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ROUSH MARINE PROTECTED AREA COMMUNITY, SOCOTRA

Yemen

Equator Prize Winner

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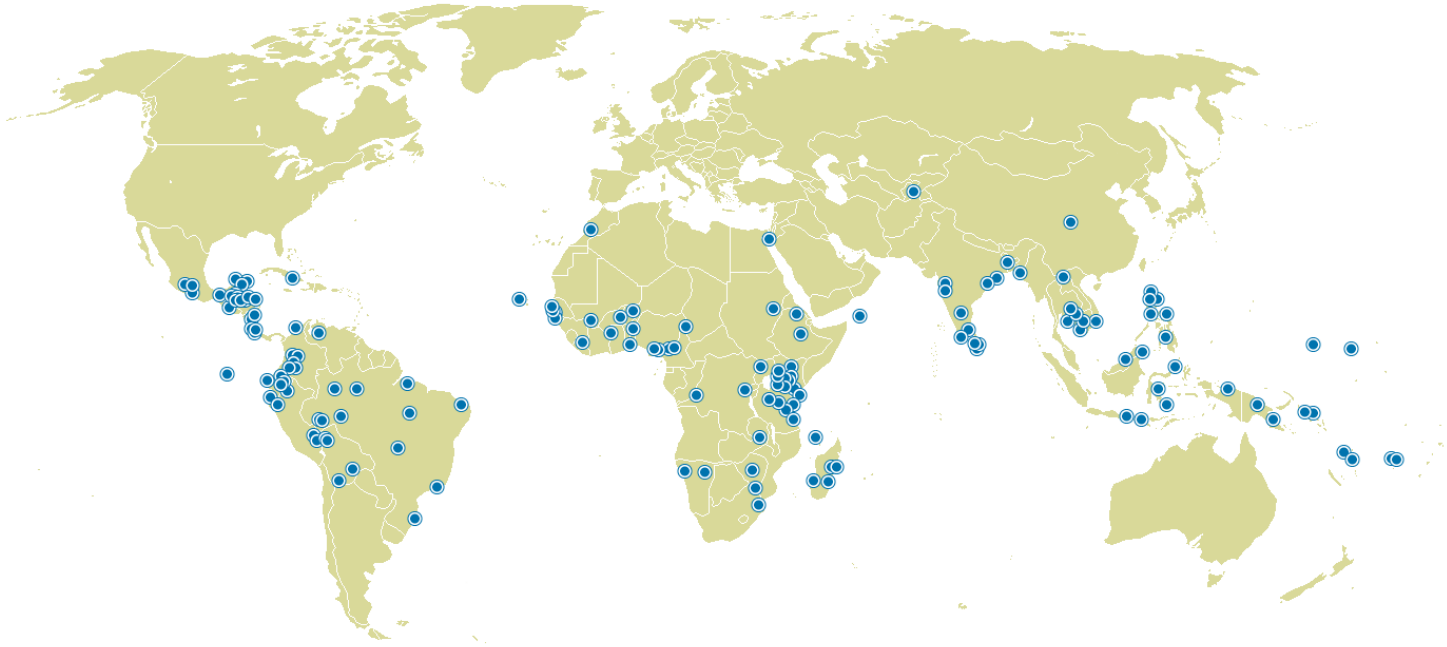
UNDP EQUATOR INITIATIVE CASE STUDY SERIES

Local and indigenous communities across the world are advancing innovative sustainable development solutions that work for people and for nature. Few publications or case studies tell the full story of how such initiatives evolve, the breadth of their impacts, or how they change over time. Fewer still have undertaken to tell these stories with community practitioners themselves guiding the narrative.

To mark its 10-year anniversary, the Equator Initiative aims to fill this gap. The following case study is one in a growing series that details the work of Equator Prize winners – vetted and peer-reviewed best practices in community-based environmental conservation and sustainable livelihoods. These cases are intended to inspire the policy dialogue needed to take local success to scale, to improve the global knowledge base on local environment and development solutions, and to serve as models for replication. Case studies are best viewed and understood with reference to '*The Power of Local Action: Lessons from 10 Years of the Equator Prize*', a compendium of lessons learned and policy guidance that draws from the case material.



