

Community Perspectives on Livelihood Practices and Development: Implications for Policy and Planning

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Abstract

This paper presents an in-depth study of the livelihood practices and development needs of one isolated rural island community in the Maldives. The research identified key stakeholders concerns about opportunities and barriers to livelihood practices and community development using a case study approach. Some of the challenges networking locally and nationally to achieving community objectives for food security, water and other resources management, socio-economic development and environmental protection are identified, followed by strategies to reduce vulnerability in the context of climate change and to develop a sustainable ecosystem for future generations.

Keywords: Small island state, Food, Water, Energy, Livelihood, Climate change, Nexus

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1. Introduction

Meedhoo, in Addu atoll of the Maldives, is an idyllic place to live a comfortable life, with self-built housing, home-based livelihoods, a stunning natural seascape, privacy, quiet and tranquility. Personal safety, extended family and communal support add to this paradise-like island. However, many born here live and work away from home. Those whose whole families live away and who can afford to bring their children home on vacation, or men working in far flung tourist resorts, visit home once a year to see their spouses, children and extended families.

The risks climate change pose to food security, including the sustainability of fisheries and reefs and agriculture on small islands, as well as the transport and import of food, fuel and other basic goods, compromised availability and safety of fresh water, potential loss of biodiversity, continued climate change-related and socio-economic out-migration as well as increased health risks due to vector-borne and water-borne diseases and psycho-social trauma are well documented (Nurse et al., 2014; Hermann, 2017; Kapoor, 2018). The possibility of losing the entire Maldives, due to inundation, erosion and sea level rise (Skillington, 2017), makes the preservation and survival of a way of life as a small island state highly problematic.

The focus of this paper, despite the concerns of climate change, is to explore how to make the island a sustainable, resilient, thriving community for its inhabitants and for those who would like to return home. All of the authors of this paper live on the island and have an understanding of its real-life issues. The study is based on our own identified need to look at community development holistically. Community-based non-governmental organization leaders and local people were interviewed to identify existing strengths and weaknesses in basic aspects of community development, such as basic infrastructure, livelihoods and climate impacts. Widening gender divisions emerged as a concerning theme when interviewing female community leaders.

1.1 Meedhoo – an overview

Meedhoo is at the south-eastern tip of the Maldivian archipelago, surrounded by the vast Indian Ocean and the other five inhabited islands of Addu atoll - Hithadhoo, Maradhoo, Maradhoo Feydhoo, Feydhoo and Hulhudhoo. These five islands with Meedhoo make up what is politically termed "Addu City" (Figure 1). There are 25 additional tiny, uninhabited islands, in Addu atoll. A few of these larger, uninhabited islands have been given on long-term tenancy by the Ministry of Tourism to Maldivian and foreign investors for resort development while the smaller islands are leased to local people for livelihood and leisure purposes.

The richness of biodiversity in Addu has meant that the Kandihera – Maakandu channel, and the surrounding reefs, lagoons and islands within 170 hectares; Eedhigali Kilhi, Bedhi and Kottey in Hithadhoo; and the British Loyalty shipwreck, just off the lagoon of Maradhoo, are protected by law under the Environment Act 4/93 (Ministry of Environment and Energy, 2018 September).

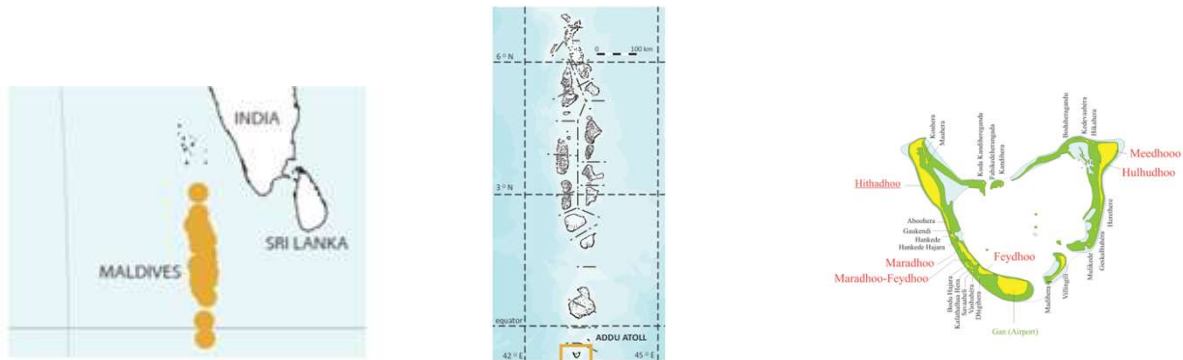


Figure 1. Map of the Maldives with detailed map of Addu Atoll (sources: Kupers, 2011; and Wikipedia)

Meedhoo and Hulhudhoo (together referred to as Hulhumeedhoo in this paper) (Figure 2) is one of the largest islands of the Maldives with a land area of a mere 3.22 square kilometers. Elders claim that traditionally Hulhudhoo and Meedhoo were two islands which have geographically joined, forming a complex “two islands” identity while living on one small island. Historically, culturally and economically, all the communities in Addu atoll are connected to each other through Addu Bas, a shared common language spoken only in the atoll, and through sharing common ancestry and marriage.



Figure 2. Hulhudhoo on the left and Meedhoo on the right: Photo by Mujthaba Mansoor (2013)

Meedhoo is considered to have one of the earliest settlements of people in the Maldives. While 2,900 people are registered as inhabitants, the resident population is only 1,800 due to out-migration. Though Meedhoo has the second smallest population in Addu Atoll, the decline in population has been experienced the least there compared to the other islands of the atoll. Even though the resident population of Addu atoll has increased marginally as a whole since the 1980's, Addu remains the second largest populous area of the Maldives, after the capital city, Male', with a resident population of 19,829 (Statistical Yearbook of Maldives, 2016). Presently, the resident population of Addu atoll is growing but sparsely.

Access to Public Services and Goods

In geographically isolated places such as Hulhumeedhoo, socio-economic development primarily hinges on the level of access to basic infrastructure. Hulhumeedhoo has an electric power station supplying stable 24-hour electricity. It has a water plant, supplying fresh water and a modern sewerage system has opened recently. Two telecommunication service providers operate in Hulhumeedhoo, which is connected by a regular ferry service to Feydhoo. The airport in Gan and the other four islands are easily within a twenty-minute taxi ride or by public bus from Feydhoo. People depend on the local shops for local goods while travelling to the larger islands- Hithadhoo and Feydhoo, for basic hospital services, petrol and shopping for building materials and domestic goods.

Located at a central point between the Meedhoo and Hulhudhoo communities are a secondary school, a health-centre providing basic health care services, a Bank of Maldives branch and several local shops which sell basic hardware, food items and other simple goods. One of the shops is operated by a state funded trade organization, which sells building materials and domestic appliances and at times of shortages, sells food items, mostly grains, to other shops. Meedhoo also has a small library, a tiny museum and a minimal youth-centre operated by a Women's NGO, Ekuveringe Cheyenu.

