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Challenges for shared responsibility – Political and social framing of coastal protection transformation in the Maldives

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Abstract

There is widespread understanding that climate change has dramatic impacts especially for small islands. In the Maldives, a key challenge is to confront erosion processes along its coasts – past approaches have shown to not always be sustainable. Alternative approaches to coastal protection are therefore urgently needed. In this paper we use the concept of transformative governance to identify factors in society and politics that act as barriers and enablers to the introduction of alternative approaches to coastal protection in the Maldives. We investigate how inhabitants perceive coastal erosion risks and analyse people's receptiveness to alternative coastal protection measures and their willingness to get involved in coastal protection. Governance structures are assessed against the context of conflicting central political, national and island peripheral interests. We identify hierarchical political structures in coastal protection governance as a dominant obstacle to alternative approaches. Based on empirical data collected in the research project DICES (Dealing with change in SIDS – societal action and political reaction in sea level change adaptation), we stress the importance of cultural aspects and sense of place when dealing with coastal protection. Further, we challenge the widespread assumption that people of the Maldives prefer hard coastal protection structures for their islands – a notion which is utilised by national politicians in their decision-making process to support the continuing application of hard protection measures. We discuss challenges to transformative governance related to shared responsibility, political power and openness to innovation.

Zusammenfassung

Es besteht weitgehende Einigkeit darüber, dass der Klimawandel besonders für kleine Inseln dramatische Auswirkungen hat. Für die Malediven bedeutet das, dass die vielfältigen Erosionsprozesse entlang der Küsten vor allem in der Zukunft auf nachhaltige und gleichzeitig Natur verträgliche Art zu bewältigen sind. Da landläufige Küstenschutzansätze inzwischen gezeigt haben, dass sie nicht immer nachhaltig sind, werden alternative Maßnahmen dringend erforderlich. Dies ist jedoch nicht nur eine technische, sondern auch eine gesellschaftliche Herausforderung. Um die gesellschaftlichen und politischen Hindernisse und Potentiale für die Einführung alternativer Küstenschutzmaßnahmen zu analysieren, untersuchen wir u. a. die Wahrnehmung von Küstenerosionsrisiken und hinterfragen die Aufnahmebereitschaft der Menschen für alternative Küstenschutzmaßnahmen. Darüber hinaus werden die bestehenden Küstenschutz-Governance-Strukturen im Kontext widersprüchlicher

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zentraler nationaler und peripherer Inselinteressen bewertet. Basierend auf empirischen Untersuchungen im Forschungsprojekt DICES (Handeln im Wandel in SIDS: gesellschaftlicher Umgang und politische Rahmung der Anpassung an einen Meeresspiegelanstieg in kleinen Inselstaaten), betonen wir die Bedeutung kultureller Traditionen und des Ortsgefühls im Umgang mit dem Küstenschutz. Zudem hinterfragen wir die verbreitete Annahme, dass die Menschen auf den Malediven harte Küstenschutzstrukturen für ihre Inseln bevorzugen, was nationale Politiker gerne in ihren Entscheidungsprozessen für weitere harte Küstenschutzmaßnahmen als Begründung verwenden. Das derzeit viel diskutierte Konzept der transformativen Governance wird hierbei in Bezug auf eine gemeinsame Verantwortung, politische Machtverhältnisse und die Offenheit für Innovationen im Küstenschutz der Malediven untersucht

Keywords coastal erosion, community engagement, transformative governance, Small Island Developing States (SIDS), the Maldives

1. Introduction

It is expected that climate change will increase pressures on coastlines as a result of changing sea levels. Flooding of coastal areas and coastal erosion are just some of the impacts extreme storm events and sea level rise can have. Especially small islands and Small Island Developing States (SIDS) with limited space and restricted adaptive capacity will be hit hard. Settlements and infrastructure in small islands are mainly concentrated in proximity to the coast and thus particularly threatened by these developments (*Barnett and Adger 2003; Nicholls and Cazenave 2010*).

Traditionally, coastal protection was predominantly practiced in an ad-hoc manner by island communities and buildings were mainly located towards the centre of the islands. Influences like population growth and tourism development changed these traditional patterns of settlement and buildings were constructed closer to the coast. New coastal protection measures were necessary as a result. Until recently, these have usually implied some kind of coastal fortification, with associated financial implications as well as the risk of misguided developments along the coast.

In recent years, engineered/hard coastal protection measures have increasingly been criticised for their negative impacts on ecosystems as well as their high costs (*Nunn 2004; Kench 2012*). Because of the latter, SIDS are dependent on international financial aid to finance coastal protection, which is generally handled by the national governments of the affected countries. Recent studies on climate change adaptation have indicated that adaptation funds are unlikely to trickle down to peripheries (*Connell 2010; Schwarz et al. 2011; Nunn et al. 2014*), implying that peripheral is-

lands and areas are often required to manage climate change adaptation on their own. As peripheral areas nevertheless depend on the respective centres, understanding of the potential for alternative approaches to coastal protection inevitably requires analysis of the distribution of power between the different levels of government that are involved in coastal protection.