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Editor-in-Chief: Joseph Corcoran
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Contributing Editors: Dearbhla Keegan, Matthew Konsa, Erin Lewis, Whitney Wilding

Contributing Writers

Edayatu Abieodun Lamptey, Erin Atwell, Toni Blackman, Jonathan Clay, Joseph Corcoran, Larissa Currado, Sarah Gordon, Oliver Hughes, Wen-Juan Jiang, Sonal Kanabar, Dearbhla Keegan, Matthew Konsa, Rachael Lader, Patrick Lee, Erin Lewis, Jona Liebl, Mengning Ma, Mary McGraw, Gabriele Orlandi, Juliana Quaresma, Peter Schecter, Martin Sommerschuh, Whitney Wilding, Luna Wu

Design

Oliver Hughes, Dearbhla Keegan, Matthew Konsa, Kimberly Koserowski, Erin Lewis

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Yemen

PROJECT SUMMARY

Roush Protected Area Community, Socotra, is located one kilometer north of Socotra, an island off the coast of Yemen. The marine protected area belongs to the communities of Sacra and Diherhom villages, and was developed in response to an observed decline in marine resources and fish populations. A conservation area and eco-campsite were established, and the initiative was later broadened to include conservation activities more generally.

The campsite has created local jobs and benefits are shared equitably amongst participating communities. The initiative follows principles of environmental responsibility, using solar panels for energy and undertaking sustainable management of water. In addition to the benefits of ecotourism revenues, Sacra and Diherhom villages have benefitted from increased stocks of fish and other marine resources.

