Republic of Seychelles

MINISTRY OF INVESTMENT ENTREPRENEURSHIP AND BUSINESS INNOVATION (MIEDBI)

COUNTRY REPORT

Establishment of Local and Regional Innovation Ecosystem for Reef Restoration

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Citation. In: Unesco, 2105. Proceedings of the International Training Workshop: Establishing The Regional Innovation Platform based on STP. UNESCO-WTA.

Introduction

The Republic of Seychelles is a small island developing states (SIDS), consisting of 115 islands extending between 4 to 10 degrees south of the equator in the Indian Ocean. Out of these islands only 16 are inhabited. Of this mid-oceanic archipelago, 41 of its islands are granitic islands while 74 are the low-lying coral reef atoll considered as outer islands.

The Seychelles has a population of 90,945 inhabitants according to the last census of 2010 published by the National Statistic Bureau (NSB), of which 9% are working foreign workers, mainly employed in the tourism sector. Seychelles has the smallest population size in Africa, with a landmass of only 457 km2, spread over an Exclusive Economic Zone (EEZ) of 1,374,000 km2. The landmass is 25% to of the national territory, thus making the ocean space an important resource to its socio-economic development. While tourism remains the leading sector, fisheries and the offshore sectors are evolving into important economic pillars.

With the latest promotion of the Blue Economy concept of development, the focus on marine space development has never been so much emphasized in the national strategic development plan. The overarching vision for Seychelles as a SIDS; is the concept of sustainable development. However, in the midst of an ever-increasing threat to climate change adversities and impacts, it leaves Seychelles with no alternatives than to be innovative in its approach to socio-economic development in the face of climatic adversities.

Many tend to view 'innovation' mainly in technological and economic terms, seeking new products based on the latest technological development or private sector entrepreneurship that creates and fills a market niche (Kelman, 2015). It is further seen that while most countries are developing Innovation Ecosystem to spearhead technological development in electronics, information and communication technology (ICT) and other areas of the fourth wave innovation, the Seychelles has embarked on innovative ways to mitigate the impact of climate change. One of the areas is using innovation in environment protection and restoration.

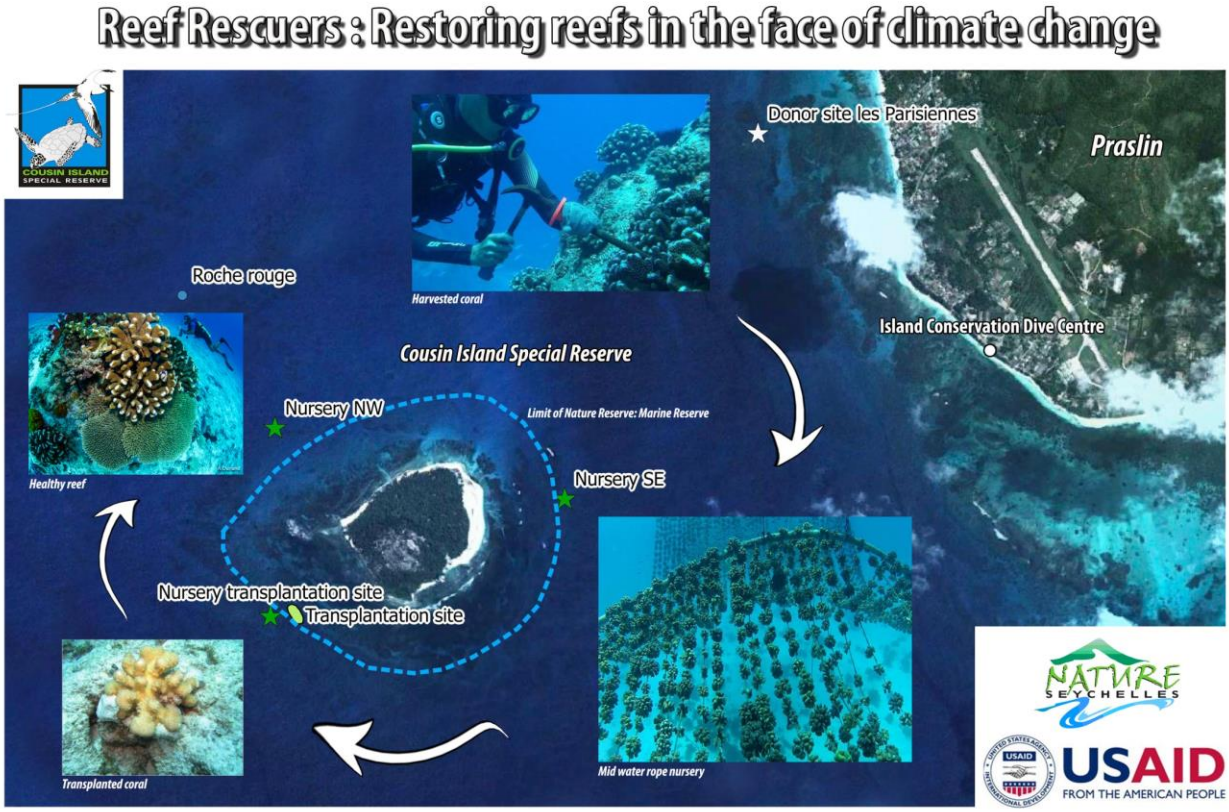
Innovation Ecosystem for Environment Protection

According to Shah, Montoya-Maya & Frias-Torres (2015), in 1998 something broke the symbiosis between coral polyps and their zooxanthellae. Water temperatures increased more

that 1 degree Celsius over the typical maximum temperatures over many months. When this happens, the coral polyps can no longer host the algae inside and throw them away (they actually "vomit" them). If this situation lasts for more than two weeks the corals die (Shah, Montoya-Maya & Frias-Torres, 2015).