The scholarly discussion has revealed a need to address coastal erosion with new comprehensive strategies, incorporating both new techniques and new governance structures (*Temmerman et al. 2013; McMillen et al. 2014; de Vriend et al. 2015; Schoonees et al. 2019*). In terms of techniques, 'new' particularly applies to 'nature based solutions' or 'soft coastal protection measures'. These approaches attempt to maintain or re-establish coastlines with naturally occurring materials, including sand nourishment, restoring mangroves, replanting of sea grass beds to prevent erosion, or bio-rock materials that mimic artificial reefs (*David et al. 2016; Narayan et al. 2016*). Soft protection measures are particularly interesting for SIDS due to the fact that they can be implemented at lower costs and with the support of affected communities (*de Vriend et al. 2015; Narayan et al. 2016*) – but certainly with more maintaining efforts needed. In terms of governance structures, recent coastal adaptation projects have begun to be based on broader adaptation concepts that encompass community engagement (*Burton and Mustelin 2013; Sherman and Ford 2014; Hafezi et al. 2018*). Numerous studies discuss the need to include the affected communities in the planning, implementation and monitoring of adaptation measures as impacts are most directly experienced at the local scale (*Barnett 2001; Smit and Wandel 2006*). Furthermore, it has become apparent that governance of adaptation is heavily influenced

by politics on different scales and international discourses (Kearney et al. 2007; Ratter 2008). However, only a few pilot studies have so far explored the role of community support in implementing soft coastal protection measures (see e.g. Barnett et al. 2014; Donner and Webber 2014).

Coastal erosion is already a predominant problem for SIDS and the current centralised way of dealing with it is seen as unsustainable in many cases. In the Maldives, 64% of the inhabited islands already reported serious erosion problems in 2004, with no improvement of the situation since then. Government is now expecting coastal erosion problems to worsen due to anticipated impacts of sea level rise (MEE 2015a) and man-made activities such as land reclamation. Incremental adaptation, even including some new techniques or governance structures, is unlikely to resolve this problem. A fundamental shift in the management of coastal protection will be needed altogether to ensure a more sustainable trajectory for SIDS.

This paper considers the political, organisational and social dimensions of coastal protection. It uses the concept of transformative governance to explore the potential for profound change in the governance of coastal protection in a case study setting. Transformative governance is defined as a fundamental restructuring of the system towards a more sustainable trajectory (O'Brien 2012; Brown 2015; Hulme 2015). As such, it offers a new perspective from which to challenge the current approach to coastal protection in small islands. We attempt to advance research on transformative governance by assessing the potential of the Maldives to engage in new, more sustainable trajectories in coastal protection. In our case study, we analyse the socio-political framing of coastal protection, the existing institutional structures for its implementation and the resulting challenges for transformation in climate change adaptation. This is based on the understanding that coastal adaptation is not only a technical but also a societal challenge (Gerkenmeier and Ratter 2018). Decisions in favour of coastal protection measures are not only influenced by environmental requirements, technical capabilities, and financial possibilities (Temmerman et al. 2013). It has been shown that regional/local cultures, specific sense of place as well as routines and traditions are just as important as the power relations between centres and peripheries (Petzold and Ratter 2015; Ratter et al. 2016). "Supportive social contexts are those that respond to stresses of all types with broad-based participative problem-solving and

vulnerability assessment, combining adaptive institutions with supportive public attitudes to facilitate the consideration of a wide variety of risks and responses." (Kates et al. 2012: 7159). These considerations lead to the following research questions for this paper: (1) What interests, values, experiences and perceptions influence attitudes to specific coastal protection measures among the general public and in politicians? (2) What political and social factors enable or hamper community engagement in coastal protection?

In the following, we first define transformative governance in the specific context of climate change (Section 2). We then describe the underlying conditions of our case study area, Fuvahmulah/the Maldives (Section 3), and focus on specific coastal protection needs. Based on a mixed methods approach (Section 4), we present empirical results and discuss the factors that influence preferences towards certain coastal protection measures. We also discuss possibilities for the community to engage in the implementation of coastal protection measures (Section 5). In Section 6, we discuss transformative governance from the perspective of community engagement in coastal protection.

2. Transformative governance

Climate-related impacts, especially those of extreme events, are increasing in frequency and/or magnitude (Denton et al. 2014). Currently, many countries are allocating significantly more funds to disaster response than to risk reduction measures such as coastal defences (OECD 2016). Continuing with traditional approaches may be disproportionately costly, so that transformation and integration is needed of disaster risk response and climate change adaptation (Denton et al. 2014; Lawrence et al. 2019). This implies a switch to a distinct new system of governance where a different suite of factors become important in the design and implementation of response strategies (Marshall et al. 2012; Kopp et al. 2017).

Transformative governance is increasingly discussed as "an approach to environmental governance that has the capacity to respond to, manage, and trigger regime shifts in coupled social-ecological systems (SES) at multiple scales" (Chaffin et al. 2016: 400). Transformative governance describes actions or interventions that come into play when the limits of incremental adaptation have been reached and structural changes are needed (Kates et al. 2012).

Transformative governance is thus a socially initiated process that forces a system across a threshold (Chaffin et al. 2016). Chaffin et al. (2016) list a number of components that are essential for effecting transformative governance, namely governance components (e.g. institutions, actors, networks and organisations), structures (e.g. legitimacy, human behaviours, and power), and additional capacities (e.g. leadership and innovation). Essential requirements for establishing a new social ecological regime include the restructuring of power relations, altering established economic structures and changing social structures in favour of more fairness and equity (ibid.).

