

Reclaiming an Archipelago? Land Reclamation in the Not-So-Vanishing Maldives

Ricreare un arcipelago? La land reclamation nelle Maldive “non così in via di scomparsa”

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Reclaiming an Archipelago? Land Reclamation in the Not-So-Vanishing Maldives

Ricreare un arcipelago? La land reclamation nelle Maldive “non così in via di scomparsa”.

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Abstract. For decades, the Maldives have been described as islands doomed to disappear due to climate change and resulting rising sea levels. Promoted in the international arena by high-level politicians and academics, the vanishing islands narrative has gained popularity among the public. However, the process is not without complexity: while some islands are undergoing severe erosion, others appear to be expanding in size, and yet others have emerged out of nowhere. Rather than vanishing, the Maldives are being actively reshaped and currently enlarged through active and intensified land reclamation, which involves expanding existing islands and creating new artificial ones. Various reasons are given to justify this process, including a need for space to create residential areas around the very densely populated atoll capital of Malé, transport infrastructures, and demand for more tourism resorts. In addition, as a tool for “material resilience” building, land reclamation creates spaces that are presented as a means of adapting to climate change. Drawing on long-term participant observation, key informants, visual analysis and secondary sources, this paper raises questions about this form of resilience thinking. While material resilience building elevates some islands higher above sea level and creates new spaces and economic opportunities, it simultaneously damages reef ecosystems, alters island functions, exacerbates social and economic inequalities and threatens the ecological, social and cultural systems that are fundamental to tourism attractiveness.

Keywords: land reclamation, Maldives, territorial resilience, climate change, sea level rise, artificial islands

Riassunto. Da decenni le Maldive vengono descritte come isole destinate a scomparire a causa del cambiamento climatico e del conseguente innalzamento del livello del mare. Promossa sulla scena internazionale da politici di alto livello e accademici, la narrazione delle “isole che scompaiono” ha acquisito popolarità presso il grande pubblico. Tuttavia, il processo è tutt'altro che semplice: mentre alcune isole sono soggette a una grave erosione, altre sembrano aumentare di superficie e altre ancora sono emerse dal nulla. Anziché scomparire, le Maldive vengono attivamente rimodellate e attualmente ampliate attraverso interventi intensificati di bonifica e recupero di terre dal mare, che comportano l'espansione delle isole esistenti e la creazione di nuove isole artificiali. Questo processo viene giustificato con varie ragioni, tra cui la necessità di spazi per realizzare aree residenziali, decongestionare Malé, la capitale dell'atollo ad altissima densità abitativa, sviluppare infrastrutture di trasporto e soddisfare la domanda di nuove strutture turistiche. Inoltre, in quanto strumento per costruire una “resilienza materiale”, il recupero di terre dal mare crea spazi presentati come un mezzo di adattamento al cambiamento climatico. Basandosi sull'osservazione partecipante di lungo periodo, su informatori chiave, sull'analisi visuale e su fonti secondarie, questo articolo solleva alcuni interrogativi riguardo a tale concezione della resilienza. Se da un lato la costruzione della resilienza materiale innalza alcune isole rispetto al livello del mare e crea nuovi spazi e opportunità economiche, dall'altro danneggia gli ecosistemi delle barriere coralline, altera le funzioni delle isole, aggrava le disuguaglianze sociali ed economiche e minaccia i sistemi ecologici, sociali e culturali fondamentali per l'attrattiva turistica.

Parole chiave: recupero di terre dal mare, Maldive, resilienza territoriale, cambiamento climatico, innalzamento del livello del mare, isole artificiali.

1. Introduction

“...for my own country, the Maldives, a mean sea level rise of 2 metres would suffice to virtually submerge the entire country of 1,190 small islands, most of which barely rise over 2 metres above mean sea level. That would be the death of a nation”.

