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NAMDRIK ATOLL LOCAL RESOURCES COMMITTEE

The Marshall Islands

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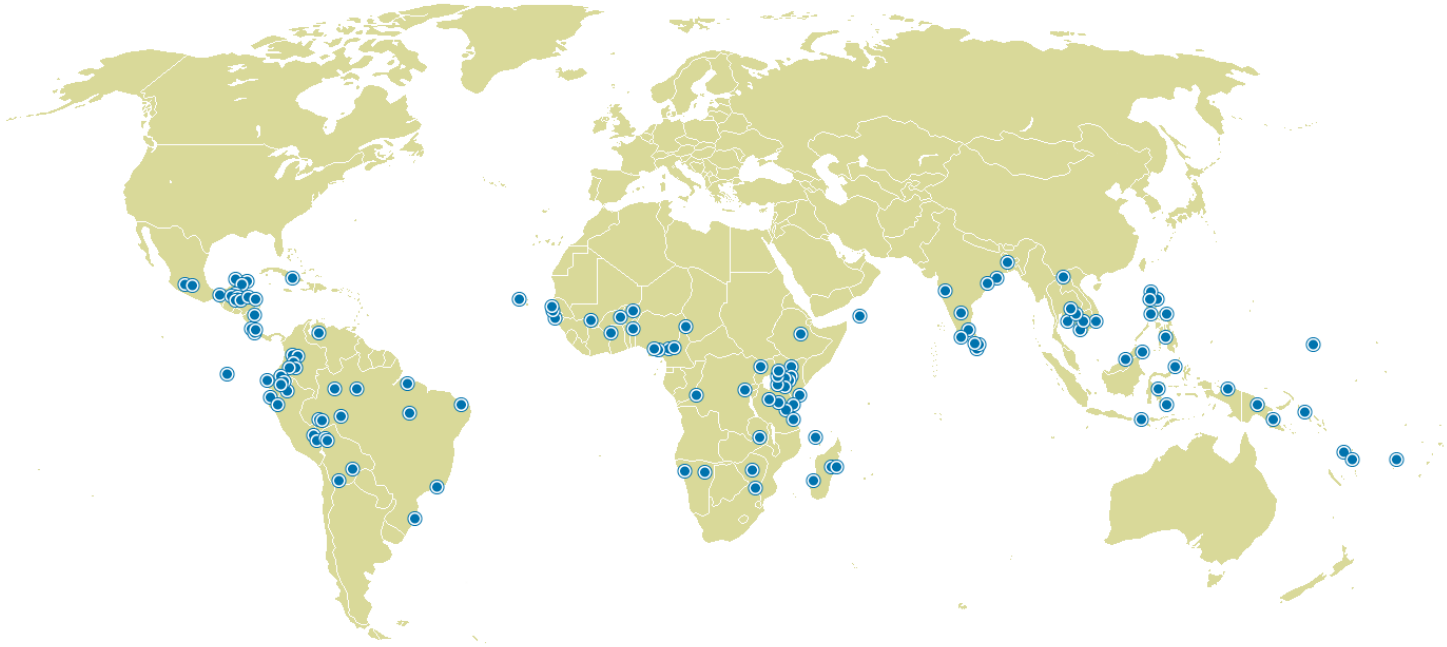
Local and indigenous communities across the world are advancing innovative sustainable development solutions that work for people and for nature. Few publications or case studies tell the full story of how such initiatives evolve, the breadth of their impacts, or how they change over time. Fewer still 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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NAMDRIK ATOLL LOCAL RESOURCES COMMITTEE

The Marshall Islands

PROJECT SUMMARY

Namdrik Atoll Local Resources Committee promotes a holistic model of community self-sufficiency, local food security and adaptation to climate change in Namdrik Atoll in the Marshall Islands. To reduce reliance on declining fish stocks, the Committee reintroduced traditional crops like breadfruit, taro and pandanus, which restore soil and open value-added secondary processing industries for local communities.

A Pearl Farm was established to provide jobs and revenue to fund community development projects in education and health. Mangroves were planted to restore the shoreline and training in rainwater harvesting is providing the community with access to safe drinking water. The initiative is entirely community-owned and fuelled by local leadership. It has provided a model for sustainability that has been replicated in other atoll communities across the Pacific.