Research on community engagement would indicate that transformative change is unlikely to be successful if not intrinsically motivated. It needs shared responsibility, based on support and engagement of stakeholders and community. Trust in and accountability of government are essential for engagement, as is the political will to adopt and pursue change (Edmondson and Levy 2019). In the following, we use the concept of transformative governance proposed by Chaffin et al. (2016) as a basis for analysing selected enablers and barriers for a shift towards a more sustainable adaptation pathway in the Maldives. Our particular focus is on the role of community engagement, adaptiveness of governmental institutions and behaviour. In this, we also refer to Kates et al. (2012: 7158) who point to “institutional and behavioural barriers that tend to maintain existing resource systems and policies” as typical impediments to transformative governance. They go on to emphasise the importance of “internal driving forces” for transformation, which include effective adaptive institutions, public values and attitudes and incentives for action and leadership (ibid.: 7159). Transformative governance thus responds to increasing threats of climate change impacts “with broad-based participative problem-solving” (ibid.: 7159), along with adaptive institutions (Berkhout et al. 2006; Berkes 2009) and leadership for initiating transformation change (Moser and Ekstrom 2010).

3. Case study: Fuvahmulah/the Maldives

3.1 Geography, politics and society

The Maldives are located in the Indian Ocean southwest of India, extending over an area of 860 km from north to south and up to 100 km from west to east and with a land area of about 298 km² (see Fig. 1) (Wadey

et al. 2017). The Maldives consist of about 1,200 coral-line islands, of which 198 are inhabited. About 100 are exclusively used as tourist resorts. The islands of the Maldives are generally very small; no island is larger than 10 km². 47% of all housing structures and 42% of the population are within 100 m of the coastline (MEE 2015a). It is one of the lowest-lying countries in the world, with 80% of land lying below one meter above mean sea level (Khan et al. 2002). The resident population of about 400,000 is highly dispersed; there are only 20 inhabited islands that have more than 1,000 inhabitants (NBS 2014). The exception is the capital Male', where approximately 38% (153,904) of all Maldivians live (NBS 2014). The Maldives is a middle-income country and in 2013 had a per-capita gross domestic product of 13,150 US-Dollar, the highest in South Asia (IMF 2018). Over the last 30 years, tourism, mainly luxury tourism, has emerged as the largest economic sector, ahead of the fishing sector (MoT 2015).

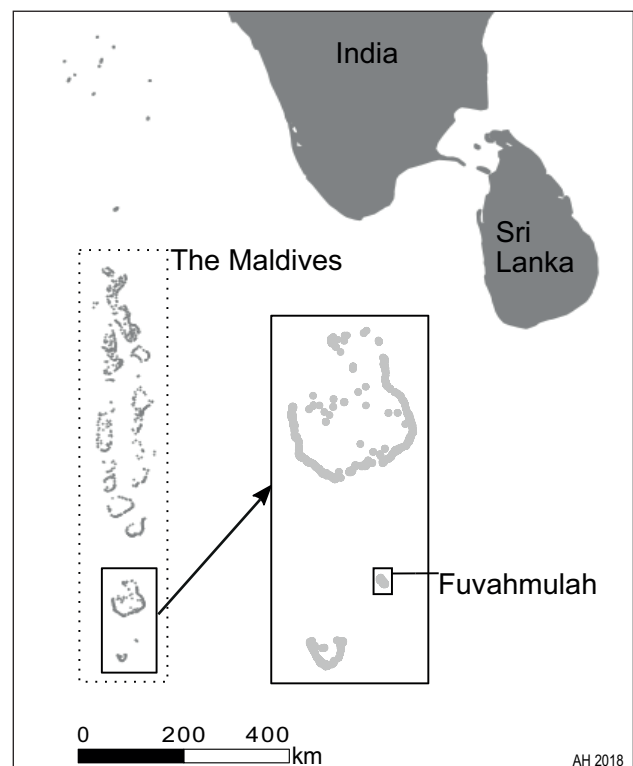


Fig. 1 Location of the Maldives in South Asia. Source: own illustration

Our case study, Fuvahmulah, is the second southernmost atoll of the Maldives and is located just south of the equator. It is the third largest island by population with 8,510 inhabitants and the third largest natural island by land mass of the country, extending 4.4 km from north to south and 1.4 km from west to

east (NBS 2014). Its shape resembles a bowl with a low-lying centre and ridges around the island. Fuvahmulah is special since it is the only one-island atoll of the Maldives. Unlike the other multiple islands atolls, Fuvahmulah has an isolated position in the Indian Ocean distant from neighbouring places which is historically important in case of emergency (see Fig. 1). It has been common for Maldivians to move from one island to another in case an island became uninhabitable. This behaviour pattern, termed “fluid property regime” by Bremner (2017: 22) has been difficult for the people of Fuvahmulah.

National politics in the Maldives have been turbulent in the past decade. A rivalry between the two most popular parties of the country, the Progressive Party of Maldives (PPM) and the Maldivian Democratic Party (MDP), has left its marks on the political system. Following 30 years of autocratic and centralised rule by President Maumoon Abdul Gayoom, the first democratically elected president, Mohamed Nasheed of the MDP, was elected in 2008. His presidency concentrated on empowering the community to become active at the local level in adapting to environmental changes. Internationally, Nasheed was a leading figure of SIDS voicing deep concerns of small islands as most vulnerable to climate change impacts. After three years, Nasheed was ousted from office in 2012. Through PPM, Abdulla Yameen returned to an autocratic style of government in 2013 and recentralised power at the highest levels of government (Robinson 2015). His term has been characterised by a focus on economic development while neglecting environmental protection (Malatesta and Schmidt di Friedberg 2017).