In a speech in front of the United Nations General Assembly on the Issues of Environment and Development,¹ the then-President of the Maldives, Maumoon Abdul Gayoom, represented the future of his country and its people in the face of the threat of climate change. It was 1987, the same year that the Brundtland Report, *Our Common Future*, was published (WCED 1987). Since then, there has been much political and public discussion about sustainability needs, in general, and the Maldives as an island posterchild, doomed to disappear because of rising sea levels, in particular. This process would lead to a significant loss of territory and perhaps sovereignty by the state, with the hypothesis of relocating the complete population elsewhere (Zaki 1999; Yamamoto, Esteban 2010). For years, local politicians have been drawing international attention to the emerging problem, warning Maldivian citizens that they might become environmental refugees who will need to relocate to another country (Dolla 2015), and turning the archipelago into a sort of “climate change synecdoche” (Hirsch 2015).

In 2021, Maldives then-President Solih restated: “If the rise in temperature remains unchecked at 1.5 and jumps to 2 degrees [Celsius]; that is a death sentence to the Maldives. In a world where we cease to exist, our fate would remain a dark omen of the grim future that awaits the rest of the world”². The ensuing “vanishing islands narrative” has led to the Maldives being regarded as the quintessential “last chance” (to see) tourism destination (Wu et al. 2020; Barton, Goh 2025), a shared aspect with many other vulnerable small island developing states (SIDS) (Farbotko 2010).

What is presently taking place on the ground, however, appears to be quite different. In the current context, the Maldives have been dubbed by the very apt title of a *New York Times* article in 2024:³ “The Vanishing Islands That Failed to Vanish”. This refers to the process that while some islands in the archipelago appear to be eroding and shrinking, others remain stable, and some are expanding in size (Duvat 2020; Kench et al. 2023). Moreover, new islands have also appeared. The reasons behind this contemporary counter process and scenario are twofold. First, “islands are dynamic landforms that undergo a range of physical adjustments in response to changing boundary conditions, of which sea level is just one factor” (Webb, Kench 2010, 234). Furthermore, coral islands are not merely inert formations: corals are living beings which can and do react to changes (Edwards 1989, ii). As Dodds and della Dora (2018, 397) point out, the process of creating artificial, or partially artificial, islands is often a trade-off, the result of a slow collaboration between human and non-human action. In the case of the Maldives, this collaboration – which is evident in the case of platforms such as *Muraka* underwater hotel (Vannini 2024) – risks being undermined by land reclamation methods, which threaten the vitality of the corals on which the natural islands’ stability depends.

Second, and more conspicuously, the Maldives archipelago is being increasingly reshaped by human intervention, resulting in significant changes to the size, silhouette, and even the number of the islands. This artificial modification is a shared aspect with many other island and coastal locations, such as the Palm Islands in Dubai (Jackson, della Dora 2009) and the Hulu Island and Ruyi Island, China (Chan 2023). In the Maldives, some islands are made larger and higher to protect them from

¹ <https://presidency.gov.mv/Press/Article/32287?term=5>

² <https://presidency.gov.mv/Press/Article/25643>

³ <https://www.nytimes.com/interactive/2024/06/26/climate/maldives-islands-climate-change.html>

rising sea levels, while others are being created from scratch to accommodate activities and functions. New land is also being created for waste management, transport infrastructure, and residential and tourism spaces (Melli, Malatesta, Tosi 2024). The pace of this island-building process (or “island augmentation”, as defined in Masselink et al. 2024) is accelerating: it has become difficult to find official, up-to-date information on how many new surface areas have been created or how many new artificial islands have been built.

In 2023, the newly elected President, Mohamed Muizzu, declared that the newly engineered “fortress islands” will prevent the climate migration feared by his predecessors, and so the country is now “the country is ‘self-sufficient’” in this respect.⁴ However, despite the government’s optimism about the climate change resilience of the reclaimed lands, the fortification process can have various impacts, including unanticipated effects on the environment. Indeed, many questions remain poorly understood and unresolved. The key issue is whether human activities modifying and creating islands will slow down and even cease the “disappearing islands” process, as is currently hoped, or will even intensify it in the future.