KEY FACTS

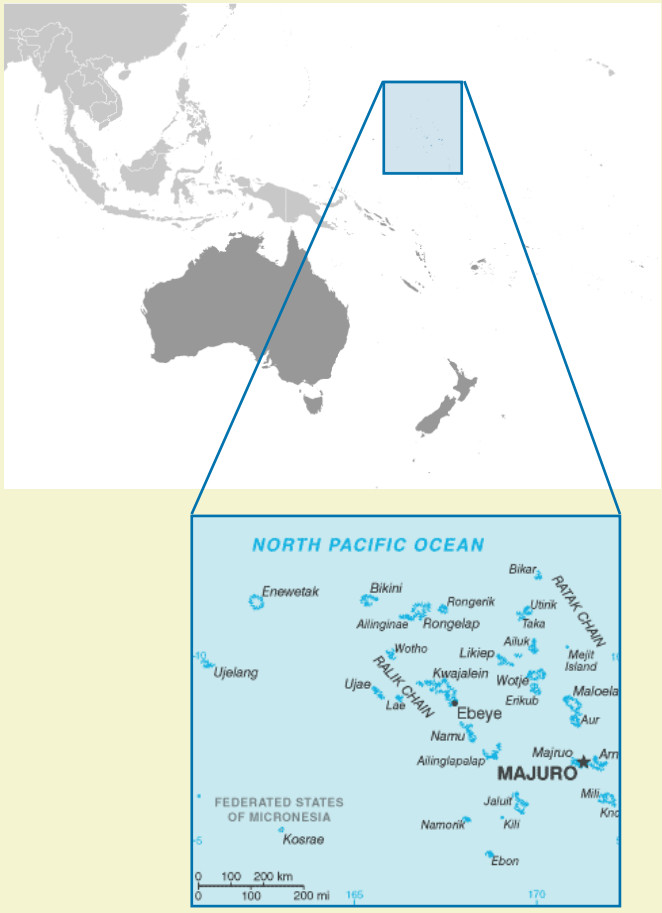
EQUATOR PRIZE WINNER: 2012

FOUNDED: 2007

LOCATION: Namdrik Atoll, western Marshall Islands

BENEFICIARIES: Namdrik's 600-strong population

BIODIVERSITY: Marine Protected Area, mangrove forests



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Background and Context

Namdrik Atoll is located along the western reaches of the Republic of the Marshall Islands, in the archipelago's Ralik (Sunset) chain of islands. The Atoll is situated 240 miles west-southwest of Majuro, the Marshall Islands' main centre of population. Namdrik Atoll consists of just two low-lying islands, Namdrik and Madmad, which house the eight villages of Zulu, Betol, Majol, Jinai, Rantak, Elmon and Madmad. The two islands have a combined land area of just 1.07 sq. miles and encircle a 3.25-sq. mile lagoon.

The majority of the Atoll's approximately 600-strong population is concentrated in the south-western part of the larger Namdrik Island, where a freshwater lens is located. The majority of the Atoll's assets and buildings are located on the lagoon side of Namdrik. The Namdrik community relies heavily on local natural resources to meet daily needs. Marine resources provide for subsistence needs and a small amount of income generation, but the Atoll's main sources of income are copra production and the sale of handicrafts to the main Marshallese centres of Majuro and Kwajalein.

The Marshall Islands' isolation and relatively low population mean that the region harbours some of the world's most pristine coral reefs and richest terrestrial biodiversity. The Marshall Islands lie within Conservation International's Polynesia-Micronesia Biodiversity Hotspot with the northern Marshall Islands forming the Key Biodiversity Area of Kabin Meto. A wealth of marine biodiversity, including over 1,000 species of fish, 362 species of coral, 40 sponges, 1,655 molluscs, 728 crustaceans, 128 echinoderms, 27 marine mammals and five turtle species, has already been recorded in the Islands, with new species undoubtedly remaining to be discovered. About 700 land animals (mostly insects) have also been identified.

Namdrik Atoll is no exception to this abundance of biodiversity, harbouring a wide array of marine and terrestrial species. The Atoll is almost unique among Marshallese atolls in exhibiting concentrated numbers of the black-lipped oyster (*Pinctada margaritifera*) which are believed to thrive in Namdrik's lagoon due to the Atoll's unusual

formation. Three mangrove swamps (Ajelto, Lobat and Madmad) can also be found in Namdrik Atoll, which provide habitats for mangrove crabs. The Atoll is also home to a number of catfish species, the amphibious mudskipper and the Mantis shrimp (*Lysiossquillina maculate*). Mangrove swamps and surrounding systems support tree species including the kanal (*Pisonia grandis*), kojbar (*Neissosperma oppositifolium*), wop (*Barringtonia asiatica*), jon (*Bruguiera gymnorrhiza*) and bulabol (*red mangrove*), some of which are rare or endangered. The Atoll also supports a number of different species of banana.