Due to stark paradigm shifts regarding environmental governance, local authorities and communities have become uncertain of their roles and the balance of power between the national and local levels has become ill-defined (Robinson 2015). This has had consequences for the governing of Fuvahmulah. Even though the Decentralization Act of 2010 states that financial and administrative autonomy should be distributed towards lower levels of government, decisions are continuously made at the national level. Fuvahmulah’s atoll council/city council remains highly dependent on Male’ regarding the island’s infrastructural and economic development.

3.2 Coastal problems and protection efforts

Khan et al. (2002: 133) have described the Maldives as “extremely vulnerable” to climate change. In 2004, nearly two-thirds of the islands suffered serious erosion problems, which have been attributed to climate change by the Maldivian government (MEE 2015a). Studies are predicting intensifying coastal risks for the Maldives due to the projected sea level rise for the region. Caused by maladaptive practices (Kench 2012; MEE 2015a), these erosion problems increase the Maldives’ vulnerability to future climate change.

Traditionally, coastal protection has been an integral part of land use on inhabited islands in the Maldives. Over centuries, coastal protection was practiced in an ad-hoc manner by the islands’ communities. Buildings were traditionally only allowed to be constructed in the centre of the islands, behind a green belt of local vegetation called *heylihi* (see Fig. 2). This green belt was left intact to protect the inhabitants from “real and imagined threats” from the ocean (Bremner 2017: 21). Even though coastal protection structures have been built since the 1970s (Shaig 2011), coastal protection underwent professionalisation only after coastal floods caused large-scale destruction in Male and in 15 other islands in 1987 and 1988 (personal communication, expert MEE, March 2017). As a response to this so-called “wake up call” to hazards (ibid.), President Gayoom successfully raised international aid for coastal protection efforts (Wadey et al. 2017).

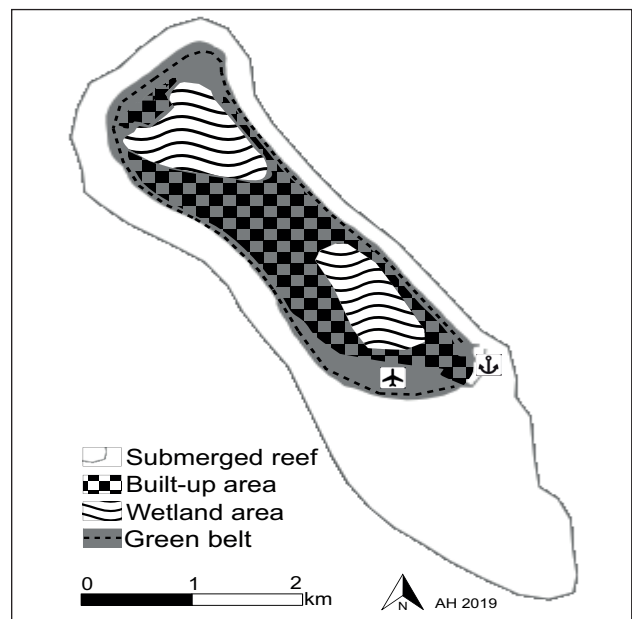


Fig. 2 Schematic overview of Fuvahmulah. Source: own illustration

Today's coastal protection in the Maldives is characterised by a preference for hard measures, such as revetments or sea walls (MHE 2011; Kench 2012). Problems regarding hard coastal protection measures often result from poor design and construction due to a lack of financial, human and technical capacity (Nunn 2004; Kench 2012; Duvat 2013). Successful or unsuccessful, these measures are expensive, creating a considerable financial burden in a country with a large number of islands (Nunn 2009). In recent years, alternative approaches to coastal protection have been discussed in many countries under terms such as soft coastal protection measures or working with nature (Stive et al. 2013; Temmerman et al. 2013; Tessler et al. 2015). These measures generally have fewer negative impacts on the environment; however, they need constant maintenance efforts as well as acceptance and engagement of the community and the respective administration (Narayan et al. 2016). So far, soft coastal protection measures are largely absent in the Maldives.

4. Methods

Our mixed-methods-approach included a literature review and content analysis of laws, regulations, and government reports with relevance to climate change adaptation and coastal protection. Also considered were reports by intergovernmental and non-government organisations (NGO) such as the United Nations Development Programme (UNDP) and BLUEPEACE. During our field work from March to April 2017, we carried out a household survey in Fuvahmulah that made use of a semi-standardised questionnaire. It encompassed four main themes: (1) perceptions of the environment and the coast, (2) perception of environmental problems including climate change impacts, (3) perspectives of community life and the relationship between the people and politics, and (4) perspectives and attitudes towards coastal protection measures. The survey was conducted with the support of a local research assistant and involved going door-to-door, implementing a randomised sampling strategy in all eight wards of Fuvahmulah. We aimed to interview one member of every eighth household on the island, considering all persons over the age of 14 for the interview. If nobody was available at the selected house, we chose the nearest neighbouring house. Our explorative approach with a semi-structured questionnaire allowed us to obtain a range of opinions and attitudes towards a topic that has been under-inves-

tigated in this part of the world. Compared to a more standardised questionnaire, it also allowed us to ask follow-up questions or clarify points. All in all, 116 inhabitants of Fuvahmulah between the ages of 14 and 86 participated in the survey of which 62 were female and 54 male.