Against this background, this paper focuses on land reclamation practices and the resulting changes in the archipelago. The Maldives are not the only place where land reclamation and the construction of artificial islands are taking place. On the contrary, the phenomenon is global in scale (Jackson, della Dora 2009) and, in different contexts, serves a variety of purposes, from “prestige reclamations”, as in Dubai (Sengupta et al. 2025), to “geopolitical posturing”, as in the South China Sea (Dodds, della Dora 2018). The Maldives present a particularly interesting case, in that the process – although it has been underway for decades now – has intensified dramatically in recent years and is affecting an ever-increasing proportion of the archipelago’s territory.

The research has several objectives: first, we want to challenge the idea that land reclamation is an effective adaptation response to climate change. The island-fortress strategy, which is an engineering response to climate change, may in fact be a temporary solution, but it neglects other important territorial and resilience dimensions, such as the biological foundation of coral islands. Second, the paper aims to open further discussion points for future research, especially on the perceptions and reactions of the local population, but also on the impact of land reclamation on the Maldives tourism attractiveness and the future of tourism potential. Thirdly, the scale of the investment required, and the potential business opportunities offered by creating new spaces are significant. Therefore, it is unclear whether the intensified land reclamation is solely for the long-term “preservation” of the world’s lowest island state and its sovereignty, or if it also involves wider financial benefits and interests. Finally, there is the issue of national thinking and pride. Transforming the international image of the Maldives from a fragile state, doomed to vanish, to a geopolitical reality capable of taking care of itself, open for foreign investment, and perhaps even constituting a technological model for others can be assumed to have its role to play at a political level. The research was based on a combination of methods. First and foremost, the research involved long-term participant observation, conducted by the three authors on different islands of the archipelago for many consecutive years, and in different seasons.⁵ First-hand observations, corroborated by conversations with key informants, have been supplemented by the production of visual material and by the analysis of Google Earth historical imagery. The key informants in the study were selected to ensure a balance in terms of age, gender and background, and semi-structured interviews were carried out with them. At the local scale, semi-structured interviews were carried out with members of the local population on the islands subject to land reclamation (school teachers, tourism operators, members of the island’s government, members of the local community, and industry representatives). At the regional level, resort managers, staff and tourists were contacted. At the national scale, Maldivian politicians, party

⁴ <https://www.euronews.com/green/2023/11/21/rising-seas-and-water-shortages-can-fortress-islands-help-the-maldives-survive-the-climate>.

⁵ Author x from 2012 to 2025; author y from 2016 to 2026; author Z from 2025 to 2026.

representatives, officials from the Ministry of Tourism, and expats were contacted/interviewed. The insights from the key informants are used here to supplement and enrich observation and secondary material analysis in the article. Thus, secondary sources, news reports and official government data, institutional pages on social networks and on official websites, and user-generated content platforms about tourism, such as Tripadvisor, were also utilised. Following an introduction to the narrative of “vanishing islands” and its debunking, the paper will look at some exemplary cases of land reclamation in the Maldives. Next, the interview material is presented and analysed, alongside the findings from visual research, secondary sources and netnography. Finally, the numerous issues that still require attention will be addressed. This will facilitate the formulation of concluding remarks.

2. A vanishing or not-so-vanishing “paradise”

With its almost 1,200 coral islands endowed with white sand, crystal-clear blue waters, and coconut palms swaying in the breeze, the Maldives are often labelled a tourist “paradise”. However, with an average elevation of just 1.5 meters above sea level, the tropical archipelago is the lowest-lying country in the world. For this reason, and in response to concerns about climate change and rising sea levels, the country has long been a vocal political advocate for urgent global climate action in international forums. In the global tourism industry system, this “vanishing islands narrative” has made the Maldives a last chance tourism destination like the Arctic, Antarctica, Tuvalu, Venice, or the Great Barrier Reef (see Pabian 2025; Saarinen, Varnajot 2019). The “last chance to see” tourism refers to the phenomenon whereby “tourists explicitly seek vanishing landscapes or seascapes, and/or disappearing natural and/or social heritage” (Lemelin et al. 2010, 478; see also Piggott-McKellar, McNamara 2016; Pabian 2024). In the case of the Maldives, the vanishing paradise idea is related to the rising sea levels, due to a multiplicity of factors, including melting glaciers and polar regions.