Even though, basic infrastructure is presently available, livelihood opportunities are few and need to increase to provide a thriving community environment. This paper emerged from an initial discussion among members of Nalafehi Meedhoo, a local non-government organization, about the lack of participation by community members in community development and how difficult it was to negotiate community development initiatives with policy makers. A brainstorming session indicated that the focus of this paper needed to be on livelihood and other aspects of community development which impinged on areas such as water and food security as well as the impact of climate change on livelihoods. Livelihood practices can contribute to deforestation, soil erosion, depletion of the water lens and salinization, and can deplete and degrade the natural resource bases (Chambers & Conway, 1992). Environmental

livelihood security is defined as a “concept that seeks balance between natural resource supply and human demand on the environment in order to promote sustainability” (Biggs, et al., 2015, p.390). To conserve and sustain the ecosystems and natural habitats for future generations, sustainable livelihood practices needed to be explored.

2. Literature Review

Rural development is defined as top down (exogenous), bottom up (endogenous) or networked development (combination of both exogenous and endogenous development). In top down approaches to development, the decisions are made in urban centres, in boardrooms far away from rural communities. Policies based on this perspective can focus on the strengthening of agriculture in rural areas (to provide food for urban centres) while promoting policies which encourage rural labour and capital to move from rural areas to cities. Top down approaches to development have been criticized as “dependent development” in that communities become reliant on external funding and government subsidies for certain sectors, boosting certain types of economic activities in selected places (Shucksmith, 2013). This leads to the neglecting of other types of economic activities and non-economic aspects of rural livelihoods. Top down development approaches are also criticized as “destructive development” which erases local knowledge and location-specific cultural practices (Shucksmith, 2013). When decisions are made far away from the rural communities, they can be perceived as backward and marginal to national development agendas (Lowe, Murdoch & Ward, 1995; Shucksmith, 2013).

Bottom up (endogenous) approaches to rural development are based on the notion that the human, social, natural, built, financial, political and cultural capital of a place hold the key to its sustainable development. This approach is viewed as development-driven by the community for their own development using assets and resources locally available. This approach is based on the belief that local stakeholders are able to generate innovative practices and shape the place, space and decision-making within the community and have an identity as a community. An advantage to endogenous development is that lessons learned locally can inform policy and practices elsewhere. Endogenous approaches to development are criticized in that development initiatives can further marginalize the most disadvantaged members of the community and favour individuals who are already powerful, articulate, and enjoy a greater capacity to act and engage in development initiatives (Lowe, Murdoch & Ward, 1995; Shucksmith, 2013).

Networked development is viewed as a mix of both top down and bottom up approaches to development, bringing together local aspirations with assets and capital within and beyond the community. Networked development also emphasizes the importance of governance institutions in enabling the local, regional, national and international stakeholders in coming together to widen the assets base of the community. Furthermore, the state needs to act as an

enabler minimizing inequalities within communities and between communities (Shucksmith, 2013).

The state can play a key role in capacity building and investment to overcome fundamental structural disadvantage, powerlessness and exploitation. Branscombe, Schmitt, and Harvey (1999) suggest that members of a low status group can engage in social creativity through the denial of its inferiority, and reject prevailing negative stereotypes and labels and replace them by bringing about social change. This can include participation in activities designed to improve their rights or better treatments for the group. They must understand and gain knowledge of existing networks and power relationships, and locate the 'force-field' in which participants seek to act.

Rural development theory is strengthened further by planning theory and practice. Core stakeholders need to act as change agents, leaders, and brokers who can promote the collective force for change and position the community in significant arenas for widening opportunities for training, skills development and access to resources from wider networks of influence (Healey, 2010).

The urgent necessity to revive the community requires inquiry into the roles of the state, private sector and civil society in social, cultural, educational, environmental, spatial and economic transformation that is required (Fainstein & Campbell, 2012). For rural places and people, planning needs to be radically different to those employed in urban and suburban areas (Cruikshank, 2018). For community development initiatives to have any impact, participation and engagement of the community at grassroots level in the planning and implementing of such programs is crucial. It is only through recognition of local concerns, needs and active participation of the community in the decision-making process that sustainable and successful development can occur. Lack of engagement and participation in the decision-making process can undermine community initiative, leading to further marginalization, disengagement and disempowerment. Social cohesion and strong local networks benefit communities promoting wellbeing for all. To strengthen the identity and solidarity as a community, attachment to the local environment needs to be developed by emphasizing cultural heritage and livelihood practices (Healey, 2010; Cruickshank, 2018). A sustainable livelihood approach to community development is strengthened by combining elements of sustainable livelihood with elements of food-water-energy and climate nexus framework (Biggs, et al, 2015).

2.1 Food-water-energy-climate nexus

Use of energy, food, water and their management is crucial to human survival and economic development (Hoff, 2011). In the 1990s, the World Bank highlighted the interconnections

between energy, water, food and trade by calling it a “nexus” (MaCalla, 1997). Waste was introduced into the nexus in 2012 to consider the integrated management of environmental resources. Climate was added to this nexus later on, in recognition of the impact on society of recent frequent and disruptive weather conditions (Smajgl et al., 2016). A food-water-energy-climate nexus is described as the recognition of the interconnections between the four elements and the processes by which the transition and transformation of the sectors can happen through the engagement of key stakeholders in these separate sectors (Howarth & Monasterolo, 2016).

In 2015, average global temperature rose by 1° C above preindustrial times (UK Met Office, 2015). In an extremely globalized world, an extreme weather situation in one region or one country can lead to cascading effects elsewhere in terms of access to food, water, energy and trade. About 90% of the Maldives’ food demand relies on imported food (Ministry of Environment and Energy [MEE], 2016). This heavy dependency introduces two main types of climate-change related risks to food security in the Maldives. Firstly, any climate-change related impacts on food production in these countries/regions will directly impact Maldives’ food security. Secondly, any disruption to transportation of food due to extreme climate events would put a halt to food distribution within the country. Unless global warming is kept to below 1.5°C of that of preindustrial times, fisheries sustainability (Cheung et al, 2016) and coral reef survival (Schleussner et al, 2016) will be compromised. The impact can be felt earliest among the most vulnerable such as the poor and women in remote, hard to access islands such as Hulhumeedhoo.

Hence, developing the resilience and sustainability of the micro, socio-economic system in Hulhumeedhoo is important for food security and economic development of the community. A transdisciplinary approach to development is required to achieve a green economy, bringing together researchers, policy makers, funding agencies, government institutions, development organizations, businesses and industries, civil society and media to achieve goals coherently and sustainably. Sustainable development is shaped by environmental, economic, social and political changes. All these changes can negatively influence micro-development initiatives unless risk reduction strategies are put in place (Abegunde, 2011).