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KEY FACTS

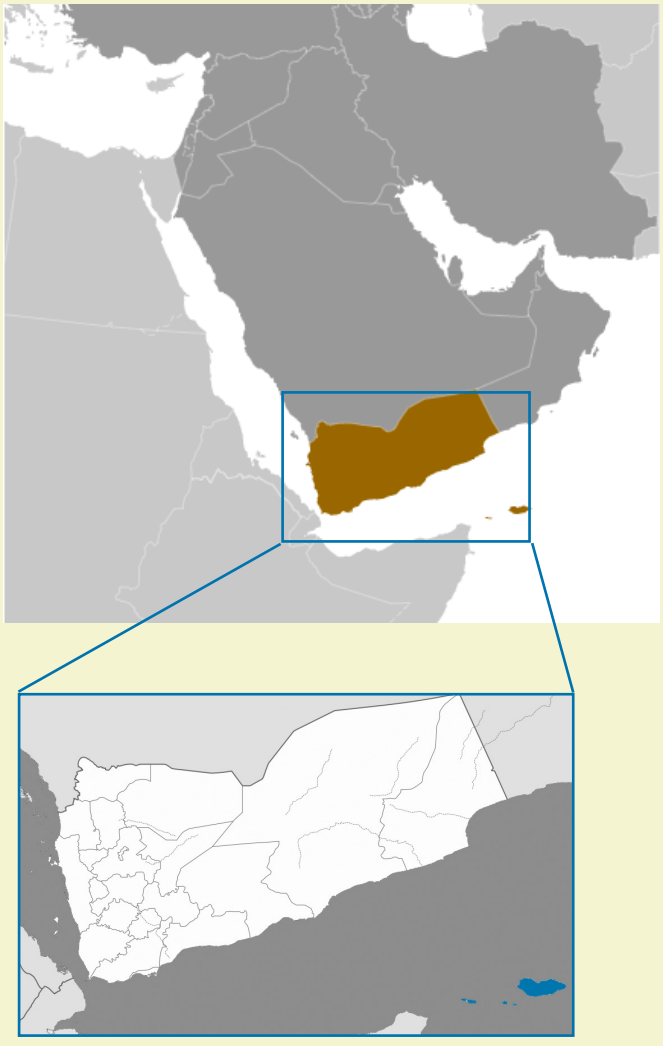
EQUATOR PRIZE WINNER: 2010

FOUNDED: 2000

LOCATION: Socotra Archipelago, Gulf of Aden

BENEFICIARIES: Sacra and Diherhom villages

BIODIVERSITY: Socotra Archipelago, World Heritage Site



Background and Context

The island ecology of Socotra

Socotra is the largest of four islands that make up the Socotra Archipelago. It is situated in the mouth of the Gulf of Aden in the northwest Indian Ocean and off the coast of Yemen. The archipelago has been called the "Galapagos of the Indian Ocean" for its exceptional biodiversity and species endemism. It has also been classified as a UNESCO World Heritage Site. Similar to the Galapagos, Socotra is in the desert and xeric shrublands biome and contains diverse and unique plant life. Socotra is home to 825 plant species, 157 of which are classified as critically endangered, endangered or vulnerable, including eight species of frankincense, dragon trees, and cucumber trees. More than 300 plant species are found nowhere else in the world.

The islands are home to 192 bird species, seven of which are endemic. The archipelago contains 22 areas which have been classified as 'globally important bird areas' by Birdlife International. Over 1,000 endangered Egyptian vultures live on Socotra, as well as six endemic species and 10 endemic subspecies of birds. Of 34 reptile species on the island, 90 percent are endemic, including six species of snakes, 15 geckoes, two skinks, two lizards, and one chameleon. The island also contains a labyrinthine subterranean cave system, which has not been fully explored and which likely contains additional undocumented flora and fauna.

Marine life in and around the Socotra Archipelago is a unique mix of species from the western Indian Ocean, the Red Sea, East Africa, and the wider Indo-Pacific. The coastal waters contain 253 species of reef-building corals, 730 species of fish, and 300 species of crab, lobster, and shrimp. Importantly, two globally threatened species of sea turtles – green and loggerhead – nest on the beaches of Socotra. Because the marine environment and reef systems surrounding Socotra are less degraded than much of the rest of the Indian Ocean, they serve as a significant source of replenishment and dispersal for surrounding areas.

Economic isolation

The same geographic isolation that has left Socotra's marine ecosystems and unique biodiversity relatively untarnished has left the island population economically isolated and marginalized. Socotra is among the poorest regions of Yemen. A majority of the population lives below the absolute poverty line with limited access to safe drinking water, to basic education, or to health services. Local livelihoods revolve around livestock rearing, date palm plantations,

small-scale trade, household gardens, semi-nomadic pastoralism, and, in coastal areas, fishing. Shark, king fish, and tuna are food staples of those on the island and the mainland, while lobster and reef fish are generally sold to fishing vessels from other countries. Local fishermen tend to be disempowered, lack agency and have relatively little control over the fish market, as commercial traders determine the price, quantity, and type of catch they collect from coastal villages. Because these villages tend to lack adequate storage and processing facilities, the bargaining position of local fishermen is compromised and weak, leaving them no choice but to accept whatever price is offered to them. Above and beyond its marine resources, the local population of Socotra relies on its terrestrial forests for livelihood, food security, nutrition, cooking fuel, construction material and heating needs. Growing pressure to meet these needs has increased the felling of trees (rather than just using dead timber) and is threatening endemic species such as *Maerua Angolensis* and *Metaporana obtusa*.

Roush Marine Protected Area

Roush is a marine protected area located roughly one kilometer off the northern coast of Socotra. The waters traditionally belong to the Sacra and Diherhom villages, which have a combined 800 inhabitants. Environmental conservation and ecological restoration initiatives began in the early 1990s, in large part a response to decreased productivity in local fisheries. Communities in the region began implementing strict rules on resource access based on traditional knowledge and locally adapted community-based natural resource management arrangements. Restrictions were placed on the use of certain types of (damaging and high-impact) fishing equipment, closed (or 'rest') periods and seasonal no-take zones were introduced, bans were imposed on fishing vulnerable species, and traditional fishing technologies were promoted as an alternative to bottom nets. In 2000, Roush gained official legal status as a marine sanctuary, a designation which completely prohibits fishing in the area. The community monitors and guards the area to ensure enforcement of prevailing rules.

