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Resources and livelihoods of the Maldives islanders

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Introduction: Islands of Maldives

While making serious efforts to consolidate the facts and figures of Maldives islands over hundred years back Bell (1883) states that 'Maldivian Islands are so few and far between, so dispersed up and down scarce works, mostly travels, difficult of reference, that is hoped an effort to collect and bring in to one focus the scattered rays of information on the subject'. About the origin of the race he holds the opinion that 'the early history of the islands is buried in obscurity-the natural result of their complete isolation and comparative insignificance.

Maldives is located on the major sea routes in the Indian Ocean region, the geographic location of Maldives was a convenient stopover for sailors who travelled from east to west and also the opposite way. Maloney (1980) provides the list of traders from Sri Lanka, Greek, Indian, Chinese, Arab and European sailed to Maldives for trade for the last several centuries. The country was also ruled by the colonial powers such as Portuguese, French and British through hundreds of years.

The Republic of Maldives is an archipelago located 600 kilometers south of India in the Indian Ocean around 1,190 small coral islands stretching to the distance of 820 kilometers in length (situated atop a submarine ridge 960 kilometers long that rises abruptly from the depths of the Indian Ocean) with a total area of 90,000 square kms. Only 33 islands have land area more than 1 sq km. These islands are clustered in to 26 administrative units referred as atolls. Generally each atoll consists of approximately five to ten inhabited islands; and twenty to sixty uninhabited islands. The total number of islands inhabited is around 201. Among the inhabited islands 70 percent have less than 100 inhabitants. The islands are low lying with an average elevation of 1.6 meters above mean sea level. Over 80% of the land area of Maldives is less than 1 meter above sea. The population of 394,999 (2011) is scattered throughout the country, but Male', the capital island, houses a population of 103,000 in an area of only

2 sq km, making it one of the most densely populated cities in the world. Limited availability of potable water, land area and congestion due to over population are major problems the capital is facing now.

The islands in the atolls differ in size and total land area from very tiny sand banks to elongated strip land mass of several square kilometers. Generally the islands have storm ridges at the seaward edges with areas of swampy depressions in the inner side. The entire country receives an adequate rainfall and there is very slight variation in the amount of rainfall in different atolls. The average annual rainfall of approximately 2,540 millimeters in the north and 3,810 millimeters in the south, evenly distributed throughout the year. The 26 natural atolls are regrouped in to 26 atolls for the purpose of political administration. The word atoll is derived from the Dhiwehi word '*atolu*' meaning 'a natural group of coral islands'.

Apart from the area used for construction houses and the other common infrastructure facilities the remaining land area in the island is considered as Common Property Resource (CPR). Since the islands are tiny human settlements, infrastructures developed to support the different needs of the communities like power generation, school, hospitals, telecom towers etc industrial structures (in some of the islands) are lying very close to the shore lines. The island population is allowed to have access and use the area but the ownership and control lies with the island office. In each island certain amount of area is reserved to meet the fuel wood and timber requirement of the local population. A few islands are identified for relocation programmes large areas of land is already allotted to construction of houses to new migrants from other islands and also to allocate more area to the expected future migrants. The disaster risk scenario for Maldives can be described as moderate in general. The natural hazards that have potential impact on Maldives in future are tsunami, storm, earth quake and sea level rise. Storm includes wind, rainfall and surge hazards (UNDP, 2005).

The island communities

According to Clarence Maloney (1980) that an early Dravidian-speaking substratum of population from Kerala in India had settled in the islands, this group was subsequently displaced by Dhivehi-speakers who arrived from Sri Lanka and whose language became the official one. Arabs compose the last main group to arrive beginning in the ninth century. However, another tiny endogamous subgroup of persons of African origin called the Ravare or Giraavaru also existed. The family is the fundamental unit of the Maldivian society, majority are nuclear families of married couple with their unmarried children. Rarely

one can come across extended families like married siblings and their children staying with their parents. Man heads the household and descent is patrilineal, but property is inherited through both male and female lines. Communities in the islands are kin groups of interrelated as siblings or through marital relations. The kinship system on the islands is patrilineal and the family was traced along the male line. Divorces are common and marriages are considered not as a family responsibility but a matter of individual choice. In the past the communities lived in other islands outside Male had self contained life, depending on the marine and land resources for their sustenance. Boat owners were considered as well of groups; they could make trips to Male and be in touch with people in power. In terms of gender relationship, traditionally the status of women is fairly high, on daily life women do not veil, not strictly secluded away in public places, exclusive areas are reserved in masks and stadiums. As per the Islamic law the men are allowed to have more than one wife, the law allows divorce from both sides' men and women. It was reported divorce rate is very high. Girls marry at very young at the age of 15 yrs and boys a little later around 20 yrs. The parents help the children to learn Dhiwehi, the native language from a young age.