In addition, semi-structured interviews were conducted with actors relevant for coastal protection management (in 2017 and 2019). At the national level, this included officials from various departments of the Ministry of Environment and Energy (MEE; renamed to Ministry of Environment in 2018), local researchers, and members of intergovernmental and non-governmental organisations relevant to climate change adaptation or coastal protection management. At the local level, it involved present and former civil servants and representatives of NGOs. Information obtained during these interviews was counterchecked with gathered document data and double checked with persons of trust in order to minimise misleading or personally biased opinions. A second field trip to Male' and Fuvahmulah was conducted in January and February 2019. Information from semi-structured interviews with relevant actors for coastal protection management has been used to support our analysis.

5. Potential for a transformative approach to coastal protection in Fuvahmulah

For our study we investigated the potential and possible acceptance of soft and hard coastal protection measures as well as the factors that shape this attitude, including the community's attitudes towards their environment, coasts and climate change impacts. We analysed to what degree the community is currently involved in general development projects, the willingness to get more involved in the future and whether political actors would welcome stronger community engagement.

The information obtained from the survey and stakeholder interviews were compared with laws and regulations relevant to coastal protection management. This allows us to identify factors in politics and society that enable or hamper the engagement of the affected community in soft coastal protection measures, and more broadly, conditions that support the initiation of broad-based transformative actions with respect to the governance of coastal protection.

5.1. Preferences regarding coastal protection in Fuvahmulah

In order to understand the preferences of the inhabitants of Fuvahmulah regarding coastal protection measures, survey participants were given a list of nine coastal protection measures, including concrete sea walls, revetments, creation of artificial reefs, land reclamation, support through coastal vegetation, beach nourishment, land elevation, and groynes¹. Of the nine given items, five can be seen as hard and four as soft coastal protection measures. The survey asked which of these measures were known and how the respondents rated their effectiveness on a four-point Likert scale from very ineffective to very effective. We understand this assessment of effectiveness as a proxy for the degree of trust people have in the measures and their ability to protect the coast.

Three out of the four most widely known coastal protection measures were hard measures: “concrete sea walls” (112 of 116 survey participants knew this measure), followed by “revetments” (105) and “land reclamation” (95). A large number of participants were also familiar with soft measures: 95 participants were familiar with “creation of artificial reefs”, while 93 and 91 participants stated that they knew “support through coastal vegetation” and “beach nourishment”, respectively (see Fig. 3).

Comparing the results shows that hard measures generally have higher credibility, but that soft measures are also seen as effective. When combining the categories “very efficient” and “efficient”, the highest ranked measures were: “revetments” (92% positive responses), “support through coastal vegetation” (90%), “concrete sea walls” (85%) and “creation of artificial reefs” (82%).

The apparent preference for hard coastal protection measures can be explained through various aspects. Firstly, the protection of Male’ with concrete sea walls and tetrapode barriers has had a spillover effect on people’s attitudes. Hard measures are most widely implemented in the Maldives and therefore also most widely known. Secondly, isolated Fuvahmulah is the only one-island atoll of the Maldives, where moving to another island in case of uninhabitability is difficult. Respondents replied that in emergency situations they have no alternative island to retreat to. Practicing the “fluid property regime” (Bremner 2017: 22) is more difficult for the people of Fuvahmulah and we derive that the sense of only having one island of ‘their own’ increases the desire for robust coastal protection.

Hard coastal protection measures are widely known as being the first choice of politicians (personal communication, experts MEE, March 2017 and UNDP, March 2017). Expertise is mostly restricted to hard coastal protection measures, where decades of experience have reinforced decision-making routines in planning and implementing hard protection measures. According to the interviewees, government offices often choose to implement measures they already have experience with as there are no resources to work on innovative procedures (personal communication, expert Environmental Protection Agency/EPA, March 2017). Furthermore, it became apparent that the relevant authorities are driven by the conviction that hard coastal protection measures are the preferred choice of the affected communities. Our interview partners were surprised to hear that the people of Fuvahmulah have shown a positive stance on soft measures. Our results contradict what relevant actors in coastal protection think is the preference of the people of the Maldives (Sovacool 2012).