In 2008, a local resident announced plans to sell a strategically important parcel of coastal land to an investor who in turn had plans to develop a large resort. The community intervened to retain control of the marine protected area. The landowner was convinced instead to participate in the establishment of an eco-campsite which would generate income for the entire community, and which would operate with the interests and needs of the marine protected area as its central preoccupation. With a start-up grant from the UNDP implemented GEF-Small Grants Programme, and with design support from the Socotra Zoning Plan, the community launched the campsite in 2009. The ecotourism enterprise offers visitors basic accommodations, food, souvenirs, and scuba-diving services, all of which emphasize environmentally sustainable approaches.

"Everything we have comes from nature. In Yemen, as in other parts of the world, we tend to care too much about building and modernization. But nature is where it all comes from. We would be wise to remember this fact every day, and at every new step in human development.."

Wagdi Omar Ali Ahmed, Roush Community

Key Activities and Innovations

The Roush community carries out a number of activities to ensure the conservation of its marine protected area, the smooth operation of the Roush eco-campsite, and the provision of alternative and sustainable livelihood options for members of the local community. In all of its activities, the community emphasizes participatory decision-making processes and operates according to benefit-sharing principles which ensure the inclusion of all community members in project design and implementation.

Conservation and monitoring

Before the marine protected area officially came into existence, and before the sanctuary status was legally codified in 2000, the Roush community implemented a customary resource management system which adhered to strict restrictions on fishing in the coastal waters. Because modern fishing methods, equipment and technologies were proving harmful to the overall fish supply, the community decided to reintroduce traditional, ancestral fishing rules which were originally developed so that the geographically isolated island population could be self-sufficient and meet all of its primary needs on a sustainable basis. These customary regulations included bans on nets that do not distinguish between mature and underdeveloped fish, on fishing with nets during 'moon nights', and on harvesting sea cucumbers (as they are instrumental to maintaining coral health). This community-based management system was invaluable in allowing marine life to regenerate, even prior to the ban on fishing in the sanctuary area. Today, community members use boats to monitor and guard the marine protected area. Particular energy is invested in monitoring outside fishing vessels and foreign fishermen, specifically during the sea cucumber harvesting season.

Operation of the eco-campsite

The community oversees the maintenance and management of the Roush eco-campsite and protection of the surrounding land. The eco-campsite uses sustainable technologies that are in line with industry standards and makes use of traditional building techniques, using natural, locally-available materials. The structures of the site are built in traditional stone and palm leaf style to fit the Socotran environment. The campsite is powered by solar energy. Rather than a conventional drainage system, water from the eco-campsite runs into a system that irrigates a local forest area. The site also uses a sustainable waste management system to minimize negative impacts on the environment. The community holds regular meetings to evaluate the eco-campsite's performance and to engender a sense of shared ownership of the enterprise. All community members engage with the business in some way, shape or form – some through direct employment, others by providing supplies, and others still by way of community benefit sharing.

Community benefit sharing

In all of its activities, the community follows a benefit sharing principle which dictates that both decision-making for and benefits accruing from the marine protected area belong to the entire community. The benefit-sharing principle is a guide for the community to distribute monetary and material benefits from their activities as equitably as possible. When divers hire the boats of local fisherman, there is a community system in place to ensure this happens on a rotating basis for equal opportunity. Local goods and services providers that fill eco-campsite needs are also sourced on a rotating basis. Revenues generated from the eco-tourism venture are reinvested into community works projects, which have to date included water pipes, a community freezer (to store fish), and conservation patrol needs. Any revenues remaining after investments are made into community infrastructure needs are distributed among community members according to family size.