Bottom-up approaches to community development that are rooted in community knowledge and skills can be effective in adaptation to climate change while giving the community a voice as a group to negotiate contesting demands on land and resource use, transportation, housing and economic development policies. Planners with expertise in economic growth, environmental protection and equity, can play a key role in informing the community on how to resolve environmental and economic equity issues and to “challenge the false choice of jobs over the environment” (Campbell, 1996, p.309).

3. Research Design

A qualitative, exploratory case study approach (Yin, 2018), was used in this study to identify community development needs of Meedhoo. The authors of this paper have a deep understanding of the socio-cultural aspects of the lived life of the research context as insider-researchers (Adam, 2013). A reflexive approach was used throughout the study by the researchers as inquirers and research participants, to ensure trustworthiness in the research process (Janesick, 2010). This is an intrinsic case study in that the research is based on a community identified need to explore community development needs. The focus of the research is to identify existing strengths and socio-economic, cultural and environmental risks, threats and vulnerabilities to community development.

Purposive sampling was used for this study, based on the selection of information-rich participants who had deep knowledge of the community's needs and those who had expert knowledge of livelihoods as practitioners. Focus group discussions and individual in-depth interviews were used for data collection. Data was collected in March, 2018.

Focus group discussions were held with the only two NGOs in Meedhoo, both of which work on community development initiatives. While Nalafehi has an environment-based development focus, the other NGO, Ekuveringe Cheynu, has a women and development focus. All of the authors of this paper work informally at different levels of leadership in Nalafehi. Interviews with two other community leaders and elders, two farmers and two fishermen were used. Altogether, 7 women and 7 men participated in the study.

Individual interviews and group discussions were based on a semi-structured questionnaire, following a quasi SWOT (Strengths, Weaknesses, Opportunities, and Threats) format. Notes were taken during all the meetings. Transcripts of the interviews along with information from local sources and lived-in local knowledge are used as data for this paper. The notes and transcripts were analysed using an inductive, open coding method, based on the SWOT analysis format (Dey, 2003; Kajanus, Leskinen, Kurttila, & Kangas, 2012).

4. Findings

The findings of this study are reported based on what the community considered important for community development. Lack of building capacity for adaptation to climate change and lack of knowledge about how to overcome vulnerabilities in this context were discussed. As an isolated community, transportation plays a central role in accessing resources and in opening the community for development opportunities, including trade. The focus on tourism-related

employment for livelihood was also a concern raised by the community while ownership of tourism assets at community level was seen as an opportunity. As income from fishing declines, men's participation in agriculture has led to the disempowerment of women. A cross-cutting theme throughout the interviewing was a general sense of disempowerment from distant, top-down decision making for the community and a feeling of not being listened to in the decisions made on their behalf by the government and other institutions. These findings are presented in detail in the following sections.

4.1 Impact of changing weather patterns on livelihoods

Most of the participants showed concern about their knowledge of climate change; whatever they knew was not considered enough. The quotes below from the research participants indicate a need for policy makers to engage with the community, sharing knowledge of climate change which has a direct impact on community development and wellbeing.

I don't know anything about climate change. I think the excessive coastal erosion we are experiencing now is because of climate change but it is only eroding where it always has eroded (farmer, male).

Rain pattern has changed significantly and it will impact farming even if we don't know what will happen (farmer, female).

We do not think ahead. We do not think about the future. We do not know anything about beach erosion, sea level rise, or what is causing the heavy rain fall (farmer, male).

I was in Hanimaadhoo for an agricultural training course. I befriended this scientist on the island who was doing climate research there so that I can ask him about climate change. I wanted to find out more. I saw their monitoring system. The scientist said that even very small changes in climate can have a huge impact globally (farmer, female).

4.2 Transportation

Since Addu atoll is an enclosed atoll, travelling within the atoll is not affected by seasonal changes. Previously, local entrepreneurs ran ferry services on their own Dhoanis to the neighbouring islands, for work and to access health services not available on the island. They also built boats which were owned by individuals and families for long haul sea travel to Malé,

Sri Lanka and as far as Bay of Bengal. There are a few boat builders in Meedhoo, though there are no currently available opportunities for building boats due to high construction costs, unless an external investor seeks the expertise of a local business.

Presently, there is a regular ferry service between the islands, managed by a company in Malé, while the national airline runs frequent flights to the airport in Gan, carrying mainly tourists to the tourist resorts. Lack of competition makes the cost of flights barely affordable to many living in the atoll. There is wide-ranging frustration that the community does not have a voice in how transportation and other services are developed.

In the first discussion meeting held by Nalafehi Meedhoo, one interviewee stated,

We know how we want our main road to be developed. We have told the housing ministry in Malé several times that we do not want the road to be tarred. We do not want the road to become like the Addu Link Road where irresponsible speeding causes so many deaths. They have begun to tar the roads of Hulhudhoo. We hope they run out of tar before they reach here (NGO member, male).

We are concerned about road safety. We have a plan for our roads to use concrete bricks. There is a company with the equipment here who can do it. We want shady trees to be planted on both sides of the main road. They do not want to pay the extra cost of the concrete tubes to plant the trees, saying there is no room for the shady trees if there are two lanes of traffic. We need to find places to plant big trees which can provide shade and act as windbreakers (NGO member, male).

Most of the households in Meedhoo own several motorcycles, and a few affluent members of the community own cars. There was no discussion of the community's role in the reduction of carbon emissions in the context of mitigating the effects of climate change. However, a faster mode of transport rather than walking is considered a mechanism for overcoming the heat, since there are no shady trees on the roads. The shade-giving trees planted previously on the main road, in the early 1990s, through a government initiative, had to be cut down recently as there was no mechanism to keep the trees trimmed, to prevent branches falling down in extreme weather situations. Unless the government intervenes in catering for the planting and maintenance of shady trees desired by the whole community, this cannot be achieved. Presently, the roads are dusty in dry weather and muddy and flooded in rainy weather, the solution to which can be street drainage and shady trees.

4.3 Livelihood Practices

In this section, fishing, agriculture and tourism are explored in detail as these are the three most prominent economic activities in the area.

Fishing

Pole and line fishing of tuna was the main livelihood in Addu until recently. Mas Keyolhukan (Fishing captain) and Dhoani building were high status local jobs. Dried tuna was directly exported to Sri Lanka by local fishermen who travelled there off season to trade fish for other basic goods, including grains for times of shortage, and clothing. Livelihoods in fishing and associated post-harvest jobs, Dhoani building and maintenance are in sharp decline in Meedhoo. Presently, there are approximately only 20 tuna fishermen in Meedhoo. Ahmad, the only tuna fisherman who owns a fishing Dhoani in Meedhoo, explained why fishing is in decline and that it can be a rewarding livelihood even in the present times.

When I was young I went reef fishing with my dad early in the morning. There were more than 10 fishing Dhoanis that went tuna fishing then. They were rowing boats and they caught fish only ½ a mile from the island.