Threats from climate change

Atoll islands such as Namdrik consist of accumulations of sediment on top of coral reefs, and typically have highly dynamic shorelines

that are constantly being reshaped by the forces of erosion and accretion. The Marshall Islands are thought to have breached the sea's surface between 2,000 and 4,000 years ago as a result of a slight lowering of the sea level. Local stories and recent climatic records together indicate that the Marshall Islands' biodiversity, land and people have endured constant pressure from typhoons and droughts ever since. The low elevation and fragile equilibrium of atoll islands make them some of the most vulnerable landforms with regard to the impacts of climate change.

It is now widely accepted that climate change poses a major threat to low-lying island states such as the Marshall Islands. In the near term, storm surges and flooding threaten infrastructure and livelihoods, while longer term threats include rising sea temperature and ocean acidification with resultant coral bleaching. Ultimately, islands such as the Marshalls could face complete inundation as a result of sea level rise. Sea level rise also threatens freshwater sources through the encroachment of saltwater into the fragile freshwater lenses that sustain agriculture and ecosystems. As one of the lowest-lying atolls in the Marshall Islands, Namdrik is particularly vulnerable.

In 2007, Namdrik's tribal chiefs, elders, and local government authorities reached out to government and NGO partners to request support in initiating a community-based resource management action plan in order to address a number of issues that were leading to environmental degradation and affecting the quality of life on the Atoll. During that year, Namdrik was selected to participate in marine and socioeconomic assessments led by the Secretariat of the Pacific Community (SPC). Due to logistical difficulties, however, these surveys never took place.

The following year, the atoll's leadership requested the development of a community-based resource management project under the Marshall Islands Marine Resources Authority (MIMRA) and other partners in the Coastal Management Advisory Council (CMAC) such as the College of the Marshall Islands and the Marshall Islands Conservation Society. Initial efforts as part of this partnership included the revival of community-based pearl harvesting, with support from New Zealand Aid, the UNDP-implemented GEF Small Grants Programme, and research institutes from Hawaii and Micronesia, as a first step in encouraging conservation of the Atoll's resources.

During 2009, these early conservation and livelihoods activities evolved into a fully-fledged natural resources management initiative. In partnership with relevant government agencies, a Resources Management Plan for Namdrik Atoll was developed, informed by a series of community workshops involving representatives of different groups from the Atoll community. Held over the course of a week in September 2009, successive workshops brought together local government representatives, Namdrik Council, key landowners, and the Atoll's Men's and Women's Groups for a series of participatory planning and mapping exercises.

The resultant plan puts mitigation of the impacts of climate change at the centre of development planning, while simultaneously aiming to address a range of environmental threats that were identified through consultation with the community. The issues identified include waste management, declining fisheries, erosion and flooding, invasive species, threats to mangroves, and the impacts of shifts in the seasons. Although many of these issues are naturally occurring, they have the potential to be significantly worsened by the impacts of climate change.

Namdrik Atoll Local Resources Committee

Under the leadership of the Mayor of Namdrik (Clarence Luther), the Senator (Mattlan Zackhras), representatives of local government, and tribal leaders, the community as a whole engaged in a process to define the issues and identify concrete actions that could be taken to address them. This process led to the development of the Resources Management Plan for Namdrik Atoll, and the establishment of the Local Resources Committee, charged with management and oversight of the plan's implementation. The Committee is comprised of the Mayor of Namdrik, three representatives of Namdrik Council (or Alaps – a group of the community's elders), two representatives of the Atoll's Women's Group, two representatives of the Men's Group, one representative of the Teachers' Group, one youth representative, and one representative each of the Atoll's Lijabkanira and Wut Kajdo Groups. The Committee works closely with the Marshall Islands Marine Resources Authority (MIMRA), the Marshall Islands Conservation Society and the College of the Marshall Islands for advice and technical support.

The specific responsibilities of the Committee include:

- Developing an annual work plan to guide the yearly implementation of the plan's activities and the achievement of its objectives;
- Making sure that the responsibilities of the community under the plan are carried out properly;
- Working closely with MIMRA and CMAC partners to ensure their obligations are carried out;
- Reporting on the progress of the Resources Management Plan's development to the community and to Namdrik Government Council;
- Arranging community workshops and gatherings;
- Representing the interests of the Namdrik community in national and regional gatherings in matters concerning marine environment and fishery resources;
- With assistance from MIMRA, establishing processes that lead to the formulation and approval of Fisheries Management Ordinances; and
- With assistance from MIMRA, determining conditions and licensing fees for consideration and approval of the Local Government Council.