All male members of the community participate in decision-making for the marine protected area. Decisions are taken both by consensus and majority. Social and religious norms on Socotra tend to exclude women from participation in public life. However, the Roush committee has incorporated women into community activities and small-scale business development opportunities. Women also participate in trainings, awareness campaigns on conservation, and management discussions when the projects in question are seen to directly relate to women's domains. This can also happen on a demand-driven basis from local women. For example, a local widows' group put in a request to the Roush committee for support opening a vegetable farm to produce food for the eco-campsite and the market in Hadibo (Socotra's capital). The farm is now a priority in the village development plan.

Impacts

BIODIVERSITY IMPACTS

Local residents and fishermen note an increase in fish variety and abundance since the area was declared a marine sanctuary. Specifically, the area now contains larger populations of grouper and white fish, lobster, sea cucumber, and sharks. The final report of the Marine Habitat, Biodiversity and Fisheries Surveys from 2002 reports 250 species of fish in the sanctuary. Eleven of these 250 species are butterfly fish, which are considered indicator species of healthy coral reefs. Local fishermen also note an increase in daily catch size in waters outside the protected area.

The eco-campsite plays an important role in protecting marine biodiversity, giving visitors a place to stay as they bring non-fishing income into the community. This enterprise reminds community members of the economic benefits associated with their conservation efforts. The community has also constructed a unique system for recycling water used in the campsite, which then irrigates local forests (or tree stands). This system supports the growth of *Adenium socotranum* and *Jatropha* trees, both of which are endemic to Socotra. The roots of the *Adenium Socotranum* protect against soil erosion and its trunk often houses shellfish. Revenues from the ecotourism enterprise also allow the community to pursue expanded conservation activities, including most recently special protections for lobster habitats and construction of a jetty which allows boats to anchor without damaging coral reefs or vulnerable shoreline areas.

SOCIOECONOMIC IMPACTS

The island archipelago is home to 44,000 people, most living on Socotra near the capital Hadibu and the town of Qalansya in the east. As the capital city, Hadibu is the commercial center of Socotra and where local fishermen sell their products. The villages of Sacra and Diherhom have been the principle drivers of the initiative. The socioeconomic benefits resulting from their action, however, have extended well beyond these locales. Greater fish stocks and resource abundance have translated to improved livelihoods for local fishermen and food security for the entire local population. Operation of the marine protected area has created a conservation economy, where new jobs and alternative livelihoods come from restoring local biodiversity and ecosystems rather than from exploiting them. The socioeconomic benefits resulting from the project have also been equally distributed amongst the local population through the application of a benefit-sharing principle.

The best illustration of the conservation economy in practice is community operation of the eco-campsite. In its first year alone, the eco-campsite brought in 1.5 million rial (equivalent to USD 7,000). The ecotourism enterprise has created jobs and income-generating opportunities for a population with few alternative livelihood options. The eco-campsite directly employs ten members of the community on a full-time basis. The business also sources its food, materials and services from the local community, which has created indirect employment and income-generating opportunities.

On a rotating basis, individuals and suppliers from the local villages provide fish, meat, vegetables, artisanal handicrafts, guiding services, boat rentals and more to the eco-campsite. Local women also produce traditional souvenirs such as woven belts (*habwa*), handmade carpets, blankets, and frankincense in palm leaf boxes which are all sold at the campsite. One popular item amongst visiting tourists is the so-called 'dragon's blood': a bright red resin collected from the *Dracaena cinnabari* tree, which is endemic to Socotra. The resin was a valuable trade product in ancient times and was used both as a dye and for its medicinal properties.

Two thirds of revenues from the eco-campsite have been reinvested into the enterprise to enhance its services and to fund community works projects, including a water pipe system, purchasing a commu-

nal freezer for fishermen to store their products, and construction of a safe anchoring spot for boats (to limit damage to local coral reefs). As one example of how these seemingly small interventions can be transformative, by purchasing a communal freezer, local fishermen are now in a much stronger bargaining position with traders and middlemen and have managed to even the playing field for what was an asymmetrical power relationship. With no storage and freezer for fish and marine resources, community fishermen were disproportionately dependent on middlemen to purchase their catch; they did not have the luxury of time to negotiate better prices for their products. These same fishermen can now store their products and demand more equitable prices for their catch. Ecotourism revenues have also been reinvested in local conservation efforts, such as the restoration of lobster habitats.