I was 16 years old when I started going tuna fishing in the late 1980s. By then, there were only three Dhoanis in Meedhoo. Later all the Dhoanis were sold to Malé as yacht Dhoanis. The Dhoani owners went on to other businesses like jobs in tourism and the import of basic goods. No one was interested in fishing.

When there was no fishing Dhoani left on the island, I first worked on a cargo boat between Malé and Meedhoo. After that, I went to work in a tourist resort. I worked the whole day doing a mundane job and I earned very little.

I can earn MVR30,000 a month easily from tuna fishing and I can live at home with my family. I bought a small mechanized fishing Dhoani this June, with the help of my family, but the farthest I can go with this Dhoani is about 17 miles. It is really good that fisheries ministry renews the Oivaali Kandhufathi (fish aggregating devices). They renewed those 4 years ago. They are at 13, 14 and 17 miles from Meedhoo. That is how far I go in my small Dhoani. There is nothing I enjoy more than going fishing.

Fishing as a means of livelihood is valued so little within the community that only drug addicts, caught in a vicious cycle of exploitation are willing to work as crew with Ahmad. All of his eight crew members are young drug addicts. They earn about 500 MRF. (US\$ 30 approx.) a day, but when they get home, there is always someone waiting to sell them drugs. So, they make no profit from fishing. Ahmad explained that there is no future for these young drug addicts in the community.

Nizam, Ahmad's uncle, works in a bigger mechanized Dhoani from Hulhudhoo. Hulhudhoo has 4 tuna fishing Dhoanis. However, lack of infrastructure to support fish storage and fish preservation means fishermen spend long hours on their fishing vessels. When fishing is good, the daily catch might be 400 tonnes per day. Sometimes they go to the nearby island of Fuvahmulah. Fish storage capacity is only 50 tonnes in Fuvahmulah. So, at times they may have to travel to Kooddoo with only 10 tonnes of fish though it takes 6 hours to travel there and another 6 hours to travel back. He explained that presently, because of all the travelling required, they may be out fishing for 25 hours.

Risks to fishing as a means of livelihood

Tuna fish harvests depend on copious amounts of baitfish sourced from coral reefs within atoll basins (Jauharee, Neal & Miller, 2015). Coral mining was banned on major live-bait fishing reefs by a President's Office decree in 1990 and bait-fishing that disturbs coral is banned (Gilett, Jauharee & Adam, 2013). However, government actions sometimes contradict policy and traditional wisdom due to lack of communication between policy makers and failure to listen to community voice. Nizam, as an experienced fisherman, explained the emerging challenges.

When the sea near Feydhoo was reclaimed all the fishermen in the atoll begged the government not to reclaim the land because that is where we caught the most baitfish. All the mud and sand from dredging covered the coral and there were no more baitfish. Only now have they begun to come back.

We travel as far as Dhaalu atoll and Faafu atoll to catch baitfish. That is a 10 hour trip to Dhaalu atoll, at 16 to 17 miles per hour, so we have to leave very early to catch bait fish. Sometimes, we travel all the way to Lhaviyani atoll to catch baitfish...People dive to get baitfish. Diving ruins the baitfish area.

Lack of attention to the structural needs of the fishermen, leading to loss of morale and lack of efficiency, is evident in the following quoted by Nizam.

Previously the boat that sold diesel began selling at 6.30 a.m. So, we can buy diesel and go straight out. Now, they open only at 9.00 a.m. We have to wait all that time to buy diesel.

Kooddoo is supposed to have 700 tonnes capacity but they can only take 350 tonnes. Equipment has been broken since 2003 and hasn't been fixed.

We need to have a mechanism to store fish on the island. Meedhoo harbour is not deep enough to bring 2000 tonnes boats. The boat has to wait at Gan Channel entry. If a Dhoani has 50 tonnes of fish, they take iced fish to the boat. Ice-storage capacity in Meedhoo is only 100 tonnes.

While traditionally, well-off fishing families got together to build a fishing vessel using local timber and local skills, building a fishing vessel has become a very expensive undertaking, creating conflict among families.

Now, fishing Dhoanis (100 feet boat with basic amenities excluding chilling facilities, bird radar, and echosounder/sonar and desalination facilities) cost about 8 million Rufiya (US\$ 500,000) to build. Groups of friends or family get together to build a Dhoani and they can't recover the cost. They mortgage the Dhoani without telling others. This causes mistrust. There is no communication between each other. Poverty and lack of support/subsidy by government means people do not build fishing Dhoanis anymore.

The fishermen saw fishing as the economic backbone of the island and they need policy initiatives to support them with covering the cost of boat building and to bring back fishing as a viable economic activity. Without government intervention to promote learning about fishing from when children are young and exposing them to a way of life on the sea early in their youth, fishing as a livelihood will continue to decline. From a diversification of livelihood perspective, declining fishing knowledge and skills makes the community more vulnerable to poverty and loss of food security and income as well as a reduction in the ability to adapt to the impact of climate change on fish habitats and on fishing. Nizam put it bluntly as he explained the situation.

There is no real development in the island when there is no Dhoani and therefore no fisher man. If no one goes fishing, there will be no one left with the skills required to catch fish...There are not enough fishermen on the island.

Agriculture

Traditionally, local farm produce has been used mostly for subsistence purposes, dried and preserved for times of shortage and sent to other islands as gifts to friends and family. Nutrition-dense food such as moringha, papaya, plantain, sweet potatoes, citrus fruits and varieties of salad greens were grown within back yards. Breadfruit and several varieties of coconut were grown within home plots and in communal areas on the periphery of the island. Forest fruits including screw pine and sea almonds were foraged. Yam and taro were grown in the marshy areas. As the import of foods became easier, most of the preservation for periods of shortage has stopped. Recently, growing plantains and papaya has been problematic due to extreme rainfall.

Presently 130, farmers in Meedhoo, mostly women, do back yard farming. Some of the communal land, approximately 170,000 square feet (0.016 km²) is used as agricultural land and this has been leased out to farmers by the city council in plots of 20,000 square feet (0.002km²).

Some of the agricultural produce is sold locally within the atoll, mostly to tourist resorts. The eight male farmers, farming on the agricultural land, earn a good, cash income from their plots of land. As one male farmer explained, "A male local farmer can earn between 1000 and 1500 USD monthly if they do the work themselves and supervise their staff (Bangladeshi labourers) properly." The gender differentiation in income from farming is discussed separately in a section on gender disparity and development.

UNDP trained a group of farmers through a local NGO, Cheyenu, on how to set up hydroponics farms, and gave them the set up equipment. Since the project ended, several local farmers have taken up hydroponic farming enthusiastically.

On the island, there are 4 hydroponic tents, growing 16,000 trees of cucumber, melon, lettuce and Chinese cabbage. At the moment, only short rooted plants are grown but the farmers wish to widen the range of produce. There are plans for 8 more hydroponic farms to be built within this year. We are planning to let go of farming on soil. It (hydroponics) is cheaper, cleaner, more controlled and disease free (farmer, male).