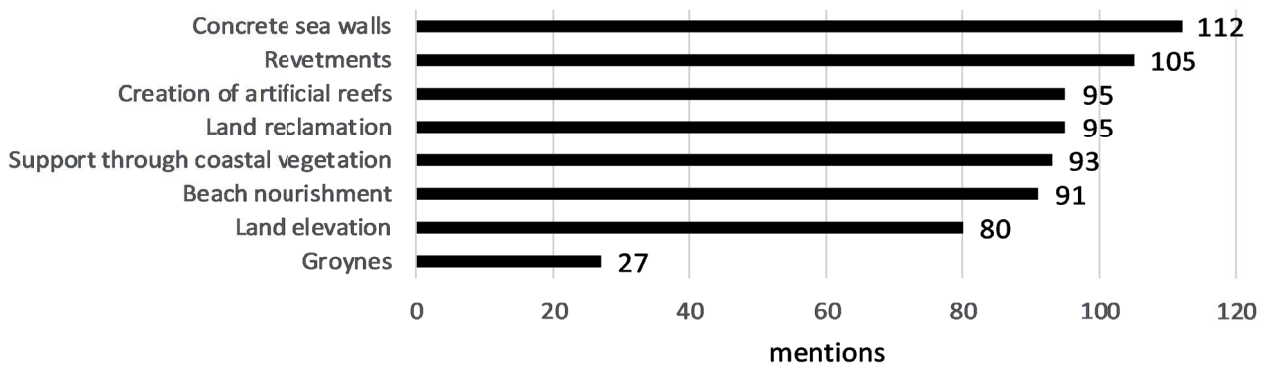


Fig. 3 Which of the following coastal protection measures do you know? (n=116). Source: own investigation

With respect to the attitudes towards soft measures, the aforementioned lack of alternative islands to retreat to has further implications, which might appear contradictory but highlight the diverse opinions. People of Fuvahmulah are closely connected to their island and have developed a deep sense of place. The community highly values the environment of Fuvahmulah and is concerned about its preservation, which – in their opinion – soft coastal protection measures would ensure. Respondents revealed a close relationship with the environment and specifically the coast of “their island”, calling it “special”, “unique” and “the most beautiful of the archipelago”. The beaches and coast of Fuvahmulah are frequently visited by the local people. Recreational and social activities were important for the survey participants, namely “swimming” (23% of 197 mentions), “meeting friends and family” (9%), “fishing” (7%) and “snorkelling” (6%). Survey participants revealed that they see positive similarities between the ways soft coastal protection measures work and how elements of the environment such as the reefs and the *heylihi*, the coastal vegetation, serve as natural coastal protection. Asked what they know about climate change in an open question, 16% of the participants gave an answer that indicated an understanding of complex environmental relationships which they either learned about in school or through an exchange of information with people who work on resort islands. Former employees of resort islands pointed to the leading role these islands play in environmental protection. With their larger financial budgets and explicit interest in protecting the pristine natural environment, resort islands have both a growing interest and the necessary financial means to test new approaches that could help to keep the island attractive to tourism.

5.2. Involvement of the community in development projects

In order to explore community involvement more generally and not only in relation to coastal protection measures, our questions in this section referred to the overall development of Fuvahmulah rather than merely coastal protection.² 49% of the respondents felt that the community is not or only rarely involved in decision-making processes. 19% think that there is sporadic involvement and only 17% reported regular involvement in that politicians and decision-makers are looking for their opinions. The remaining 15% were unsure (see Fig. 4). A majority would appreciate

to be more involved in future decision making, mostly suggesting they would like to voice their opinion or participate in surveys.

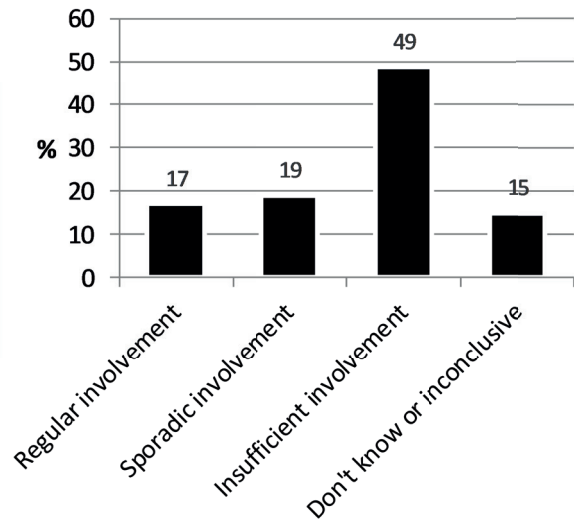


Fig. 4 In how far is the community involved in the decision-making process regarding the development of the island? (n=115). Source: own investigation

The current lack of community involvement in the development of the island was mainly ascribed to national politics, predominantly top-down and centralistic decisions as well as weak existing governance structures. An open question asking to what degree respondents are involved in decision-making processes, revealed that the political changes and the rivalry of the two main parties over the last decade have brought confusion to the people in the sense that they are unsure how much of their involvement is politically tolerated (15% of 92 mentions). A general feeling of discontent regarding the way the community is treated by politicians could be detected. A structured question asking to what degree the respondents generally trust politicians to develop the island and/or the island community disclosed a very low level of trust in the politicians. Almost three out of four respondents said they ‘do not’ (43% of 115 respondents) or ‘mostly do not’ trust politicians (27%) to implement adequate development measures. Only 6% of the participants said that they fully trust the decisions and 23% of the respondents stated that they mostly trust the politicians (see Fig. 5). These low levels of trust can be traced back to numerous corruption scandals concerning development projects on the national level in recent years (Naish 2016; Shaahunaz 2017a). A lack of integration of the community was also attested to in our interviews with local researchers who have worked in community-based

coastal adaptation efforts in the Maldives, as well as activists from Maldivian NGOs (personal communication, NGO, March 2017 and NGO, February 2019). One of the interviewees specifically emphasised a lack of integration of women (personal communication, local researcher, March 2017).