The focus of the Committee's work is on resilience and adaptability. Despite being in one of the most vulnerable nations in the world to the impacts of climate change, the Namdrik community has taken a strong and proactive leadership position and is taking decisive action to ensure that both their natural resources and their way of life are as resilient as possible to whatever future challenges they may face.

Key Activities and Innovations

As a small and isolated community, highly dependent on local natural resources, threats to Namdrik's fragile ecological equilibrium inherently threaten the health and sustainability of its community members' livelihoods. In order to build resilience to environmental threats and to climate change in particular, the Resources Management Plan focuses on core issues including food security, sustainable livelihoods, and the creation of opportunities for young people, within the context of improving natural resource management. Since 2007, Namdrik's leaders and community members have developed and implemented a set of actions to address the most pressing of the community's concerns.

Securing basic needs

Self-sufficiency was deemed to be a key goal in achieving food security for Namdrik. Where previous generations of the community grew much of their own food, dependence on external shipments has grown, leaving the community vulnerable if food deliveries are delayed, for example during bad weather. To diversify food sources and reduce reliance on imported food, gardens growing traditional food crops are being re-established. Species include breadfruit (which can be stored for many months), taro, more varieties of banana, and native varieties of pandanus which are now harvested exclusively on Namdrik. With these crops at hand, the community aims to be able to survive three to four months without a supply shipment if necessary, rather than three weeks as was previously the case.

Water security is also an issue, as the community previously relied almost exclusively on the Atoll's small and fragile freshwater lens. The incursion of saltwater, exacerbated by sea-level rise, has already contaminated many of the Atoll's wells. To improve water security, rainwater tanks, each holding around 1,500 gallons, were installed throughout the community. Of Namdrik's 120 households, 110 now have a water tank, which significantly reduces pressure on the freshwater lens. Combined with training in water management, these tanks have reduced the incidence of waterborne diseases such as diarrhoea (which was previously commonplace on the Atoll). In fact, since the water programme was implemented, there have been no cases of waterborne illness at the hospital. The community now aims to be able to survive for at least three months without rain if necessary.

Renewable energy has been promoted across the Atoll. Where previously generators were the main source of power, almost every house now has solar panels. The elementary school also received a 10,000 kW solar panel system to provide for the electricity needs of the school. This initiative, achieved with financial support from the French government and the European Union, has provided cheap, clean, low-maintenance energy and reduced the pollution, expense and uncertainty associated with the use of generators. The community was also able to install 33 solar-powered freezer systems with funding from Taiwan and the United States Department of Agriculture (USDA). Other solar-powered systems include the DAMA TeleCenter, recently installed by the National Telecommunication Authority, which provides internet access and voice calls to the outside world.

Waste management was identified as yet another area requiring urgent attention. Waste and pollution pose serious threats to biodiversity through excessive nutrient loading of water, and poorly managed landfills on the Atoll provide habitat for invasive species such as rats. Without action to address food security, the community feared that changes in climate would require more food to be shipped in, thus exacerbating the waste problem through the introduction of greater volumes of packaging. To address this threat, measures were undertaken to promote recycling, in particular with regard to car batteries and old solar power units. Steps are being taken to formalise a community-based integrated solid waste management system that would serve as a model for other atolls throughout the Marshall Islands.

Developing sustainable livelihoods

Sustainable livelihood options were identified as a pressing need for community members, particularly given the risk of declining fish stocks and the lack of local employment opportunities for young people. Declining fish stocks have been noted throughout the Marshall Islands as the erosion of traditional resource management techniques and a lack of enforcement of traditional conservation practices have led to unrestrained harvesting of marine resources, threatening marine biodiversity and fish populations.

An innovative action plan combines the creation of opportunities for Namdrik's younger generation with improved stewardship of natural resources. Opportunities have been developed for young community members to study natural resource management at the College of the Marshall Islands. Upon completion of the course, these students undertake marine surveys, coastal and erosion monitoring, and vulnerability assessments, which then inform the Atoll's planning. These students also engage in the implementation of sustainable fisheries policies.

In addition, a pilot black-lipped oyster Pearl Farm was established, with its first harvest undertaken in October 2010. This harvest yielded 517 pearls which brought significant revenue to the community. The Pearl Farm will provide a valuable and reliable income on an on-going basis, reducing dependence on copra production for cash income. A scholarship programme is planned to allow community members to learn specialised pearl grafting and harvesting techniques in the Cook Islands.