The concern over sea level rise began to emerge as early as 1987, after the Day of the Great Wave or *Bodu Raalhu*, that is, April 11, when record tides flooded the capital Malé and 16 other islands (Hassan 2024). A few months later (19 October 1987), the Maldives President Maumoon Abdul Gayoom expressed his concern about the consequences of climate change and the risk of a potential rise in sea-level, before the United Nations General Assembly, with an address that became known as the *Death of a Nation* speech. In 2009, Mohamed Nasheed, who in the intervening period had succeeded Gayoom as President, held a council of ministers meeting underwater, an ingenious media stunt that helped to draw global attention to the risks associated with climate change and the resulting rise in sea levels for the Maldives. For the same purpose, he also appeared in the 2011 documentary *The Island President*, fully dressed, with water up to his knees. In a speech in front of the International Bar Association in 2014,⁶ Nasheed said that “If current trends continue, Maldivians will be amongst the first climate refugees. We will face issues of citizenship, sovereignty, and even reparations. If our nation sinks, we will be forced to answer questions more familiar to Palestinians, Rohingyas, and Kurds: what becomes of a people without a territory? Can you have sovereignty and dignity without land? Can an independent nation exist on foreign soil?”. In 2021, President Ibrahim Mohamed Solih reinforced the claim, speaking about “the mounting threat of becoming climate refugees” suffered by the Maldivian people, in front of the Commonwealth Leaders at the World Leaders’ Summit.⁷

In the meantime, the international awareness of the problem had increased, together with the number of research outputs aimed at understanding local perceptions of risks and analysing adaptation strategies (Malatesta, Schmidt di Friedberg 2017; Gussmann, Hinkel 2021; Beke 2022). Some studies have even assessed the possibility of a state surviving without territory from a purely legal point of

⁶ <https://raeesnasheed.com/archives/24721>

⁷ <https://presidency.gov.mv/Press/Article/25673>

view (Gagain 2012). The idea that the Maldives were at risk of disappearing was widely discussed among politicians, international institutions, experts and the public alike. In 2009, a documentary with the title *Visit the Maldives Before They Disappear* was aired by CBS television network; the title was to become a sort of tourism slogan and the Maldives started being listed among the most sought-after destinations for those who wanted to visit vanishing landscapes and ecosystems, before it was “too late” (Lemelin et al. 2010).

In contemporary discourse, the notion of the “vanishing Maldives” remains a prevalent theme. Nevertheless, some cracks are appearing in this dominant narrative. There are two reasons for this. Firstly, some research has shown that coral atolls may have a capacity to adapt to sea level changes, i.e. they can grow while the sea level rises, so that they continue to remain close to sea level despite ongoing change. As Duvat (2020, 2) has stated: “increasing assessments of atoll island change over the recent decades proved the prevailing persistence of the land area of individual islands and atolls” (see also Webb, Kench 2010). Furthermore, as demonstrated by Masselink et al. (2020), “Coral reef islands can accrete vertically in response to sea level rise”, so that “Reef islands have continually adjusted to environmental change over the past two millennia” (Kench et al. 2023). Thus, coral atolls have a capacity to cope with sea level changes, at least to a certain degree (Brown et al. 2023). However, human intervention is the main reason why the Maldives, by now, are not vanishing, as they are supposed to do based on the “last chance” tourism narrative. On the archipelago, there is a frenzy of activity, expanding existing islands and creating new ones. So much so that not only are the Maldives not disappearing now, but they are increasing in number and size of their constituent islands (Holdaway et al. 2021).