There did not appear to be any awareness by the farmers about the nutritional value of hydroponically grown produce since they do not have a mechanism of measuring the nutrition input into the system or of measuring the output in produce. They have reduced the amount of chemicals used through a trial and error method to a level where the produce will not have an overpoweringly chemical taste.

The Farmers' Cooperative

The local farmers have successfully established a farmers' cooperative (Co-op) to improve efficiency and effectiveness as well as to gain bargaining power for local resort supply. Presently, all the farmers take their produce to the cooperative to sell. The cooperative sells to all the resorts in the atoll and to traders in other inhabited islands of the atoll. There are three people employed at the Co-op from the profit they earn – a manager, cashier and cleaner. A male farmer explained how the cooperative acts as an incentive for young people to take on farming. "Young people are very keen about the cooperative, when they see us earning, exporting two tonnes of farm produce. Two school leavers are starting this year".

Initially the cooperative was set up to be a women's cooperative buying from back yard growers. Presently, there are 32 farmers selling through the collective cooperative and many of them are male farmers. The value of working together was highlighted by a male farmer who said, "Cooperative is the life of farming. Even if you grow very little, it can be converted to money."

With the income earned, the cooperative supports new farmers by supplying seeds, bulbs, compost, fertiliser and equipment for building hydroponics tents such as plastic and nets. Start-up costs are otherwise prohibitive. Three farmers from Hithadhoo are farming in Meedhoo because the community is more supportive, in that they don't damage farmers' plants or steal produce. It is also cheaper for the farmers to buy seed from the cooperative.

The cooperative is in touch with a farmers' cooperative in Malé and at the time of this study, were discussing how to work together to supply farm produce to the cooperative in Malé by sea and air. They also would like to exploit the huge lagoon around Hulhumeedhoo and grow things like sea cucumbers and sea weed.

Issues and risks with present farming

Where agricultural policies are in place, some farmers are aware of these. However, due to lack of communication and knowledge-sharing, local farmers appear to have conflicting interests to the government in conservation and economic development.

There has been an issue with imported diamond moths but farmers have been banned from using strong pesticides by the government. If we have no chemicals, we can't grow any plants...We want to grow a banana plantation but this hasn't been approved by the government...City Council doesn't have any power to allocate land (farmer, male).

Education about traditional foods, farming and ingredients needs to be made a priority to ensure sustainability of livelihood practices and nutritional values of local diets. Nutritionally poor diets are increasing despite growing more food on the island.

Educational policy is required to ensure children grow up appreciating the importance of nutrition, food production and preparation.

There was an agriculture club at the school and the cooperative even set up a nursery at the secondary school but they have cleared the land for construction... The plant nursery is right next door to the local primary school but the teachers have never brought the children. I have told the teachers, I will show the children how to plant and how we work, but they have never brought the children, not even once, but they can take the children all the way across the island for a field trip to the Power Station (NGO member, female).

Even if interested, young people don't stay long in farming because they don't have enough childhood background experience on land or of farming. When I was little, I had a small farm next to my mother's farm. I copied what they did. I was eight when I began farming (farmer, female).

Sustainable, environmentally friendly organic produce hasn't been taken up as a viable form of farming. Farmers are not interested in organic farming as they can't control pests in organic farming. Currently most of the household and other organic waste is burned, which can be collected and changed to compost. Means of using dry sludge from the sewerage system need to be explored. Though reforestation and multi-crop farming were traditionally used as methods of increasing the humus content of the soil, these were not discussed by the research participants. However, they are becoming aware of the need to incorporate local methods to modern gardening.

Some buy compost from WAMCO but we need to expand composting. We soak seaweed in water and use the water as a fertilizer but we need to do this more efficiently (farmer, male).

While we are producing more than before, our diet has become less nutritious since we are producing a narrower range of produce and the produce gets sold to the resorts rather than gifted or sold to the locals. The increase in produce is also coming at a cost to the biodiversity of the island, and to the quality of the water and soil in the ground due to pollution and water logging... Presently, water logging of soil is becoming an increasing issue due to persistent heavy rainfall (farmer, female).

Loss of diversity of food grown in the island due to targeted land use for faster growing produce requires consideration at both local and national levels. Resistant varieties of nutritional food as well as wildy growing plants must continue to be grown. The impact of the wash-off from chemicals used in the hydroponics tubes into the soil as well as that of genetically modified seeds and plants into the ecosystem has been monitored neither by the government nor by any local group.

Greater agriculture policy coherence and intervention by local governments is required to promote crop diversification and broad-based agricultural growth to achieve food security rather than the current focus of making quick money through fast growth. Poor sectoral coordination and lack of communication between agencies is leading to the degradation of the fragile fresh water table of the island due to the addition of unsupervised, unmonitored agricultural chemicals into the water table as a byproduct of chemical intensive farming. Long-term sustainable food security for the community and the nation have to be considered by policy makers rather than the current exploitative wealth generation paradigm used by the few men working in this sector in the community.

We do need to consider how to grow more food vertically on less land with less water and less electricity and human resources. At present more farmers are using water pumps to access ground water for agriculture which can deplete the water aquifer if agricultural practices expand (NGO member, female).

Protocols for the import of seeds and plants from other countries need to be better managed to protect the existing flora and fauna. A male farmer explained the current situation, “We buy genetically modified seeds ourselves from China. We do not have any government support or monitoring of the seeds or bulbs we bring.”

Agriculture policies need to consider how food is produced, processed, packaged, transported and consumed to ensure inclusive and sustainable practice while improving the nutritional value of the diets of local people (Hussey and Pittock, 2012). These policies need to emerge through discussion and consultation by experts with the local community.

Tourism

Tourism sector employment for Addu people began in the late 1970s, when there was a restriction on fish import from the Maldives to Sri Lanka and the government took early tentative steps to introduce tourism in the Maldives. Young men from Addu were sought for employment in these initial resorts in central Maldives, close to the capital city, since Addu youth were familiar with working with the British in the British Royal Airforce base in Gan.

From the 1960's to mid-1970's, a select few men from elite families worked as labourers at the British Royal Airforce base in Gan, bringing in previously unseen economic prosperity and consumer goods to their families. When the British left Gan in the mid-1970's, many young men from Addu travelled to central atolls in search of tourism-related jobs in the newly introduced Maldivian tourism sector, rather than return to fishing.

However, tourism sector investment did not arrive in Addu atoll until the opening of the Ocean Reef Hotel in Gan in the 1990's. With the opening of two new resorts, Herethere, at the southern end of Hulhumeedhoo, and another in Villingili Island, the debilitating impact of population degeneration has been reduced. The men's income from working in neighbouring resorts as well as from women working as cleaners, florists, and selling of food items and agricultural products have improved the overall economy of the island.