Shah, Montoya-Maya & Frias-Torres (2015) state that in Seychelles, 97 % of the coral reefs in the granitic islands died. This caused an ecological shift, so it went from a high diversity, high structure coral reef habitat, to a low diversity, low structure dead coral rubble habitat.

Natural recovery has been very slow. Scientists believe it is because the Seychelles islands do not receive coral larvae from other places, so they depend on self-recruitment; meaning the breeding corals have to be alive in the islands (Shah, Montoya-Maya & Frias-Torres 2015). This is a situation when coral reef restoration is needed i.e. to help the coral reef start up again in a place that has been destroyed. This colossal challenge demands innovation. It needs to help nature to heal itself.



Courtesy of Nature Seychelles (2015)

Nature Seychelles as a non-governmental organization (NGO) has adopted the approach of an innovation ecosystem in its ambitious coral reef restoration in situ. It took the advantage of the impetus of the government promotion of the Blue Economy concept, Marine Spatial Plan as well as the reinforcement of new laws and regulations with respect to marine ecosystem and mariculture.

The demand factor is influenced by the fishing industry, that requires healthy coral reefs for sustainable fish stocks, the tourism industry which pride itself of being a unique destination in the world, and the private sector, mainly companies that depend on the ocean for their survival.

In real life situation, this project would not have been launched if it would depend on the local manpower in terms of scientific and research expertise. Nature Seychelles went round this in an inventive way by sourcing for prominent scientists in the domain of reef restoration around the globe as well as sourcing for external funding for the project. Local public private partnership has also been created to support this national project. Students from the University of Seychelles as well as other educational institutions are also involved in the project; exposing the young scientists to this great scientific endeavor.

To support the project, new infrastructure has been built on different islands as well as the main island, where the NGO is based. On the second main island, Praslin, locals are employed in providing logistics to the project, as well as being gradually drawn into the reef gardening process. Recently CNN Inside Africa has featured the project to the world viewers; http://edition.cnn.com/videos/intl_tv-shows/2015/06/29/seychelles-biodiversity-inside-africa-b-spc.cnn/video/playlists/intl-inside-africa

The reef restoration project takes advantage of the ingrained local culture with regards to the marine environment protection, whereby, Seychelles has been a leader amongst the SIDS.

Nature Seychelles has indeed embarked on a project that is tackling global issues within the context of an innovation ecosystem despite at this stage the same remains a pilot scheme. However, as Kelman (2015) states, island communities encapsulate many of the sustainable development challenges facing humanity today, Seychelles even being a SIDS has taken a bold initiative through innovation to rehabilitate its coral reef that was over 97% destroyed by the impact of climate change.

Establishment of Innovation Ecosystem in Regional Innovation Platform for Coral Reef Restoration

The impact of coral bleaching has not only affected the Seychelles coral reefs but the southern region of the Indian Ocean as a whole. This includes, Mauritius, Reunion, Comoros, Mayotte and part of Madagascar.

Different island states have developed different approach to coral reef restoration. While there are not a lot of information on the other Indian Ocean island states with regards to reef restoration, in the case of Mauritius, it is of a different approach to that of the Seychelles. Mauritius has adopted more of a community-based approach, which is more conducive to its more stratified structure of its local communities. Community integration and active participation is most importantly to improving local stewardship, which is an essential element to the successful implementation and sustainability of the project. Another difference between the two island states is that Mauritius has developed expertise in genetics of coral reefs and implement training workshops as well as leads on a study of genetic connectivity of reefs in the countries; whereas in the case of Seychelles, it has developed a competitive advantage in practical training in the field.

The expertise of both island states may complement each other in fostering of an innovation ecosystem at regional level. This is vital to the regional coral reef rehabilitation, which provide the basic resources to both economies. Secondly, within the regional integrating body, the Indian Ocean Commission (IOC), both states may further propagate their experiences and knowhow to other states of the Southern Indian Ocean region.

Nature Seychelles is already envisaging of creating an industry out of this innovation through the strategic road map of the Blue Economy. Mauritius is also integrating all aspects of ocean sciences into its own national strategy of ocean economy. There are already joint projects in the pipeline between Seychelles and Mauritius, as well other members of the IOC acting together to attract international funding as well as private investments

Conclusion

Despite the alarming loss of its coral reefs, the Seychelles is determined to restore its marine ecosystem through innovation. In the local context, the marine ecosystem is vital to the survival of this Southern Indian Ocean SIDS. Nature Seychelles has developed an innovation ecosystem to meeting this daunting task. Combining forces despite the differences in approach to reef restoration particularly with Mauritius, this local-based NGO is developing a regional innovation ecosystem platform that will help restoring the region marine ecosystem, which is vital to the economies as well as ensuring food security. This regional platform may go a long way in creating industries that can be propagated on a global scale.

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