Fishing is the major economic activity of the islanders. The other activities include resort labour, boat building, agriculture etc. In the islands many left fishing and joined as laborers in the resort islands. Mostly the youths who completed the school education aspire to get a job in the tourism industry. Another important source of income to the islanders is government jobs available in the island. Some of the educated are appointed as staff in the office of the island chief, government hospitals, schools, court, police etc. About the food habits in the past Bhell (2004) says the usual meal is half boiled rice, chopped chillies, little fish and scraped coconut. Betel chewing is common practice and also smokes with *guda- guda* before and after their meals. Now the food habit has changed a lot, still rice forms the staple, make curry with different vegetables they grow in the garden and also import from other countries. Even though fish is considered the essential food item in many cases fish is not consumed regularly on daily basis, especially families which are not having fishing as their primary occupation. A well functioning island level water storage method exists and linked with good rain water harvesting system. The stored water is used during the crisis time.

In the past members of royal lineage ruled the country for centuries and the people living in Male were generally rich and propertied class and the people lived in the distance islands were poor in their economic conditions, lack of capital and link with trade and markets were some of the reasons. But now

things are changing, people living in the remote island own property and very well linked with Male and other external sources and markets. Maldives has a high literacy rate of 98% (ages 15-45), in terms of gender, it is interesting to observe the rate is marginally higher for females than for males. The rural urban disparities is removed due to the universal school education system prevails in all inhabited islands. 'Maldivian women are among the most emancipated in South Asia and the Islamic world. There is no institutional discrimination along gender lines in access to education and health services or for jobs in the public sector (ADB report Gender and Development assessment 2007. The islanders are religiously and linguistically homogenous follow Islam and speak Dhivehi language. The only minority group found is the trading community migrated and settled around 1800. They could be few hundred in numbers belonging to the Shia branch of Islam. With regard to legal system, the Islamic law code of *sharia*, known in Dhivehi as *sariatu*, forms the basic law code of Maldives as interpreted to conform to local Maldivian conditions by the president, the, the Ministry of Home Affairs, and the parliament (*Majlis*). According to Ibn Batuta (1984), the approximate date of Muhammadan conversion of at least the Northern atolls and Male could be the beginning of 13th or the end of the 12th century.

Coral stones washed ashore are used for construction purpose and in some islands to produce lime. In their past entire houses were constructed using coral, now coral mining is banned by government, construction works are done with imported cement, stone and other raw materials. The inter island relationship is smooth; trips are made to visit the relatives and friends. Transportation is through special ferries meant for travel and by fishing boats. The cost of travel is a major restricting factor of the movement of the islanders. At present the government is working on a major project to enhance the interisland transportation facilities.

An excellent hardware modern Information and Communication network is established at atoll and national levels. Most of the islands have the facility of multipurpose community IT centres managed by the local group like Island Women's committee or Island Youth Movement. The centres are used by the islanders to make phone calls, access internet facility, make photocopies, send and receive fax messages etc. The two telecommunications, Dhiraagu and Wataniy of Maldives have their presence in all inhabited islands. Innovative experiment like CB system to communicate fishermen in the sea with a range of 45 to 50 nautical miles is developed by the fishermen to reach fishers in the sea. Primarily the islanders depend on sources like TV, Radio for their information needs and receive generic information.

Some of the important information needs identified (Baseline survey report- Shaviani atoll, 2007) during the discussion with islanders were

- Market information for both fish and agricultural products
- Scheduling of local ferry service, inter islands and also to Male
- Information on sources of improved technologies and agricultural/home garden inputs
- Government development schemes to the specific atoll and the island
- Job opportunities to the educated youths, men and women

In the case of any early warning announcement, the Department of meteorology from Male sends the information to office of the atoll chief from there to the office of the island chief and the staff in the island chief office makes the public announcement. The atoll office has a data base of mobile telephone numbers of the Island chiefs, leaders and other important persons of all islands in the atoll to reach out quickly.