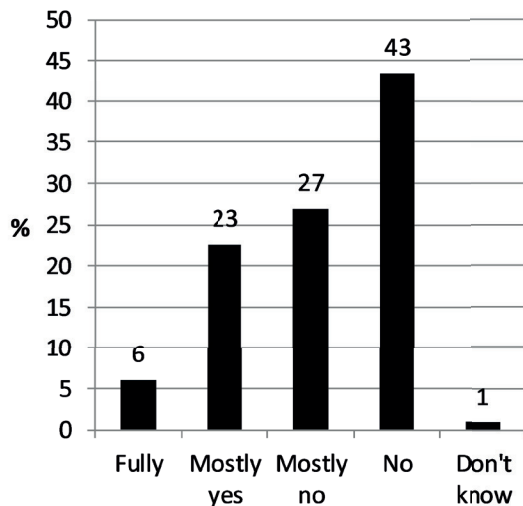


Fig. 5 Do you trust politicians to implement the correct measures to develop the island and/or island community? (n=115). Source: own investigation

Analysis of coastal protection management practice shows that currently, the Maldives national government is restricting the integration of lower government levels and non-state actors in coastal protection management. Coastal protection management remains highly centralised at the national level, in institutions like the President’s Office and in the MEE. The balance of power between national and island interests is clearly tilted in favour of national interests as coastal protection measures are planned, coordinated and implemented at the highest political level of the Maldives. The interests of the islands are not reflected in the current approach to coastal protection. The City Council of Fuvahmulah, for instance, has no procedure for stating what kind of coastal protection it would prefer for the island. This lack of power at the local level is further exacerbated by the fact that the local level has no financial resources to plan and implement coastal projects (personal communication, expert EPA, March 2017). The lack of participation in government decision-making is also reflected in other processes: contravening the regulations set out in official law and policies, e.g. in the Environmental Impact Assessment (EIA) Regulations or the Guidance Manual for Climate Risk, participation is not practiced as part of EIA either. The EIA Regulations stress that

NGOs and affected communities must be consulted in the EIA process of coastal protection projects (MHE 2012), but NGO representatives as well as local news reports confirm that consultation of the affected communities is often lacking (Maldives Independent 2018; personal communication, NGO February 2019).

6. Framing of transformative governance in the Maldives

Our intention was to analyse opportunities and barriers to initiate and sustain transformation in the governance of coastal protection. Transformative governance of coastal protection will only be achievable if governance components and structures are open to reform and if the capacity to transform can be developed (see Section 2; Kates et al. 2012). Based on Chafin et al. (2016) and their set of components, we scrutinise the potential for transformative governance in the Maldives along the categories of a) specific governance components, b) structures, and c) additional capacities, such as e.g. innovative power.

a) Governance components (institutions, actors, organisations)

As we have shown, relevant high-level institutions such as the Ministry of Environment in the Maldives embody conservative organisational characteristics. This is primarily shown by the tendency of these actors to implement established hard coastal protection without consulting with local level governments, NGOs or the affected community. A lack of inclusion of diverse perspectives has been identified as a constraining factor for transformation – it is a requirement to inform policies and to make informed judgments (Farrelly and Brown 2011; Bosomworth 2018). A demonstrable lack of interaction between different level actors, e.g. Minister of the Environment and Island Council President or City Mayor, could be detected, and it seems clear that national governmental institutions prefer reactive decision pathways without taking new approaches into account (Sovacool 2012).

We did, however, identify organisations that have shown the potential to be catalysts for potential transformative developments. International donor organisations are actively propagating the idea of sustainable development and have included support for soft coastal protection measures and community integration in past projects. For example, the United

Nations Development Programme (UNDP) Maldives has established a network encompassing ministries, international donors, NGOs and affected islands to develop and implement sustainable coastal protection projects (UNDP 2017). National environmental NGOs also play an important role in bringing innovative ideas to the table in the Maldives. They have focused on ecosystem-based coastal protection, a concept related to soft coastal protection measures. For example, the national NGO BLUEPEACE has carried out a project focusing on raising awareness in local islands for the conservation of mangroves with funding from the Global Environment Facility (Bluepeace n.y.).

b) Structures (legitimacy, power, human behaviours)

Various studies have shown that approaches in which the knowledge of a broad group is included are likely to be more successful, especially in developing societies (Tompkins et al. 2008; Burton and Mustelin 2013; Sherman and Ford 2014). In the Maldives, the hierarchical structures and the current balance of power in the governance of coastal protection, as well as the low level of trust in politicians represent major barriers to transformative governance. As shown above, power and responsibilities with respect to coastal protection are concentrated at the highest level of government, while the interests of lower levels of government and affected communities on islands are mostly neglected in decision-making. On Fuvahmulah, this has negatively affected the perceived legitimacy of the government. Zuhair and Kurian (2016) criticised the non-involvement of the Maldivian communities in EIA processes and specifically highlighted that responsible authorities need to improve the circulation of information regarding development projects. Others have criticised non-transparent decision-making processes by ministries in climate change adaptation projects and a lack of accessible data (Niyaz and Storey 2011). This non-transparency makes it difficult for lower levels of governments and NGOs or community members to get engaged in adaptation projects (Transparency Maldives 2013).