Over-reliance on tourism based economic activity

A small island which was earlier used by the community for recreation and for fishing, poultry farming and harvesting coconuts has been leased out by the government as the fourth resort in Addu in the past two years. There is a real threat that there might not be any virgin uninhabited islands in the atoll for communities to enjoy for leisure, research and survival of biodiversity, unless there are laws and policies restricting the level of tourism expansion in the atoll.

The community wishes to diversify tourism to include homestays, owner-managed tourist lodges and hotels within the community. However, to make this feasible, the government needs to train locals in not only managing these facilities but also in associated service industries such as hospitality, water sports, diving, fishing, health and safety, insurance, etc.

Sustainable and resilient tourism requires skilled employees, access to tourism markets and preservation of environmental and cultural tourism resources. In addition to long term public policies and ongoing training, the government will also need to provide soft loans. (The present government has pledged to establish an SME Bank targeted towards local island tourism investors). The government needs to support the community with island security, legislating for community insurance mechanisms and green certification of the facilities to ensure quality of provision and visitor trust (Lew, 2014). Diversification of risk can reduce the variability of income by using a greater variety of assets to generate that income. Insurance can help to pool the risk across agents by formal contracts or through informal arrangements between households (Abegunde, 2011).

To sustain the local community as an attractive place for visitors, natural habitats will need to

be maintained in addition to training and upgrading of traditional cultural livelihood activities to ensure quality of produce as well as engagement of visitors in these processes. Eco-tourism, agri-tourism and culinary tourism are niche markets which can bring employment to chefs, farmers, fishermen and other small businesses. Synergy needs to be created between tourism, fishing and farming so that in addition to creating employment, nutritional value in the diet of both the local people and tourists could be improved.

In order to mitigate long-term risk to sustainable tourism, water conservation policies, soil protection as well as switching from fossil fuel to photovoltaic electricity are slow change concerns which need government investment and monitoring. There is a small waste to energy project initiated by the Ministry of Environment which is ongoing in Hithadhoo.

Due to the unpredictability of current weather and to mitigate potential risks to life and infrastructure, reducing vulnerability of key environmental and social systems, having a plan and mechanism of rapid recovery of infrastructure will be required. This can be achieved through education and awareness at schools and in public forums on risks such as tsunamis, beach erosion, heavy rains, extreme winds and damage reduction. For the long-term sustainability of local tourism, changes associated with the gradual deterioration of infrastructure and facilities as well as the need to modify services and facilities to meet changing needs of tourists will need to be borne in mind by community leaders and local investors in tourism (Lew, 2014). Protection of local natural habitats such as Mathikilhi, and prevention of the violation of sacred sites such as cemeteries and mosques and cultural taboos such as modesty in dress, by law, will need to be considered when foreseeing expansion of community led, intra-community tourism. At present also the Tourism Act prohibits wearing bikinis in local inhabited islands.

4.4 Growing Gender Inequality, Economic Disparity and Social Well-Being

Traditional employment of men was dominated by fishing and transport, exporting fish to Sri Lanka and importing basic goods. If not fishing or travelling for trade, they built boats and furniture, harvested coconuts and tapped toddy. They spent spare time weaving fishing nets, mats and traditional cotton cloth. Women were employed in fisheries post-harvesting activities such as smoking and sun drying fish for export, agriculture, forestry and preservation of seasonal fruits and vegetables such as breadfruit and taro.

Traditionally, though livelihood was gendered due to the different roles men and women played, they participated equally in economic productivity. However, presently, when modern techniques or modern innovative practices are introduced, women are excluded from the decision making and production processes. For example, women's roles in preservation of

fish have been mainly lost due to the selling of fish directly at the sea to larger vessels with cold storage facilities. The marginalisation of women from economic activities continue to cause increased poverty, loss of nutrition and loss of diversity in farming practices as well as loss of cultural values and beliefs in preservation and conservation of nature. A woman farmer explained how marginalization of women is leading to reduced livelihood practices and increasing poverty.

Diversity of produce has reduced from when we started in 2011, when we collected produce from backyard farmers. We don't buy from back yard farmers any more...When cooperative bought from women producing in their back yards, back yard gardening expanded but it has reduced now...Our plan was to have 80% women's participation in the farmers' cooperative. Now there are only three women. There are women as board members in the cooperative but they are not participating much because they are getting sidelined but Prophet Mohammed (PBUH) did work for his wife, helping with Khadeeja's business (farmer, female).

Women have care responsibilities which prevent them from competing with male farmers. Women farmers also struggle to get men to follow women's orders, hence, women farmers are struggling to expand farming on their own. A female farmer explained, "My male employee doesn't do as I tell him. I can only pay my labourer and pay the debts but there is never enough money to expand my business."

Women show resilience and innovation despite the marginalization from agricultural land and from selling backyard vegetables, through finding alternative forms of employment, indicating they need a stronger voice in livelihood diversification.

Women have become florists. There are about 10 women florists in Meedhoo. They sell flowering plants and even bigger fruit plants from their homes. People from neighbouring islands and from Fuvahmulah come to buy fruit trees from here (farmer, female).

Women in the community are bearing the brunt of the growing socio-economic problems such as youth drug addiction. Unless a solution is found for effective rehabilitation and re-engagement of drug addicts in education and in the community, hopes for tourism and other development will remain only a dream as evidenced by these comments made by women.

About 6 women make pastries and sell to nearby tourist resorts daily. They earn about MVR200,000 (12,500USD) annually. Cooperative wanted them to develop a standard catering kitchen with their income. However, they couldn't because they ran out of money doing other things (NGO member, female).

When husband or male children are addicted to drugs, their income doesn't show as prosperity. Mothers are supporting grown up drug-addicted children through selling pastries. Social crimes are non-existent other than drug addiction. All the income we get somehow ends up supporting drug habits or addicts. We need support with rehabilitation of a whole generation of male youth. That is all we talk about in the evenings (NGO member, female).

Drugs are easily available here. There is no prevention. There is no one to stop those who sell drugs. Drug sellers operate in groups. They want to get women into drugs. When youth become drug addicts, they have no girlfriend, no status in society and someone comes and sells them drugs as soon as they earn some money (NGO member, female).

Community development requires empowering women to be resilient and economically self-reliant. Women in Meedhoo are aware of where the problems are and are willing to work with very little support. However, change is seen as possible only with funding, support and implementation of the law.

We need parenting awareness and relationship awareness so they do not get divorced so easily. There are so many single mothers here. We need to find a way of helping them to have a livelihood. There are so many jobless women here. We want to teach them to sew clothes, shopping bags, but we can't get any funding ...We need to have our own TV shows, like a drama series showing how to cope with issues faced by us ...We want to have a coconut farm to protect diversity of coconut palms here but no land has been allocated for the protection of biodiversity (NGO member, female).