3. Land reclamation: building resilience?

3.1. Adaptation strategy

Precise up-to-date information on the exact amount of land that has been added to the “natural” surface of the Maldives is not officially available. But, according to estimates by Holdaway, Ford and Owen (2021), from 2000 to 2017, the Maldives added about 37.5 km² of land area. These additions account for over 10% of the country’s total surface area. This enhancement includes both large-scale projects and local interventions. The process, widely supported by the state, has been accelerated in the following decade. In particular, the current President, Mohamed Muizzu, is a strong supporter of the practice. When elected, President Mohamed Muizzu promised the low-lying nation will beat back the waves through ambitious land reclamation and building islands higher, since, he said, “If we need to increase the area for living or other economic activity, we can do that”⁸. The President has made land reclamation one of the pillars of his political agenda, and a banner of national pride, so much so that, to distance himself from the statements of previous national leaders, who feared they would have to resort to relocating the population to the territory of other states, due to the archipelago’s disappearance, he declared that, thanks to land reclamation, the Maldives is “self-sufficient”, i.e. capable of looking after itself. This attitude is confirmed not only by the implementation of major projects, but also by his constant presence at the inauguration of activities on the smaller islands, regularly testified by official posts on the president’s social channels.⁹

The creation of new land occurs through engineering interventions, by dredging sand from the seabed and placing it in shallow lagoons. Land reclamation can include the creation of artificial raised

⁸ <https://www.france24.com/en/live-news/20231121-maldives-to-battle-rising-seas-by-building-fortress-islands>

⁹ See <https://www.facebook.com/presidencymv> and <https://www.facebook.com/drmuizzu>

islands, the enlargement of existing islands, and the armoring and stabilisation of coastlines. Land scarcity and rising sea levels are the primary reasons given for the justification of these projects, used extensively on both inhabited and resort islands. Less explicit but evident upon closer examination are the economic reasons: creating new space means creating new real estate and investment opportunities. In addition to the residential and mobility needs of the local population, and the obvious need to prevent the Maldives from being submerged by the sea, land reclamation is also carried out for tourism purposes: new islands are created in order to have additional space to lease to local and foreign investors.

The idea of raising the islands as an adaptation strategy to climate change is not new. An early reference was made by Dronkers et al. (1990, 129), members of the Coastal Zone Management Subgroup of the Intergovernmental Panel on Climate Change (IPCC), who, among the “Technical, Engineering, and Structural options”, include the possibility of increasing “use of dredged sediments to reclaim or build shore lands”. However, although the connection between climate change, sea level rise and land reclamation seems now obvious, the first land reclamation operations in the Maldives were driven by the need to provide additional space for housing and infrastructure. Despite numerous attempts at decentralising the archipelago, the capital island, Malé, is traditionally characterised by a very high population density. The process of demographic concentration has accelerated recently due to the better accessibility offered by the capital, together with increased work and the higher quality of available services. So, if in 1911, Malé hosted about 7% of the country’s total population, this had risen to 12% in 1961, and around 21% in 1977 (Shaljan 2004). From a demographic perspective, the archipelago, having gone through a period of rapid growth, is now moving towards stabilisation. The growth rate in the last century peaked between 1985 and 1990 at 3.43 per cent, and it has been declining ever since. According to the latest census (2022), the average annual growth rate between 2014 and 2022 is 1.56 per cent. The most significant aspects, however, are characterised by intense migration, mainly from Asian countries such as India and Bangladesh, and, above all, the distribution of the population. The island of Malé, where the capital is situated, is one of the most densely populated urban areas in the world, with estimates ranging from approximately 40,000 to over 70,000 inhabitants per km² depending on the spatial definition of the urban area (World Bank 2015; Speelman et al. 2021), whilst most of the islands in the archipelago are uninhabited. The main land reclamation projects have specifically aimed to encourage the redistribution of the population, on the one hand by offering new housing opportunities to the capital’s inhabitants, and on the other by providing well-serviced areas for residents of the most remote islands.