The replanting and improved management of pandanus trees across the Atoll has facilitated the development of Namdrik's handicrafts industry by the women of the community. The pandanus trees' spiny leaves make a good fibre for weaving, as they are long, thick, and durable, and are used to make a variety of woven handicraft products popular across the Marshall Islands. Namdrik's women have focussed on producing mats and traditional clothing, which can sell for up to USD 100 each. The University of the South Pacific, with the support of the RMI National Training Council, has extended the successful Apprenticeship Jaki-ed Weaving programme to target teenage girls who are unemployed and out of school.

As an atoll island, Namdrik is highly susceptible to erosion and flooding, which the community noted were occurring with increasing frequency. Both climate change and locally-induced stressors are acknowledged to drive coastal changes, posing hazards to homes and infrastructure along coastlines. Although rising sea level is beyond the influence of the Namdrik community, they took action to address a number of local activities that were likely exacerbating the erosion problem. Sand-mining (for construction) was banned from the lagoon-side shore where the majority of homes and infrastructure are situated. The community has demonstrated a desire to learn land surveying skills to help identify the most suitable areas for construction and relocation of houses and to employ alternative building techniques to reduce the impact of construction.

Conserving biodiversity

The Committee has undertaken a number of additional activities specifically to address biodiversity loss and protect important habitats. These activities include the implementation of conservation measures to reduce overfishing, through the use of sustainable fisheries tools such as fish aggregation devices and seasonal no-take zones. The Committee worked successfully with Seacology, an international marine conservation NGO, to fund the establishment of an education, surveillance and monitoring centre and provide additional support to the Pearl Farm as part of an agreement to designate 86 acres within the lagoon as a marine protected area (MPA). Better human waste management will also improve the health of the Atoll's lagoon and thus the health of its fish populations. Shoreline vegetation is also being restored, specifically targeting the Atoll's mangrove forests. The Namdrik mangroves are the largest mangrove system in the Marshall Islands and provide an important nursery area for many marine species. Such improvements simultaneously enhance protection from flooding and erosion.

As one of the countries most vulnerable to the effects of climate change, much of the Marshall Islands is predicted to become uninhabitable within 50 to 100 years as a result of sea-level rise. Despite this disheartening prospect, the people of Namdrik Atoll are implementing a holistic and wide-reaching management plan to ensure the maximum wellbeing and sustainability of their community for as long as external circumstances allow. Their plan is innovative in combining a 'back-to-basics' approach, emphasizing self-sufficiency and the protection of local resources, with the use of modern technology and external knowledge through a range of national and international partnerships.

Impacts

BIODIVERSITY IMPACTS

Most of the activities undertaken by the Resources Management Committee are inherently beneficial to the local environment and biodiversity, although some have been undertaken specifically to address environmental degradation or threats to biodiversity. For example, actions to address waste management issues and the conversion of the Atoll's energy use to renewable sources are major steps towards reducing local pollution of the Atoll. New power sources are cleaner, while improved waste management will reduce contamination of soil and water sources and help to address problems surrounding invasive species.

The restoration of shoreline vegetation through the planting of native and traditionally-used species not only helps to mitigate erosion and flooding of the Atoll but regenerates a crucial habitat. Namdrik's mangroves are the last sizeable such system remaining in the Marshall Islands, and they provide important nursery areas for marine species. The mangroves support some 150 species of fish, including the endangered Napoleon or Humphead Wrasse (*Cheilinus undulatus*), and is home to breeding populations of the critically endangered Hawksbill Turtle (*Eretmochelys imbricate*) and endangered Green Turtle (*Chelonia mydas*). As such, the restoration and sustainable management of the mangroves has positive implication for the Atoll's wider biodiversity.

In late 2012, the entire Namdrik Atoll including the lagoon and ocean reef flat (a total area of 5,435.5 acres) was designated by the Government of the Republic of the Marshall Islands as a Wetland of International Importance under the Ramsar Convention. In doing so, Namdrik became the Convention's 2,050th Ramsar site, and the Marshall Islands' second. Within this area, 286.5 acres is designated as MPA, including an 86-acre, ten-year no-take zone that was established by the Local Resources Committee under the Resource Management Plan in partnership with Seacology.