With regard to environmental concerns, sand and coral mining are the major issues, natural coral reefs are very important to protect the islands from sea erosion. It has been reported that large quantity of sand and coral mining in many of the inhabited islands are now highly susceptible to coastal erosion. The other major emerging environmental problems listed due to change in the life style with in the the last few decades are sewage and solid waste disposal, depletion and pollution of groundwater due to increase of the population in the islands, and excessive fishing due to the introduction of mechanized high speed boats. Roughly more than a decade back by Chaudhury (199) clearly expressed the adverse impact in the following sentences, ' The symptoms of environmental degradation associated with rapid population growth are also evident in many over-crowded islands. This could be seen in the depletion of vegetation, decline in firewood and potable water supplies, deforestation and mining of coral and sand. Excessive deforestation and mining of coral and sand to meet the need for firewood and construction materials for the growing number of people have led to massive soil erosion, threatening in many places the sustainability of the island population.'

About the issue of emerging inequality within the Maldivian population ADB country partnership strategy report (2007 -2011) describes as follows 'two decades of rapid growth has come at a cost. Those residing in Malé and on the surrounding islands have done extremely well, but many on the more remote atolls have been left behind. Income disparities have widened, and opportunities for trained youth, women, and those on the more remote atolls to participate in the growth process are extremely

limited. A failure to address regional disparities runs the risk of the Maldives' evolving into two distinct societies—a richer, well-resourced center in Malé and a disadvantaged hinterland on the outer atolls.

Resources and Livelihoods

Generally Island countries are in relative isolation, with limited resources and communities develop strategies to cope up their livelihoods with the available limited resources. Land based natural resources are limited when compared to the extensive area of marine based natural resources. The Maldives depends on a narrow economic base typical of any small island nation, primarily international tourism and fisheries. Till three decades back the economy was dominated by subsistence fishing, agriculture with little trade basically to exchange the marine based products from Maldives and to receive rice the staple and other necessary items from other countries. In island nations, trade is the unavoidable feature to sell and buy the products they need from outside; hence the country's economy is very much depending on trade and commerce with external markets. Scarcity of the land based natural resources is one the main reason for the dispersed population. Limited water and land area are the major constraints for the promotion of any land based development activities. The adverse impact of the rapid growth leads to environmental degradation.

Fisheries: From the ancient times fishery plays a major role to support the livelihood of the islanders. Fishery is the primary livelihood of the islanders; the main sources of income of the island population come from fishing. As per the details available by the 2006 the total number of Maldivians involved in fishing is 14050 from different atolls (Govt of Maldives, 2006). Fishing is carried out throughout the year. The islanders practice pole and Line fishing which is common in the country, the other method is reef fishing. In the past fishery was the major sector brought around 80% of export income to the nation. Dry fish is one of the main trading item taken by the islanders to the other parts of the world. 20% of the labour is employed in the sector and contributes 10% of the GDP. Fisheries are the largest contributor to exports. It is estimated around 50% of the catch is exported to different countries as dry or canned fish. They use traditional dhonis to fish close to the shores. Sailing boats are now shifted to outboard motors (in one boat around 10 to 12 men form a team for fishing), which multiplied the catch in to several folds. The fish harvesting sector in the Maldives has expanded greatly since the 1960s, with landings increasing from 21,542MT in 1966 to 180,981MT in 2006. The current fish catch consists of skipjactuna (*Katsuwonus pelamis*), yellow fin tuna (*Thunnus albacores*) and variety of reef fish. Skipjactuna caught

almost entirely with pole – and – line, is considered the most important species caught in the Maldivian tuna fishery and comprises around 70% of the total catch (Sinan, 2010). Reef fishery was done very little till 1990s, but the growth of tourism and transportation facilities helped the development of the reef fisheries for local use and external market.