To reduce demographic concentration, the Malé Land Reclamation Project was started on the southern coast of the island in 1979, with approximately one million sqms of land being reclaimed (Japan International Cooperation Agency 1987). Following the dramatic events of 1987, much of the reclaimed land was damaged or eroded. Consequently, a series of defensive structures were built to protect the capital. These proved effective even during the Boxing Day tsunami of 2004. In the following years, land reclamation was also extended to the local islands, so that, by 2006, it could be estimated that about 9-11 km² of land, in more than 150 islands, had already been reclaimed (Shaig 2006).

3.2. Enlarging existing islands

For some islands, the 2004 tsunami acted as a catalyst for change, promoting a “reclamation-fortification island model” (Duvat 2020). In 2004, only 8 of the then 198 inhabited islands were not affected by the Indian Ocean tsunami: 56 islands suffered major physical damage, 14 were destroyed and had to be evacuated, and some were rendered permanently uninhabitable due to severe coastal erosion, groundwater contamination and topsoil erosion. The tsunami killed 82 people and displaced 30,000 people in the Maldives (half of whom returned to their islands after two weeks) due to the

heavy damage to 8,500 houses. The total damage was estimated at \$460 million (62% of the country's GDP).

A case of post-tsunami island consolidation is represented by the island of Vilufushi. The government decided to rebuild the island after it was devastated. The reclamation project, developed from 2006 to 2009 by the Dutch company Boskalis, quadrupled the size of the island and raised it to 1.4 meters above sea level. "Vilufushi was the first island in Maldives to be specifically redeveloped with 'safe' island protection features of a perimeter revetment wall and a central elevated area" (Lawther 2014, 29). The island of Meedhoo, the most populated one in the Dhaalu Atoll, was also severely hit by the tsunami. After the tsunami, multi-storey houses were built, giving a major boost to the construction sector. The rapid development of the sector attracted many people, resulting in overcrowding on the island. To support continued growth and long-term economic development, the island was expanded through land reclamation in 2006, and new land reclamation projects were started in 2014, again with the assistance of the Dutch company Boskalis (Schmidt Müller Di Friedberg, Malatesta, dell'Agnese 2020).

Airports and other transport infrastructure projects are driving more land reclamation on local islands. On the island of Magoodhoo in Faafu Atoll, a land reclamation project began in 2023 with the aim of building a 17-hectare airport (see figures 1a and 1b). In 2024, in Nilandhoo, the capital island of the same atoll, a land reclamation project (42.6 hectares) started, for the purpose of constructing a second airport, which will be less than 15 minutes by boat from the one that should be operated in Magoodhoo.



Figure 1a. Magoodhoo Island before airport development. Source: Google Earth, 2022.



Figure 1b. Land reclamation for the airport development in Magoodhoo Island. Source: Google Earth, 2025.

Nilandhoo is one of the islands which were promised an airport, by presidential decree,¹⁰ together with many others. Indeed, as remarked by a local Instagram/Facebook page, *sosal.mv*, "Island after island demands one, and successive governments comply, largely for electoral gain. No sitting

¹⁰ <https://presidency.gov.mv/Press/Article/33342>

administration has meaningfully questioned whether a small community actually needs an airport, or whether it addresses the root problems people face”.¹¹

Access to infrastructure, urban expansion, and new areas for tourism and industrial activities (Government of Maldives 2022) are at the core of the largest land reclamation project in the south of the country, which has been realised in the Addu Atoll. The project, launched in 2022 and carried out by the Dutch company Van Oord in partnership with the Maldives Transport and Contracting Company (MTCC), involved the creation of approximately 228 hectares of new land spread across several islands in the atoll, including Hithadhoo, Maradhoo, and Hulhudhoo. Taking place in a protected UNESCO Biosphere Reserve area, the initiative, financed by an Indian loan through the Export-Import Bank of India, has a highly contested ecological impact (UNESCO 2020), since the Addu Atoll is home to important marine ecosystems, including seagrass beds, lemon shark nurseries, and extensive coral reefs (Naseer, Hatcher 2004; UNESCO 2020). According to environmental assessments, the reclamation covered approximately 120 hectares of seagrass beds and damaged at least 21 hectares of live coral; over 24,000 coral fragments were relocated, with ecological outcomes still uncertain (Andersson, Hancke 2020). Several NGOs and local communities have reported negative impacts on natural resources and traditional fishing and underwater tourism practices.¹²