Steps have also been taken to establish gardens, which provide diversified food crops and also support the conservation of native species, including the pandanus, which is endemic to the region. Breadfruit, taro, and various species of banana are also being cultivated and conserved in these gardens. With support from the Asian Development Bank, the community will undertake an atoll-wide coconut replantation project to replace the old coconut trees that no longer bear fruit. This will also create an opportunity to develop a coconut lumber industry as well as encourage inter-cropping of various fruit-bearing trees as a food security initiative.

Under the Management Plan, measures are being undertaken to address invasive species which threaten Namdrik's terrestrial and marine biodiversity. Invasive species already established in the Marshall Islands include the plants *Merremia peltata* and *Wedelia trilobata*, the long-legged (or 'yellow crazy') ant (*Anoplolepis gracilipes*) and the Red-vented Bulbul bird species. A study by the Ministry of Resources and Development on both Namdrik and Madmad identified new weeds locally named as 'likatoltol' and 'kiloklok'. The community was advised to pull these by the roots and burn to protect gardening projects. The presence of white fly and a local termite was also noted in some areas. Locally-abundant insects such as the black beetle, mealy bug and *Encarsia formosa* were introduced during the survey process to control invasive species. Training on how to address worst case scenarios involving the invasive species identified was also conducted as part of an agricultural programme funded by the government. Waste management measures will help to address invasive species to some extent, by reducing opportunities for rats (another invasive species) to inhabit poorly managed landfills.

A number of measures related to sustainable fisheries management will help to strengthen fish stocks and marine biodiversity. As well as the mangrove restoration activities outlined above, these include addressing human waste management to improve the health of the Atoll's lagoon, and enforcing a seasonal no-take zone to allow fish stocks to regenerate.

SOCIOECONOMIC IMPACTS

The greatest benefit of this initiative to the community of Namdrik is through its holistic strengthening of the community's long-term resilience and adaptability to the anticipated impacts of climate change. Although the long term future of the Marshall Islands is uncertain, the people of Namdrik Atoll are taking action to ensure that they are as prepared as possible in crucial areas such as food and water security, and are securing their future livelihoods by developing diversified sources of income and new educational and livelihood opportunities for the younger generation. The resulting activities are providing socioeconomic improvements in the short term, for example by enhancing access to fresh drinking water, while helping to ensure the longer term survival and wellbeing of the Namdrik community.

The establishment of food gardens and the promotion of traditional and native food crops are diversifying Namdrik's food sources and reducing reliance on expensive imports. The crops that are being promoted, such as pandanus and breadfruit, can be stored for many months and provide improved food security for the community by allowing them to stockpile provisions for times when supply shipments are delayed by bad weather. Given Namdrik's isolation, such a system provides a great deal of reassurance. By reducing reliance on imports, these gardens can also reduce the cost of food, leaving more income available for other necessities. In the longer term, diversifying food sources will improve food security if certain crops are negatively impacted by changes in climate.

Water security measures, too, have both short and long term benefits. In the short term, the installation of rainwater tanks in almost all of the Atoll's households has reduced pressure on the freshwa-

"When I was a boy over 50 years ago, we ate our own fish and grew our own food. We couldn't rely on the supply ship which only came maybe twice year. But now if the supply ship doesn't come for three weeks we are worried – what will we do, what will we eat? So I am helping my community become more sustainable through the initiatives we are developing and implementing with help from government and partners."

Clarence Luther, Mayor

ter lens, and on wells that are increasingly contaminated with saltwater. It has also significantly reduced the incidence of waterborne diseases such as diarrhoea. It is reported that there have been no new cases of waterborne illnesses at the hospital since the rainwater tanks were installed. In the longer term, the tanks will increase the community's resilience to changes in rainfall patterns, allowing them to survive up to three months without rainfall if necessary.

Measures to develop sustainable livelihood opportunities on Namdrik through the development of the Pearl Farm, sustainable fisheries management, and the handicrafts industry, have provided new sources of income, more numerous options for the younger members of the community, and diversified livelihoods, which build the community's economic resilience by reducing reliance on copra production as the main source of cash income. The Pearl Farm's first harvest was a resounding success, indicating a clear prospect of significant revenue to the community in the future. Young community members have been supported to undergo education at the College of the Marshall Islands, where they are trained in sustainable fisheries management, a skill that can be put to use in the implementation of the Resources Management Plan upon their return to Namdrik.

Namdrik's women in particular have been involved in the development of the Atoll's handicrafts industry. This involves the production of house mats from a native species of pandanus. The mats sell for about USD 100 each, providing a source of cash income to the women and again reducing overall dependence on copra production. This financial security, combined with the community's increasing reliance on local food sources, locally generated power and locally harvested water are increasing the decision-making power of women in the community.