Roush community marine conservation initiatives have also provided the local population with access to training and workshops, which have built local capacity and transferred new skills to economically marginalized villages. Trainings have been offered in protected area management, eco-tourism, food preparation and catering, computer literacy and English language instruction.

POLICY IMPACTS

The Roush community experience in marine protected area management has had a number of policy impacts, with implications for resource management and conservation not only in Socotra, but across Yemen. Both the Environment Protection Authority (EPA) and the Ministry of Water and Environment have expressed interest in using the project as a model for replication and best practice transfer. The community has also assumed a leadership role in pushing for stricter regulations over marine resource access and extraction. As one example, fishermen in Roush agreed to a ban on line fishing and diving for sea cucumbers within the marine protected area. This community action and leadership resulted in the formal adoption (and subsequent regulation) of this ban by the EPA. Similarly, the Roush community successfully lobbied the EPA to outlaw the chewing of qat in the marine protected area; a regulation which has been adopted by all protected areas in Yemen. Quat leaves, a legal and commonly-used narcotic stimulant in Yemen, are sold and distributed in plastic bags which were being discarded and causing problems for marine biodiversity.

"We are grateful on Socotra to have the support of our government. Having supportive policies in place that are responsive to our needs makes all the difference in the world for our capacity to conserve biodiversity."

Wagdi Omar Ali Ahmed, Roush Community

Sustainability and Replication

SUSTAINABILITY

The Roush marine protected area, along with the community initiative which brought it into being, is designed to be environmentally, socially, and financially sustainable.

The approach taken to construction and operation of the eco-campsite make it self-sufficient and self-sustaining from the rest of the island. Solar panels, waste water systems, and waste management procedures have all been put in place to ensure long-term sustainability and as little impact on the surrounding environment as possible. With future revenues from the ecotourism venture, the community has ambitions to extend renewable energy service to the villages as well.

In terms of social sustainability, the initiative has succeeded (and will hopefully do so into the future) as a result of community ownership of and participation in project activities, decision-making and strategic planning processes. Social solidarity underpins the capacity of the community to take collective strides towards a common vision. This solidarity and local commitment has been reinforced and incentivized through a benefit-sharing principle. By reaping the economic, social and environmental benefits that result from equitable benefit-sharing, community members are motivated to conserve biodiversity instead of exploiting it in destructive ways for personal and short-term benefit. This is true at the level of the individual and at that of the village. Benefit-sharing has created greater income for individuals, but has also resulted in the channeling of revenues into village infrastructure and service provision (as in the education and health sectors).

The financial sustainability of the project is closely tied to environmental sustainability in the region, and in particular the ongoing protection and restoration efforts being undertaken in the marine protected area. The sanctuary is among the most valued scuba-diving sites in the region, and will continue to attract tourists who have an interest in experiencing and seeing its unique biodiversity first hand. Tourist dollars will continue to come into the community, so long as ecosystem integrity and biodiversity richness is maintained. The business model is sound; after only one year, the eco-campsite has achieved operational sustainability. The community also has plans to expand the enterprise to provide an even wider range of services.

REPLICATION

The Roush community initiative has actively reached out to neighboring communities who hold similar conservation, marine resource management and sustainable livelihoods goals but who have not yet set up initiatives of their own. Two communities – Agales and Timre – have created marine protected areas in the mold and image of the Roush model. Knowledge exchange and peer-to-peer site visits have been critical in the transfer of good practice, know-how and lessons learned. This has also resulted in improved overflow capacity for handling scuba-diver tourists; when Roush is overwhelmed with more than five scuba-divers (this is the maximum limit in the marine protected area), they send overflow to Timre. In this way, neighboring communities are profiting from ecotourism and seeing first-hand the benefits that come from conservation. This has spawned five other protected are campsites on Socotra, including Wadi Ayhaft near Hadibo.