Another important aspect concerns the implications for tourism, which is the main source of national income. The development plan includes the construction of new resort areas and marine leisure facilities on reclaimed land, aiming to increase Addu’s accommodation capacity and attract foreign investment. However, local operators and international observers have highlighted the risk of compromising the natural attractions that fuel underwater tourism, due to the loss of marine habitats and potential landscape degradation (Andersson, Hancke 2020; Human Rights Watch 2023). This contradiction raises broader questions about the balance between economic growth and preserving the image of an “unspoilt paradise” that is the very basis of the Maldives’ competitiveness as a tourist destination. The case of Addu therefore offers a valuable lens through which to observe the tensions between infrastructure development, environmental conservation, and economic sovereignty in small developing islands, and raises important questions about the long-term sustainability of the national tourism model.

3.3. Artificial islands

As François Pyrard de Laval, a French navigator, observed already at the beginning of the Seventeenth century, insular monofunctionality is a peculiar tradition of the Maldivian archipelago (Rufin-Soler 2005). So, in the Maldives, there are islands dedicated to manufacturing and agriculture, to tourism (the resort islands), and to “Locally Undesirable Land Uses” (LULUs) activities (e.g. prisons, landfills, airports), for example. In order to solve the waste problem in Malé, it is not surprising that, in 1997, it was decided to build an artificial island near the capital, Thilafushi, for waste management (Fig. 2).



Figure 2. Thilafushi in 2005, in 2019 and in 2025. Source: Google Earth 2025.

¹¹ <https://www.facebook.com/sosal.mv/photos/in-maldivian-political-vocabulary-tharaggee-has-become-a-convenient-sleight-of-h/896010739600473/>

¹² <https://www.hrw.org/report/2023/10/18/we-still-havent-recovered/local-communities-harmed-reclamation-projects-maldives>

The landfill grew as waste and construction debris were used as a base. Over the years, Thilafushi has become home to factories, boatyards, warehouses and workshops. Today, it is the only “high point” in the Maldives, and can be seen from afar (Fig. 3).



Figure 3. Thilafushi, as seen from a nearby resort: photo by the authors, 2025.

Island monofunctionality is also the rationale for the development of new islands for tourism. Crossroads Resort, created between 2017 and 2019, is an artificial multi-island leisure project, close to the capital city. The resort is an integrated destination, allowing those in the capital to “behave like a tourist” (e.g., wearing a swimming suit and drinking alcohol), without suffering the limitations imposed by the Islamic religion. It is in Emboodhoo, a 7 km long artificial lagoon composed of 9 reclaimed islands. The main island hosts foreign investment-related activities such as Hard Rock Café and the Marina; the development of the complex will include the creation of five more islands as soon as additional foreign funds become available (Fig. 4). New islands have also been created for hosting luxury tourism. The Fari Islands, 2019-2021, for instance, are four artificial islands, with three resorts (Patina Maldives, the Ritz-Carlton Maldives, and Capella) and the Fari Marina Village. The islands were constructed using techniques that leverage natural sedimentary processes of the oceans. They are one meter higher than usual and feature a number of engineering safeguards that aim to protect them against sea-level rises caused by climate change.



Figure 4. The Crossroads Resort. Source: Google Earth, 2026.