As a matrilineal society, land and hereditary titles on Namdrik are passed down through women, and thus women are already empowered and respected within Marshall Islands society. This was reflected and respected throughout the consultative process leading to the development of the Resources Management Plan. As well as being well represented on the Local Resources Committee, all groups within the community, including Namdrik's Women's Group, have separate meetings as well as partaking in group consultation to identify major challenges and contribute to the development of optimal solutions. This consultative process of developing a shared vision for Namdrik and its future has ultimately strengthened the community by bringing its members together in pursuit of a shared goal.

POLICY IMPACTS

The main policy benefit of the work undertaken on Namdrik has been through its value in demonstrating to policy makers and practitioners the types of activities that are most successful in building the resilience of atoll communities such as Namdrik. The strong partnership between Namdrik's leadership, its community members, and their array of national and international partners has helped to engage government and NGO groups to get involved and has inspired other atoll communities to consider taking similar steps.

National policy frameworks, such as the Marshall Islands' 'Reimaanlok' (Way Forward) National Conservation Area Plan, are being directly informed by lessons learned through the implementation of Namdrik's Resources Management Plan. For example, at a specially convened Parliamentary session in August 2011, the Executive Director of the Marshall Islands Conservation Society (Mr. Albon Ishoda) presented Namdrik Atoll's work on community-based adaptation, emphasizing how such work could be used to inform planning for the Marshall Islands more widely. This presentation was attended and supported by the President of the Republic of the Marshall Islands and the First Lady. The Mayor of Namdrik has attended and spoken at regional meetings on adaptation to climate change. He has also shared his expertise with other Marshallese and Micronesian communities that find themselves facing similar challenges, and even more broadly, with communities from other regions such as the Caribbean, Melanesia and Polynesia.

Sustainability and Replication

SUSTAINABILITY

The development and implementation of a natural resources management plan by the Local Resource Management Committee are sustainable for a number of reasons. First, the initiative is very much led and owned by the community. Rather than being imposed by external actors, the Resources Management Plan was initiated and developed by the community itself. The community was involved in the Plan's development through a series of consultations with the Atoll's various groups.

Second, the initiative benefits from strong local leadership and political support from a number of levels: the Senator and Mayor of Namdrik, as well as tribal chiefs, national government representatives and even the President of the Republic of the Marshall Islands have voiced support for the Plan and have actively supported its development. The initiative operates in coordination with local government and tribal leaders. The local government authority has a mandate to manage and protect resources within a of five miles' radius from the Atoll, while the *Iroij*, (tribal chief), *Iroij-drik ro*, *Alaps* (tribal elders) and *dri-jerbal* (traditional leaders) play advisory and leading roles pertaining to economic and social development issues.

Third, Namdrik's Resources Management Plan, which forms the basis for the Local Resources Committee's activities, is strongly aligned with national policy, including the national strategy for resource management (Reimaanlok) which has received strong endorsement from Parliament. This lends legitimacy and a sense of purpose to the community's endeavours.

Fourth, a team of local and international partners have committed their ongoing support to the initiative, with roles and responsibilities clearly defined in the management plan, which is intended to become a statutory document. Such support from partners is focused on building Namdrik's sustainability by transferring skills to the community, thus reducing dependence on external assistance.

Finally, the activities being undertaken under the Plan have both short- and long-term benefits, which allow community members to see the results of their efforts now as well as knowing that they are strengthening their long-term resilience to future challenges. This helps to bolster local support for the plan and to provide on-going incentives for its implementation. The plan also has a strong emphasis on self-sufficiency and sustainability, placing high value on reducing Namdrik's reliance on imports, while valuing local solutions to local problems. The plan offers a vision for the future that keeps Namdrik's community connected with their natural and cultural heritage.

REPLICATION

The Namdrik initiative has inspired other atoll communities within and beyond the Marshall Islands to take similar action to build their own resilience to climate change. This has taken place through both

formal and informal channels. Namdrik has become something of a benchmark for the climate change adaptation strategies of other Marshallese atolls and islands, and has informed official guidance to other atoll communities, as well as the 'Reimaanlok' national resource management strategy. Namdrik is viewed as a working model in strategies to build climate change resilience, improve food security, and enhance natural resource management. The Namdrik initiative has also been presented to Parliament and receives widespread support from policy makers and high-level government officials, as well as the President.