4.5 Need for strengthening local institutions such as Nongovernmental Organizations

Meedhoo is an example of modern governance where no one is in charge. The former island administration with an island chief, gave way to decentralized island councils. However, when all the inhabited islands of Addu atoll were named as one island, "Addu city", in 2011, Addu city council was established in Hithadhoo, with a single councilor from Meedhoo, working at the Hithadhoo-based city council. This has led to state policies in favour of the development of Hithadhoo in comparison to the other islands, since Hithadhoo has a larger community and greater potential for diverse economic growth. However, this sense of "no one is in charge" has enabled for otherwise marginalized members of the community to take on leadership roles, forming the two NGOs on the island, leading to wider participation in governance, by the community. A community elder active in community work spoke about the roles and

responsibilities of NGOs, highlighting what is not done successfully through emphasis on what needs to be done.

Nalafehi and others need to work together to develop community leadership skills to bridge the gap in leadership in the community. They must involve all the institutions like the police, health sector, education sector and staff working in public utilities as well as visible community leaders to strengthen social cohesion. NGO members must attend activities by other NGOs and public sector activities to network and strengthen community bonding. They must always take the initiative to work together and not let political parties influence their views and commitment to community development. NGOs must have annual general meetings bringing all the members together, celebrating and sharing successes (community elder, female).

5. Discussion

The well-being of a community is profoundly shaped by the quality of the wider environment in which they live which includes public institutions, access to services, amenities and wider infrastructure (Zorondo-Rodríguez et al., 2014). While it appears that the community has the basic infrastructure for development, these are very fragile as these services have been developed through multilateral aid and depend heavily on the centralized government for funding and decision-making. Even slight changes in the socio-economic and political arena of the capital city have direct and immediate influences on how these services are provided and the quality of the services. Service providers have no say in the decision-making and yet take the brunt of public anger over policies, which is unfair.

Since all the existing basic infrastructures are fossil fuel-based, there is the imminent risk that provision can come to a halt or become too expensive. In the context of climate change, policies and initiatives based on fossil fuels when living on an equatorial island with abundant solar energy seem ill-advised. Electric power cuts are already an emerging issue during periods of high consumption. While the Maldives Energy Authority in Male' ensures safe electrical installations and regulates the installations through licensed electricians, safe installation is not always practised by local electricians nor is their work monitored within the context of Meedhoo; sometimes leading to capital losses by home owners. Most of the renewable energy initiatives for "Addu city" do not make their way to Hulhumeedhoo. The community wishes to engage with policy makers to find a way to use solar power and wind power for electricity, irrigation and telecommunication.

Though infrastructure development is said to empower the community, emphasis is presently on the cheapest way to get political returns from short-term investments. For example, location of the inorganic waste management facility, close to agricultural land and an area of natural beauty, leads to poisoning of the agricultural land and infiltration of pollutants into the fresh water in the swamp, making the coastal area unattractive. The facilities ought to be near the harbour, reducing the cost of transport of harmful waste for disposal. There is growing concern that shortage of money, and lack of collaboration in waste management with resorts and other islands in the atoll, can heighten the growing inorganic waste management problem.

Although all sewerage systems are meant to be designed for a population forecast of 35 years, the sewerage system, newly introduced in 2018, already has raw sewerage seeping out at times of severe flooding. Infrastructure was developed with no community participation and engagement, leading to disaffection, disengagement and lack of knowledge on how to maintain an asset invaluable to the community. Furthermore, when considering sustainable economic development and potential population growth through the expansion of livelihood practices, the existing infrastructure, including sewerage capacity and solid waste management, must be carefully reviewed and understood by all key stakeholders, strengthening local knowledge and adaptability.

The community is actively engaged in keeping the island and beaches clean from plastic waste. Individuals carry waste from public places to put into domestic bins, since the local people in the waste management facility have no authorization from the Male'-based waste management company to empty bins in public places. A bottom up, networked development planning and policy structure can lead to knowledge sharing and cooperation between stakeholders. Policies which are implemented by government ministries need to emerge from discussion with relevant stakeholders so that they are ultimately mutually beneficial.

Government needs to encourage both local and external initiatives to invest in sustainable energy provision and provide stricter regulation of unsustainable use of limited resources. This can be achieved only through community awareness and mobilization for sustainable development. Joint visioning and planning between government and community can produce sustainable development goals as suggested forward by the United Nations, such as greater focus on food security, improved nutrition and sustainable agriculture. This can only be achieved through the promotion of gender equality and empowerment of women to not allow them to be sidelined in community development initiatives.

Agriculture, water, and electricity policies need to be in synergy to ensure sustainability of all three valuable resources. Fresh water, once considered an unlimited resource, is under stress

from weather unpredictability due to climate change, and from the pollution of the ground water table. There is a real danger, with coastal erosion, that the land area used for farming can get washed out to the sea or that the water table can be contaminated by sea water. Without sustainable electricity, acquiring fresh water from sea water through desalination can lead to extreme water shortages at times of future drought. Elevated gardening and vertical gardening, and monitoring of plant survival with changing weather conditions, can only be achieved with the technical and financial support of the government and international aid organizations. Farmers on the island are willing and keen to develop innovative practices.

Resiliency can come through valuing age-old sustainable practices as well as promoting sustainable practices in the construction of infrastructure. Since most uninhabited islands have been leased at high prices for tourism development, it is hoped that regulations will be implemented that ensure that tourism sector investment will equally be given to genuinely local people who are keen to develop small scale eco-tourism initiatives. Sustainable economic growth together with sustainable socio-cultural and enviro-spiritual practices can ensure decent work opportunities for the community rather than using an exploitative paradigm of financial gain for a few at considerable cost to the environment and the poorest members of the community.

The community is eager to bring climate change awareness to development discussions. Thus, it is imperative that climate change becomes central to all development initiatives. Cultural livelihood practices have sustained us for centuries. Thus, even if they do not make economic sense from a financial perspective, we need to preserve these practices for posterity. They have embedded in them spiritual beliefs and cultural knowledge which can enable us to conserve our ecosystem; both land and sea (refer to Mohamed et al.'s paper, in this issue, on spiritual aspects of traditional fisheries management). Consumption of resources and production of goods can be based on principles of conservation with a focus on preservation and maintaining of biodiversity for future generations.

The community is keenly aware of the effects of sand mining and dredging of the reef, on beach erosion. They have begun to consider increasing coastal vegetation and planting of mangroves as a partial solution for beach erosion. Even though, sand mining from beaches of inhabited islands and uprooting of trees within the Environmental Protection Zone (20 meters from the shoreline) are prohibited under the Environment Protection and Preservation Act (Law no. 4/93), there is no local mechanism to prevent the cutting down of trees, nor to stop sand mining. Law no. 77/78 permits coral, sand and stones to be mined upon obtaining a permit from the city council. Thus, conflict occurs when local people have to buy sand which is mined from their own lagoons and sold by community members. The complexity of resource

sharing and resource management, for modern development while mitigating the impact of climate change is clear in this instance, where sand is sold locally and nationally for building construction, and both nationally and internationally for construction of artificial white sand beaches. The building of seawalls to protect the island from washing out to the sea can only be achieved through collaboration and international aid. However, initiatives to minimize harmful practices cannot be sustained unless law enforcement is practised consistently, and there is room for bottom up, needs-based laws and policies which are relevant and applied locally.