The modernized boats with out board engines are equipped with the advance communication technologies. At present the mechanized fishing has become a common practice throughout the atolls, the boats travel normally up to 75 miles from the island shore. The collection by the big vessels in the mid sea reaches the plants located in some of the islands for further processing. Apart from these small traditional dhonis with flat bottoms are used for fishing by some of the households. No market facility is available in the islands; the main market source is the visiting vessels in the sea from Male. The state owned company, Maldives Industrial Fisheries Company (MIFCO) is the only company involved in buying the fish, and hence some time the vessel may not be there in the sea when the fishermen come back with the catch. The other problem is the capacity of the vessel; the maximum capacity is 30 tones some time if they get good catch they have to take the extra fish to the island for processing. The price is fixed but changes according to the season. The processed fish in the islands is transported to Male and sold as dry fish in the market. Dry processing is done at the household level or in some islands in the commercial processing units owned by private individuals. The increasing export market opportunities reduce the quantity of dry fish processing in the islands. The availability of the live bait fish is a major problem the island fishermen are facing now. Some of the islanders who own dhonis and small boats are involved in lobster and prawn catch through diving method and the market for these items are the resort islands.

The availability fuel to the islanders to operate mechanized boats and more importantly the new facility of collection system in the mid sea through vessels are the main reasons for the development. The modernization of the fishing methods has improved the opportunities for men, motivating them to enhance the catch and sell it to collection vessels. While concluding the management of fisheries resource in Maldives Sinan (2010) suggests that 'Managing and developing the fisheries in a way that generates a sustainable economic surplus, which we regard as the true wealth to be obtained from the Island's marine resources, seems to be a fundamentally important requirement if key development objectives such as poverty alleviation are to be met'.

Farming and home gardening: Except fresh tuna and coconut Maldives imports almost all other food items to meet the food requirements. The Islands are dependent on Male or other islands for food supply. The items are transported to different islands through boats. The boats visit weekly once or twice and supply to the local shops. It is estimated that only 10 per cent of the country's total land area is suitable for agriculture. It is severely constrained by the limited availability of cultivable land and fresh water and also shortage of domestic labour to work in the agricultural and home garden plots. The nature of the soil is shallow, young, thin and alkaline in nature, poor in fertility, contains considerable amount of coral rock and sand.

Generally the households in the islands have enough backyard space to develop a home garden. Generally the gardens are with a few fruit trees and few vegetable crops without much crop diversity. The products are used to meet the domestic requirement. The gardens are managed without any improved agronomic practices in terms of soil and water management. The good rainfall received in the island generally supports well both small scale agriculture and home garden activities. The Government is keen on promoting both agriculture and home gardening to enhance internal food and nutritional security. The islands do not anticipate food crisis the local communities' perception is that local shops could support to meet if any such risk in the future. The island chief office on every week takes note of the existing stock in all shops in the island and shares with atoll office. Therefore given an island scenario lower number of shops is with higher vulnerability. Presence of agriculture and horticulture as alternative food supply channels can make islands more self-sufficient for interim periods following possible major disasters. In islands rain water is the only source of water for local communities. Now some of the densely populated islands have desalination plants to supply water for domestic use.

As per the records the vegetables cultivated in the past are chillies, pumpkin, brinjals (*Solanum melongena*) and several yams. A little cotton (*Gossypium Indicum*) is also grown in a few islands. Two kinds of millets are cultivated i) *sectaria intalica* and ii) *Panicum miliaceum*. And some nacheri kurakkan (*cynosures coronocanus*, *M.bimbi*) Bell (2004).

Crops found in the Maldives can be divided into the following five categories:

Field crops	millets, maize and sorghum, sugarcane
Vegetables	pumpkin, cucumber, ridge gourd, bitter gourd, eggplant, snake gourd, drumstick, taros, tapioca, sesbania, legumes
Fruit crops	bread fruit, banana, pineapple, mango, lemon, pomegranate, star apple, custard apple, passion fruit, screw pine, papaya, jack fruit, guava, jujube, citrus,

	bilimbi
Spices and cash crops	chillies, red onions, watermelons, ginger, turmeric, curry leaf, fennel, cumin, fenugreek
Plantation crops	coconut, areca nut

(Hopper. Marlynn E. 1999, FAO)