One of the benefits of Namdrik's work is as a demonstration site to policy makers and practitioners involved in supporting the development of climate change adaptation strategies in other Marshallese atolls. With support from the Coastal Management Advisory Council, communities across the Marshall Islands are building on the successful programme initiated at Namdrik. Strong leadership from Namdrik's Mayor and Senator has helped to inspire other atoll leaders to consider similar action. For example, the Mayor of Namdrik has attended and spoken at regional meetings on climate change adaptation. He has also shared his expertise with Marshallese and Micronesian communities that face similar challenges, as well as with communities from other regions such as the Caribbean, Melanesia (e.g. Papua New Guinea and Solomon Islands) and Polynesia. The Mayor has also participated in international meetings focusing on sustainable development at the community level in both Brazil and India.

PARTNERS

Although geographically isolated, the Namdrik Atoll Local Resources Committee takes advantage of a range of partnerships with government agencies, NGOs and educational institutions. The consultative process of developing Namdrik's Natural Resources Management Plan has united the community in pursuit of a shared goal. Their vision has benefitted from the engagement of external partners who have provided expertise, finance and support.

The Marshall Islands Conservation Society (MICS) and the **Coastal Management Advisory Committee** assisted in the drafting of Namdrik Atoll's Resources Management Plan. MICS has also assisted the Committee in coordinating conservation efforts, including solid waste management, climate vulnerability assessment, coastal and marine monitoring and training.

The Committee works closely with the **Marshall Islands Marine Resources Authority** and other partners in the Coastal Management Advisory Council including, importantly, the **College of the Marshall Islands (CMI)** for advice and technical support.

The **UNDP-implemented GEF Small Grants Programme** provided a grant of USD 50,000 to support the development of Namdrik Atoll's Pearl Farm. **The Nature Conservanc**y, with endorsement from the **Australian Government**, is supporting training and scholarship opportunities for younger community members to learn how to manage the Pearl Farm, led by MICS.

Seacology provided USD 34,000 for the construction of an education, surveillance, and monitoring centre, and has provided continued support for the Pearl Farm and funding support for the Committee's operation, in return for the allocation of 86 acres within the lagoon as a no-take marine protected area. Seacology agreed to fund continued surveillance, monitoring and protection of this site in exchange for the Atoll communities designating it as a no-take zone for ten years. The Local Resources Committee may approach Seacology for further support in protecting the rest of Namdrik's MPAs

MIMRA and other partners assisted Namdrik's effort to develop the pearl project and forge connections with other partners such as Dr. Maria Haws and Simon Ellis of **Pacific Aquaculture and Coastal Resources Center (PACRC)** at the University of Hawaii in Hilo, the **Marine and Environmental Research Institute of Pohnpei (MERIP**), and CMI and MIMRA's Pearl Farm project.

The installation of solar panels in each household and at the elementary school to provide renewable energy on Namdrik was supported by the **European Union**. The solar-powered freezer systems were funded by the **USDA** and **People's Republic of China (Taiwan)**. The installation of water catchments on Namdrik was also supported by the Taiwanese government, along with the European Union.

University of the South Pacific (USP) and the Marshall Islands' **National Training Council** supported the extension of the successful Jaki-ed Apprenticeship Weaving Program to training targeted young girls that are considered unemployed and out of school.

The Ramsar Convention recently recognised Namdrik Atoll as its 2,050th Wetland of International Importance. Efforts are taking place to take full advantage of the various programmes to raise awareness and continuously promote the wise use of mangroves as an adaptation measure to climate change.

The **Marshall Islands National Telecommunication Authority (MINTA)** helped install a solar-powered satellite system (DAMA) call centre which provides access to internet and voice calls with the outside world.

In 2009, the **Coastal Resources Center** at the University of Rhode Island's Graduate School of Oceanography and the **United States Agency for International Development (USAID**) initiated a partnership with the Marshall Islands to pilot an international programme to mainstream climate change adaptation into coastal management initiatives. This involved working directly with the Namdrik community to demonstrate assessment and adaptation activities, and to integrate this within the larger national policy framework. In 2010, a specialist from the Coastal Resources Center visited the community to provide technical support and advice to the Local Resources Committee.

FURTHER REFERENCE

- Reimaan National Planning Team (2008) Reimaanlok: National Conservation Area Plan for the Marshall Islands 2007-2012. Available at http://www.sprep.org/att/irc/ecopies/countries/marshall_islands/63.pdf
- An interview with the Mayor of Namdrik, Clarence Luther: http://community.eldis.org/.5a4706a4

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