Figure 3. Coastal erosion, on the north side beach. Photo taken by Zuhury, in August 2018.

5.1 Education

Education is the missing critical ingredient to bring about change in the socio-cultural and livelihood practices of the community. Schools can be agents of change to empower young people to participate in community development, to take the initiative and to engage in community development. Rather than being an isolated “island of teaching a global culture and global language”, the secondary school can play a key role in expanding the livelihood activities through apprenticeship-based qualifications. Existing socio-cultural livelihood practices need not be seen as a barrier to modernization, but an integral part of community development.

Education is the key to the future prosperity of the community, to overcome the vulnerabilities of geographic isolation, population decline and overconsumption of limited resources. Diversification of livelihoods, quality of services and improvements in socio-cultural exchanges which contribute to wellbeing can be gained through needs-based education in the fields of preventive health, agriculture, fisheries, tourism, horticulture, etc. Secondary and tertiary education needs to focus on more specialist courses linked to livelihood practices to make education relevant for the children. Competency-based vocational courses in agriculture and

fisheries, disaster management, psycho-social counselling, community health, water sports, boat building, tourism and hospitality can be taught on the island, which can be discontinued after a period of time and again asking the question, what other training and education do we need? If the answer is more health and social services courses then these can be provided cyclically, using a diversification with limited resources strategy. Education needs to be tailor-made for Hulhumeedhoo, enabling the creation of a new local socio-cultural identity as a unique place to live and to visit, with a distinct cultural and economic heritage.

We need to develop further education based on how we can do it at our level. Young people get a job first; get an income, then they want to study. They want a job first. They need jobs to access further education. They can stay on the island only if they have a job...With no job, they go into drugs. Once they get a job, they quit drugs. One young man I know went into drugs, lost his girlfriend even. Then got a job and is now doing a degree here and is working hard. Some young people are married. They have young children. They even studied law because law was the only course available on the island. All the young people who are doing courses are happy ...Young people have to leave the island when there is no A Level or when college closes. About 2000 people are living here – are we that small a community to have our services taken away? The population has started to grow so why are they closing down higher education facilities? (NGO member, female)

Climate change can lead to increasing migration away from the island, rather than to the island. This means that, children will need to have a sound education, which equips them for future jobs in urban places and survive in highly competitive, stressful situations.

6. Conclusion

Hulhumeedhoo lags behind the national average for levels of public service provision, educational attainment, has lower than average labour productivity, lower levels of public services and lower levels of civic engagement. Persistent emigration and deskilling has caused a vicious cycle of decline in traditional economic activities. Access to medical services, social engagement and participation are limited. However, the community is resilient and can thrive with further support through government policies, the enforcement of laws, and education of the public on the reasoning behind the policies.

While acknowledging the prosperity from the tourism sector, traditional economic activities of fishing and farming are in decline leading to an over-dependence on tourism sector jobs. Revival of sustainable economic cultural heritage and traditions are not going apace with

tourism sector expansion. This causes deskilling of labour for the other two sectors. Loss of skills and knowledge of farming and fishing are areas that need urgent consideration. “Fish is more than food to the communities. It is through the catching, exchange and sharing of fish that the communities practice their values and beliefs” (Mohamed, 2012, p. 190). Hulhumeedhoo, with a history of successful farming, can also become a hub of vertical and sustainable farming for the Maldives, supplying produce to Male’ and to other islands in the atoll.

Home-grown change agents are needed to promote job creation, population sustenance and increase and a growing rural economy. Local people understand the human resources that are available in the locality and can maximize the functioning of these resources.

National authorities need to consider local networks and their ambitions to strengthen and mobilize the community towards more environmentally sustainable, eco-friendly living and their desire to reinforce traditional cultural practices which are based on sustainability and spirituality.

Despite the remoteness of the island, limited resources, excessive dependence on international aid and centralized decision-making, the two NGO’s in Meedhoo are taking the initiative to develop as a community. They need sustained development planning done by themselves with the support of experienced planners, and training in relevant development concepts, to make the community sustainable and resilient. With climate change, extreme weather conditions can adversely affect transport to the atoll and hence tourism, and trade, requiring adaptation in how we grow food, fish, build homes and how and where we live. Since, there is no formal governance structure within the community, independent of the city council, the community’s voice is often neglected in the plans for Addu development, both regionally and nationally.

Policy makers and planning agencies need to engage the whole community in the whole process of development through the visioning, planning, implementing and evaluating. Community members need to engage in ongoing dialogue about the environmental assets, wisdom, and way of life, and to envision the future of the community (Green & Haines, 2007).

Meaningful community development can be achieved through increased participation by all the community members. The deeply rooted hierarchies of exploitation cause mistrust. Engaging women to take the initiative and leadership is difficult due to the submissive nature assumed for female behaviour. Involvement of women, children and elders in leading development need to be seen at all levels of society.

Community members highlighted their immediate need for community development as follows:

We need support with drug rehabilitation; we need to rehabilitate a whole generation of youth. We need support with preventive medicine, coaching and support for healthy living. We need support with road safety for our youth. We need to have an island plan to preserve biodiversity and natural habitats while allocating land for economic development and housing and we need to all work together. We need training, and investment to sustain and expand livelihood practices (NGO, panel discussion).

Diversification and expansion of fishing, hydroponic farming; potential facilities for vertical farming, sea walls, photovoltaic electricity, and floodways or channels to the sea are mechanisms for adaptation to climate change. If, bottom up initiatives for networked development is taken up by the whole community to overcome socio-political and economic marginality, with Allah's mercy, the community can continue to preserve the island and its environmental and cultural heritage for future generations. This can be possible only through building capacity to act as individuals and collectively as a community, to work together towards a shared vision of a sustainable future. Unless, the most marginalized and vulnerable groups such as the women and youth have the confidence, competencies and skills, to articulate their views, livelihoods and mutually beneficial development cannot be fair and sustainable. Nalafehi NGO's vision for a beautiful, green Meedhoo can be achieved only through networking to empower and connect people within and beyond the island, regionally, nationally and globally.

State policies in the Maldives are beginning to favour a bottom up networked development model, in its envisioning of "Jazeeraa Raajje"; a vision of rural islands of Maldives as sources of socio-political renewal and innovative economic development. The Maldivian government is in the process of setting up an SME (small and medium enterprises) bank, to promote self-employment and entrepreneurial activity in rural communities. It is also in the process of trying to gain international recognition for the whole of Maldives to be declared a biosphere reserve, thus obtaining support to protect biodiversity across the Maldives and establish a green economy and improve the quality of life for all Maldivians.

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