closure.

Success Factor	Evidence from the Mission	Why It Matters
Stakeholder engagement and local ownership	Communities, youth groups, conservation organizations, researchers, volunteers and private sector actors were actively involved in project activities.	Increased awareness, strengthened ownership and built support for long-term reef conservation and restoration.
Institutional sustainability and financing mechanisms	Protected area mandates, conservation-related revenue streams and emerging private sector partnerships are helping establish pathways for continued restoration activities.	Improves prospects for maintaining restored reefs after external project financing ends.
Knowledge generation and regional learning	The project produced technical tools, manuals and training materials such as the restoration toolkit and research collaborations.	Creates a foundation for replication, scaling and application of lessons in other island and coastal contexts.



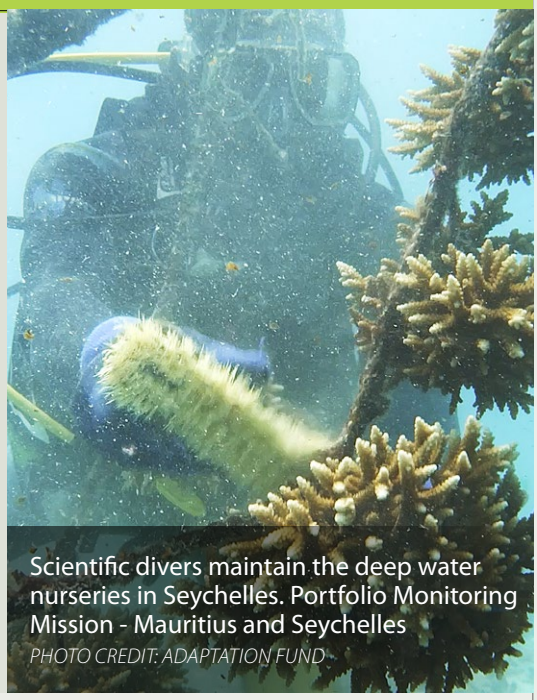
Beneficiaries load the boats with the tools and equipment for installation of a table nursery in Mauritius. Portfolio Monitoring Mission - Mauritius and Seychelles
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LESSONS LEARNED

The project offers practical lessons for adaptation programming in marine and coastal ecosystems. It shows that coral restoration can contribute to resilience when designed as a long-term ecosystem with institutional and community investment rather than as a short-term planting exercise.

Six lessons from project implementation in Mauritius and Seychelles

1. Coral restoration is most effective when it is adaptive, evidence-based and site-specific.
2. Reef rehabilitation should be measured through ecological function, not coral counts alone.
3. Community and stakeholder engagement must be designed with a clear sustainability pathway.
4. Institutional ownership and financing determine whether restoration gains endure.
5. Knowledge products and training are core adaptation results, not secondary outputs.
6. Regional projects need structured mechanisms for coordination, harmonized monitoring and joint learning from the outset.



Scientific divers maintain the deep water nurseries in Seychelles. Portfolio Monitoring Mission - Mauritius and Seychelles
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- **Coral restoration is most effective when it is adaptive, evidence-based and site-specific.** The project confirmed there is no single restoration technique that works across all reef contexts. Methods need to be tested, monitored, compared and refined as ecological conditions change. Bleaching cycles are particularly important because corals may need recovery periods before restoration can resume.
- **Reef rehabilitation should be measured through ecological function, not coral counts alone.** The mission highlighted that area restored, coral cover, coral survivorship and reef health provide more meaningful information than coral counts alone. Future monitoring frameworks should therefore harmonize indicators in ways that show ecological recovery and adaptation value more clearly.
- **Community and stakeholder engagement must be designed with a clear sustainability pathway.** Community participation and awareness-raising have been important achievements, particularly where restoration is linked to local livelihoods, fisheries, youth engagement and environmental stewardship. However, engagement based mainly on stipends may be difficult to sustain unless post-project incentives, institutional roles and local maintenance arrangements are clarified early.

- **Institutional ownership and financing determine whether restoration gains endure.** Restoration requires long-term maintenance, monitoring and technical staffing. Where activities are embedded in protected area mandates or supported by conservation-related revenue, prospects for continuity are stronger. Sustainability planning and resource mobilization need earlier and more detailed attention where partners depend mainly on grants.
- **Knowledge products and training are core adaptation results, not secondary outputs.** Manuals, toolkits, training, research collaboration and peer learning are central to resilience in technically complex fields such as coral restoration. They expand the capacity of countries and partners to respond to future climate impacts and to replicate successful methods in other locations.
- **Regional projects need structured coordination and joint learning from the outset.** The regional design added value, but collaboration across countries was more limited than expected. Future regional projects should include clear mechanisms for data-sharing, harmonized monitoring, technical exchange and joint learning so that implementation experience in one country can more directly inform practice in another.

IMPLICATIONS FOR FUTURE PROGRAMMING AND PORTFOLIO MANAGEMENT

Coral restoration holds strong potential as a long-term adaptation system that can deliver resilience when supported by the right enabling conditions. Future projects are well positioned to build on restoration gains by investing not only in structures and outplanting, but also in the institutions, financing models, monitoring systems and local capacities that allow restored areas to thrive over time. For the Adaptation Fund countries, this represents an opportunity to support marine ecosystem-based adaptation projects with clearer sustainability pathways from the outset. This includes defined post-project responsibilities, costed maintenance arrangements, and options for blended or private sector financing where appropriate.

Future projects can also significantly strengthen how results are measured and communicated for coral reef projects. Expanding monitoring beyond coral counts to include restored area, coral cover, survival



Rope nurseries in Blue Bay Marine Park, Mauritius.
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rates, reef health, biodiversity signals, and ecosystem services such as fisheries support and coastal protection would tell a much richer story about adaptation value. This would make it easier to demonstrate the contribution of reef restoration to community resilience; enable meaningful comparisons across sites; and generate the portfolio-level evidence needed to attract continued investment and learning.

For regional and multi-country projects, the experience to date points to opportunities to build more deliberate coordination architecture into project design. Embedding peer learning, harmonized indicators, joint technical reviews and structured exchanges from the start of implementation would unlock the full value of shared experience. This is especially promising in coral restoration, where lessons are highly context-specific but consistently valuable to other small island and coastal settings. This, in turn, makes structured knowledge exchange a powerful multiplier across the portfolio.

CONCLUSION

The Portfolio Monitoring Mission confirmed the project has significantly advanced coral reef restoration as an ecosystem-based adaptation approach in Mauritius and Seychelles. Through restoration activities, capacity development, stakeholder engagement and knowledge generation, the project has strengthened the resilience of both reef ecosystems and the communities that depend on them.

The project offers valuable lessons for SIDS, where coral reefs are critical to food security, biodiversity, livelihoods, tourism and coastal protection. It shows that coral restoration can be an effective adaptation investment when supported by strong institutions, sustained financing, adaptive management and clear monitoring systems.



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