Agriculture in the island is women based activity; they manage the farm and carry out almost 95% of the activities. In the islands if land is available selected number of households practice agriculture, the crops include a number of fruit bearing trees and vegetable crops. The islanders make furrows as a mechanism of rain water harvesting and also irrigate the plants. If needed they also make small shallow water pits and use the water for irrigation. Government policy prevents owning individual agricultural plots, but encourages the interested households to clear a plot and cultivate different crops. The products are sold in the same island, rarely neighboring islands but mostly taken to Male markets. In the few farming islands, the men plough and till the fields while women help with the planting of seeds and harvesting of crops. The other activity women involve and contribute the household economy is making leaf bundles from coconut fronds and marketing to the resorts. Even though it is seasonal the women make considerable income through the activity. Irrigating the plants has become an issue in many islands due to the declining quality of well water. But collection of rainwater by the islanders as collectively and individual houses has enormously supplement the use of well water and reduced the speed of depletion of the water table in the islands. In almost all atolls, rainwater is now more widely used than well water as the main source of drinking water. It also helped the women to use the ground water for irrigating the plants they grow in the home gardens.

Government is keen on promoting the both agriculture and home gardening to enhance internal food and nutritional security. Lack of improved technology for agricultural practices, availability of good quality seeds (the source reported was own, local shops and rarely from Male) are the major problems for agricultural development. Transportation of the produce to Male is also a problem both in terms of cost and duration taken to reach Male by boats with perishable commodities. Poor soil quality and water holding capacity due high porosity are other negative factors for the promotion of agriculture in the islands. Agriculture's contribution to the country's economy, currently only 3% of GDP, needs to be enhanced with the increase of the activity in more outer islands with large land areas suitable to crop cultivation. Agriculture should be an additional income generation activity to diversify the economic activities in Maldives which currently supported by tourism and fisheries sectors. . Enough arable land

and fresh water resources are the two major constraints for the promotion of intensive agricultural practice in the islands.

Tourism, trade and Industry: Tourism contributes around 36% of the GDP of Maldives economy. The government of Maldives leases the uninhabited islands for resort developments to a native, foreigner or a joint venture of a local and a foreign national. The growth is phenomenal since 1972 the first resort island was established, considered as a wise decision taken by the government to capitalize the natural resources like the beautiful and serene coral islands for international tourism. The total number of resorts to accommodate tourists from various parts of the world at the end of 2012 was increased to 98 resorts (Tourism- Year book 2011). During the year 2010 around 7,50,000 tourists visited the island nation, after a decline due to global recession for a few years the number has started going up, last year tourist arrivals increased by 6.7 percent. Traditionally tourists from European countries dominate in numbers and in the year 2010 also more than 50% of the visitors are from these countries.

Contribution of labour in the resort islands for construction work is a major economic activity which supports the island population. Men folk from atoll islands migrate to the resort islands as a team of 20 to 30 to do manual labour. They stay there for three to six months after a break of 20 days to a month at home again go back to the islands for work. The resort islands are located faraway places hence it is difficult to make more trips to home islands. Since it is rewarding the islanders are attracted to take up the job.

Sea trade was one of the main activities of Maldivian in the past, they have good record of sea trade, cowries and coir were the two main products traded in the past to different parts of the world. In the subsequent periods the other products like dried tuna fish, ambergris (Maavaharu) and Coco de mer (Tavakkaashi) were added in the list of sea trade. The traders had own vessels, the other options available were trading ships of colonial countries. According to records, ships from Malabar, Persia etc came to Maldives to load the products from Maldives and sell abroad. It is worth to quote from the old literature about the trading skill of the Maldivians, Barbosa (who sailed to the east from 1501 to 1517) provides a brief note, in that it mentions the items Maldivians sell, many kinds of dried fish, export cowries to Cambay, Bengal and tortoise shell to Guzerat, manufacture of cloth, of cotton and of silk embroidered with gold and ambergris in large pieces. (Bell, 2004). Appreciating Maldivians another quote refers (Pyrard, 1744) few manufacturers display their ingenuity and expertness, their navigation skill is

extraordinary bold and skilful, they are very wise, sharp and cautious in their business (Pyrard. 1744). Maldivians have good skill in boat building, the very nature of their dependence of sea resources resulted in their efficiency in boat building. Now boat building of domestic use and also building of luxury boats to sell out side like gulf countries has emerged as a major industry. This adds to the foreign exchange considerably.