PARTNERS

The UNDP implemented GEF-Small Grant Programme in Yemen has provided technical and financial support to the community, and was particularly helpful during construction of the eco-campsite and with lobster habitat conservation projects.

The Environment Protection Authority of Socotra and the Ministry of Water and Environment have provided workshops and lectures for members of the community. They also provided legal and administrative support in creating the protected area and eco-campsite, and were instrumental in codifying a number of bans and regulations, including diving for the collection of sea cucumbers in the marine protected areas, net-fishing, and chewing of qat in the protected area. The Ministry of Tourism in Socotra was also cooperative in setting up the qat-chewing ban, and has also provided advice and cooperation in eco-tourism issues generally.

UNDP-bilateral donors, including Socotra Conservation and Development Program (SCDP), supported the Roush initiative from 2003 until 2009, when the UNDP-GEF Socotra Governance and Biodiversity Project became involved. In 2008, SCDP donated funding toward the construction of the eco-campsite. UNDP-GEF Socotra Governance and Biodiversity Project has played an advisory role in Roush. They have assessed and enhanced management capacity in the protected area.

FURTHER REFERENCE

- Video: 'Concern as Yemen ecotourism grows', 2010 (YouTube) http://www.youtube.com/watch?v=18OUnhB9wwo
- Roush Protected Area Community Photo Story (Vimeo) http://vimeo.com/15748106
- Socotra Governance & Biodiversity Project website http://www.socotraproject.org/

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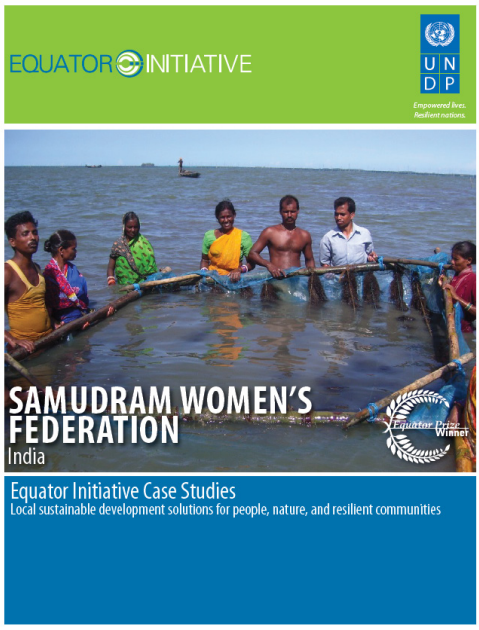

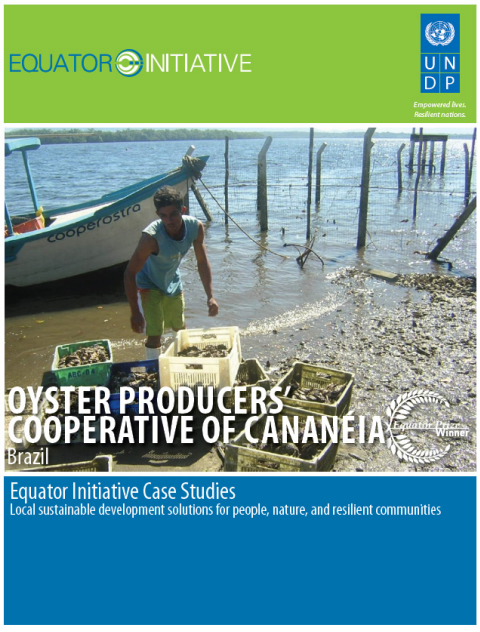

Equator Initiative
Environment and Energy Group
United Nations Development Programme (UNDP)
304 East 45th Street, 6th Floor
New York, NY 10017
Tel: +1 212 906-6691
Fax: +1 212 906-6642
www.equatorinitiative.org

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The Equator Initiative brings together the United Nations, governments, civil society, businesses and grassroots organizations to recognize and advance local sustainable development solutions for people, nature and resilient communities.