Our findings have shown that the people on Fuvahmulah are in fact interested and willing to participate more in decision-making processes. Given their willingness to be involved in development issues, we found indications that people might also be willing to accept a larger share of responsibility in coastal protection which is shown by the following examples of environmental activism. Activities of civil groups on

the national and local level support this notion. On the national level, parts of Maldivian society have shown to be very willing to engage in environmental protection during the term of President *Nasheed* from 2008 to 2012. For example, *Nasheed's* government proposed a plan to make the Maldives carbon neutral within a decade (Clark 2009). A group of school graduates in Fuvahmulah adopted this plan and tried to make Fuvahmulah the first carbon neutral island of the country (personal communication, NGO, March 2017). However, these plans stalled after *Nasheed* was ousted from office in 2012. This example highlights the crucial role of positive political leadership and openness in instigating transformative governance. There are signs that local people are beginning to question the uneven balance of power with regards to coastal protection, changing their previous passive acceptance of central government to more critical and active behaviour. Recently on Fuvahmulah, inhabitants gathered under the slogan 'Save Fuvahmulah' and – based on fears of further erosion on the eastern coast – demonstrated in support of adequate coastal protection, proving their willingness to become active (Shaahunaz 2017b).

Our results indicate that people are highly aware of coastal erosion problems and are willing to participate more in island development. Particularly notable is the lack of integration of women, which has been identified as a barrier to transformation in other studies on adaptation projects (Patt et al. 2009; Terry 2009). Furthermore, Maldivian society is exhibiting signs of fragmentation due to the rivalry in politics. A better understanding of the power relations in the community is required to ensure that all parts of the community can be included in implementing strategies for coastal protection (Mercer et al. 2008).

c) Additional capacity (innovation)

Adoption of technological innovation in coastal protection in the Maldives has been slow. The integration of soft coastal protection measures is rare; however, there are signs that relevant actor groups are taking notice of innovation as we and others have demonstrated (Shakeela and Becken 2015; Malatesta and Schmidt di Friedberg 2017). The Environment Ministry (MHE 2011; MEE 2015a) has published reports in which soft coastal protection was studied in more depth and is described as alternative to its hard counterparts. Furthermore, our study confirmed that even though engineered measures are most popular within the Fuvahmulah community, there is interest

in and openness towards soft measures. This could be interpreted as confirmation that sense of place influences the choice of adaptation options (Klein et al. 2014). Residents with their strong place attachment clearly view their island as special, e.g. in relation to its isolated location and general environment, which makes them receptive for new approaches to protect their coast while simultaneously preserving the natural beauty of their island. This openness towards soft coastal protection measures is a notion that has not been recognised by representatives of the Ministry of Environment.

7. Conclusion

Climate change is seen as the most pressing contemporary challenge for the Maldives (MEE 2015b). Especially the coasts have been identified as vulnerable. Given that the current approach to coastal protection is insufficient for dealing with the upcoming challenges, not only new measures but a more fundamental transformation of the governance of coastal protection is needed. This would not only lower the economic but also societal costs of climate change impacts: hazard mitigation has shown to be less expensive than disaster response and recovery operations (OECD 2016).

In this study, we took advantage of categories developed by Chaffin et al. (2016) to assess possible transformative governance in coastal protection in the Maldives. Our results show that the people of Fuvahmulah are interested in stronger engagement in development projects and are open towards soft coastal protection measures. The majority of the community members are very aware of the coastal erosion problems and are discontented with current approaches to coastal protection imposed by national government. On the political side, a hierarchical political structure that lacks the involvement of lower levels of the government and community has been identified as a constraining factor for adopting innovative approaches. Under these conditions, a transformation of coastal protection governance seems very unlikely.

However, Maldivian history illustrates that the system can change. The recent presidential election in September 2018 and the April 2019 parliamentary election might open a window of opportunity for transformative approaches to coastal protection. To general surprise, both elections favoured the MDP

and led to a change of government and a parliamentary majority for the MDP in April 2019. The MDP has committed to democratic values in the past and community engagement. Therefore, the new government might offer new possibilities for taking a trajectory towards sustainable development.

Given the increasing pressures on the coasts of many SIDS in times of climate change, a fundamental transformation of the governance of coastal protection may be necessary not only in the Maldives. Taking a systems perspective that analyses the effectiveness of coastal protection in the context of institutional arrangements and political power is essential. In the Maldives, enabling shared responsibility at multiple levels and facilitating greater openness to innovative protection measures rather preserving the (insufficient) status quo have been shown as crucial to implementing transformative governance. Only stronger engagement of the interest groups that currently lack integration can lead to broader consensus and support for a climate-resilient sustainable development pathway. The case study of the Maldives shows both opportunities for transformative governance – through strong local awareness of key issues and willingness to be actively involved – but also barriers, mostly on account of institutional inertia. This is driven by recurring political strife and the resulting lack of clarity as to the actual role of local government and civil society. Past political leaders have shown an interest in maintaining the top-down system of decision-making and centralised balance of power. Resorting back to Chaffin et al. (2016) and the various components required for effecting transformative governance, political leadership emerges as a crucial enabler that drives many other components, including innovation (e.g. soft coastal protection measures), human behaviour (e.g. local initiatives, community engagement) and other institutions (e.g. the local administration).

Notes

¹ When it became apparent that two measures were problematic to understand either in English (groynes, revetments) or in Dhivehi (*herasha thoshi, thoshilun*) (in a pre-test in March 2017), we used photographs to support the inquiry about these two measures.

² Involvement is understood here in the sense of ‘caring for’, but does not necessarily imply an active role of the community as in ‘community engagement’. Our intention is a broader approach to the issue.

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