The traditional industries of the Maldives are fisheries, boat building and handicrafts; the emerging new industries are tuna canneries, a few garment factories, bottling plants, manufacturing of PVC pipes, manufacturing units like soap, furniture etc. Generally the timbre for boat building is harvested from uninhabited islands. It contributes for about 18% of GDP. Most of the countries import and export of goods are handled by private shipping vessels. The issue skilled labour to carry out the jobs in different sectors Maldives depend on imported labour from India, Sri Lanka, Pakistan etc. Migrant labour from the atoll islands to resort islands or the capital Male from the atoll islands is a very common practice and earn good income compared to the traditional fishery and small scale agriculture.

The role and the contribution of island women

The traditional gender division of labour is well defined and continues to prevail even today. Women take care of all domestic responsibilities, like prepare food; take care of the children etc. Boiling, drying and selling fish is women's job, they also involve in production of coir rope, twine, matting, palm frond panels etc. Large scale migration of men folk to Male or to the resort islands looking of lucrative employment also added the responsibilities of women in the atoll islands. At present the contribution of women labour force in fisheries sector has been declining rapidly mainly due to the reduction in the women's traditional involvement in fish-preservation (dry fish) activities as a result of the mechanization of the fishing industry and the export of raw rather than dried fish. Traditionally women play multiple roles to manage the household in the domestic context; men are away in the sea for long hours either for fishing or trading the fish in the sea or with external markets. The women in these households take care of the elderly people and children and manage all domestic affairs in the absence of the male household heads. According to Mujtaba (2005) that 'the Maldivian women are the most emancipated in the Islamic world. However, the opportunities actually available to them in rural island are limited. The modernization process may have freed women from the hardships of fish processing but has also

exposed them to the modern forms of employment in the fishing industry. Apart from jobs in the government, which are mainly in Male, women don't have many opportunities for progresses.

The local governing system and island level institutions

The islands have well structured governing system. The island chief (*Khatib*) is the head of the governing system at the island; atoll chief nominates the island chief. The island chief is a government appointment and he is responsible to all aspects related to socio economic and development of the island. The island chiefs enjoy the position as long as they enjoy the confidence of the atoll chief. Some of the islands have senior island chief and assistant island chief as well. Island Development Council is the prime body which plans the island development in collaboration with the office of the island chief, the members are elected and the tenure is for four years. Island development council is in charge of all development activities; the council expresses the needs to the atoll office and gets the necessary fund support. Activities like harbour management, solid waste management also come under the control of the Island Development Council. Island women committee leader finds a place in the council to ensure women's representation in the council.

At the island level the different sections of the communities are mobilized and formed as Community Based Organizations (CBOs) such as Island Women's Committee, Island Youth Movement, and Fishermen Association etc. The CBOs are with large memberships, most of the women and youth in the islands become members of these organizations. They organize periodical meeting for once in a month or sometimes twice to discuss and plan their activities. The Island Development Council manages the local infrastructures like power house, desalinization plants, community IT centres; island pharmacy etc., through contracting to the local CBOs and revenue generated is used for the island development activities. Island level judicial system takes care of the petty crimes with the support of the island development council and severe crimes are taken care by the national court operates at Male. Seeking divorce is the common case the local court deals. Atoll office acts like a hub, which facilitates the meeting of the leaders of the different islands. The NGOs present in the islands support the Island Development Council and CBOs to execute the development projects. They involve other activities like organizing functions to celebrate special days, sports events and cleaning the islands. They also engage in activities like schooling, career guidance of youths etc.

Dry processing units, ice plants are other facilities available in the islands which provide job opportunities to the local people and migrants from other countries. The bank facility is available only in the atoll head quarters but a mobile unit visits all the island monthly once similarly a post man visit the islands twice a month to collect and dispatch the mails.

The risks, disasters and local coping mechanisms

Beach erosion (at different points in all islands the team visited observed this problem), sea water inundation due sea swelling and flat topography of the islands, strong wind with heavy rain, change in the patterns of wave action which facilitates shore line change are some the major risks observed by the local population. Since the islands are smaller in size they are prone to these risks and highly vulnerable to these kinds of natural disasters. In some cases the human activities like eradication of the coastal vegetation also attributes to the problem. It was reported by the local population the problem of beach erosion is severe during the recent past. Some time the high wind speed also damages the houses and carries away the roof top in the islands. The tsunami waves of 2004 December had struck and destroyed houses in and sea water intrusion up to half a kilometer damaged the agricultural lands and crops in many islands.

Seaborne natural hazards: The islanders have a list of plant species which are good to withstand the shore erosion and block the strong wind coupled with heavy rain. Promotion of selected tree species as bio barrier along the coast is the local practice in the islands to protect from sea born the natural hazards. The other method adopted was construction of break wall made of rocks/boulders and coral reefs from the sea. But the walls could not stand for longer time; they need good foundation to withstand the wave movement. According to island elders the following list of species which are good to withstand the beach erosion and block the strong wind coupled with heavy rain, 1. Nikka, 2. Kuredhi, 3. Digga, 4. Kaandu, 5. Hirund, 6. Medili, 7. Funa. In the northern atolls April end to June middle is considered as the suitable season for planting saplings and cuttings.

Tsunami in the past: Boudralh (means big waves in Dhiwehi) is another disaster the islanders encounter. The islands witness a boudrah coupled with continuous heavy rain and waves entered in to the island, the height of the waves is two to two and a half meter. The waves enter the islands damage the houses,

household items, coconut trees and their boats on the shore. The immediate support always comes from the neighboring islanders.

Other Common disasters: Flood during the month of June and July it is a regular problem the islanders face in the northern atolls. Sea water intrusion/inundation due to sea swelling (due to flat topography of the islands) was the other common problem faced by the islanders. Since the islands are very small they are prone and vulnerable to these natural disasters. The other method adopted during the past in the region generally was if there is any natural disaster which is beyond manageable level, the local population abandons the island and would move to the neighboring island. Sand mining and coral reef collection are the two recent manmade disasters counted by the islanders. Now there is a strict by the government rule to prevent both sand mining and the removal of coral reef.

Small scale agriculture to meet the food crisis: As a coping mechanism they visit the neighboring islands when they face food crisis in their island due to heavy rain, flood etc. When they visit the island during the past there was no jetty, hence had problem to approach the island from the sea, some time if the sea is rough it carries the boat away from the shore. The islanders visit the island to collect coconut and practice small scale agriculture, Bimbi- (sorghum), is the main crop cultivated by the islanders in the uninhabited islands. Some time they stay in the uninhabited islands for up to three months till they harvest the crop cultivated. They bring the grain and store the extra grain to meet if there is any crisis. Also they gather other edible items from the neighboring islands carry back home.

Generally during the disaster, the neighboring islanders visit to rescue/support the affected islanders, the neighboring islanders who come to know about the problems mobilize people from the island and visit the affected islands and work together to clear the damage. They involve in the construction of houses and other structures. The neighboring islanders also bring materials to meet the immediate food requirement. The neighboring islanders continue their support till the government support reaches which takes minimum 15 days in the past. Now government support reaches the affected population within a couple of days. The other food items resorted in the past after any disaster are bread fruit, custard apple, kahtala, papaya, kandoo, coconut etc., collected from the same and the neighboring islands. The cohesive community structure and good cooperation among the members of the island community in the island is also helping to buttress the resilience of these islands to different type of shocks.

Conclusions

Over centuries Maldives had been dominated by several external forces, but managed to emerge as a homogenous group with distinct cultural identity. Historical accounts of trade and economy provide enough evidences of diversified economic activities of the islanders, but the present scenario is narrowed down with only two major economic activities i.e. international tourism and fisheries. The good growth rate of the country since 1970s is due to the developments in tourism and fishery sectors. Agriculture is the other economic activity needs attention to promote self dependency. Rapid growth in the last three decades leads to environmental degradation, the local population in the atoll islands is not concerned much, high level of motivation is required to involve them in sustainable efforts to mitigate and overcome. Active and empowered participation of the CBOs operating in the island could help to achieve this. Another major issue which needs to be addressed by the state is the emerging in equality in terms of economic status. Maldivian women enjoy equal freedom in social and economic domains, contribute equally to the household economy but opportunities are limited in higher education and emerging sector like tourism. The excellent communication network with the use of modern ICT is an opportunity to promote e governance and e commerce. Maldives is a country endowed with minimal natural resources, trade and commerce with external partner is a very essential to promote and sustain growth and development. But the increased dependency on imports like food, fuel, raw materials for construction etc also make the country's position vulnerable to fluctuations in the global market. If there is any disaster they act as a single group to respond, a kind of informal social security system prevails and supports the affected population. Maldives is located on the major sea routes in the Indian Ocean region, hence considered as strategically important in the past and also in the present time.

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