Population pressure and land scarcity can be the reasons for creating new islands as well. The most important projects, in terms of size, are those aimed at creating space for housing in the urban area of the capital. In order to provide space for future urban development in the capital city region, in 1997 a big artificial island was created, Hulhumalé. Partly financed through the sale of the new buildings (Bisaro et al. 2020), Hulhumalé provides housing for those who wish to live near the capital without experiencing overcrowding, offers inexpensive accommodation for tourists, and also features a long, albeit artificial, beach (Melli, Malatesta, Tosi 2024; Sakamoto 2025). Hulhumalé is nicknamed “The City of Hope” for those reasons: relief from overcrowding, sustainable development, climate resilience, and hope for the future.

Beyond being an urban-planning solution, the big artificial island, which is now connected by a bridge to Malé and by a causeway to the airport island Hulhulé, seems also to be an answer to SLR: it is being built two meters above sea level -- a meter higher than Malé -- as a safeguard. As President Gayoom affirmed, in an interview, released in 2004, when Phase I of the project was inaugurated, “We still face the threat of sea level rise... We think the new Malé is sufficient for the time being. Of course, we can’t foresee 50-60 years from now... For the foreseeable future it will be enough”.¹³ In Phase I (1997–2004), 185 hectares were reclaimed for residential use, including infrastructure such as roads, schools, and mosques, while Phase II (2006-2016) reclaimed an additional 240 hectares, also primarily for residential purposes, with the first land plots available for sale in November. In October 2023, the government of Maldives resumed Phase III, aiming to reclaim another 63 hectares of land (see figures 5a and 5b) and connecting the new land to the island of Farukolhufushi (where there was previously a resort run by Club Méditerranée).

¹³ <https://rense.com/general60/newmaldivesisland.htm>



Figure 5a. Hulhumalé 2001 Source: Google Earth 2025.



Figure 5b. Hulhumalé 2025. Source: Google Earth 2025.

An even larger project is underway in RasMalé. The project, started in 2023, is expected to reclaim 1,153 hectares of land, and it will be the most extensive land reclamation initiative in the history of the Maldives. Covering an area approximately three times the area of Hulhumalé, RasMalé will be designated as the Maldives’ “Eco-City” (The President’s Office, 2023).¹⁴ It will feature mixed-use communities, sports and entertainment facilities, offices, parks and industrial zones, and more than 65,000 housing units. It will be developed in the Fushidhiggaru Lagoon (located near Gulhi, a 17-minute speedboat ride from the capital Malé), and it will be connected to the capital by an underwater train tunnel. It will be elevated 3 meters above sea level in the centre, 2 meters at the edges. In his inaugural speech, President Muizzu said “Ras Malé. This is my promise to the Maldivian people. A solution to alleviate the long-term housing crisis. An urban oasis where citizens can fully participate in all aspects of city life. Ras Malé will utilise modular housing, leverage a state-of-the-art

¹⁴ See <https://www.hdc.mv/rasmale>.

transportation system that is accessible to all. It will be developed as a climate resilient and safe island”.¹⁵

4. Land reclamation: Further questions

The land reclamation frenzy running through the Maldives leaves many open questions, such as those relating to the reactions of the local population, as well as the impacts on the tourism attractiveness and the future of tourism potential of the islands. The projects are extraordinarily expensive, and funding from the central government and international loans seems to be necessary to cover the realisation of infrastructures. Selling housing units can help fund projects (Bisaro et al. 2020) and the creation of tourist space offers the possibility of attracting foreign investment. However, land offers more benefits for some than others, since creating space equals creating capital; therefore, those who are able to lease the land claimed for the construction of residential buildings or tourist facilities can reap great benefits; small entrepreneurs, in front of whose guesthouses stretches a wide expanse of new sand, probably not. Moreover, land reclamation decimates local fishing, with the risk of reducing local island revenues. On a different scale, large hard engineering projects create dependency on significant volumes of imported materials and technologies, with the risk of further increasing the negative foreign trade balance of the country. Other significant questions remain, such as which companies (local or foreign) are carrying out the projects and what the workforce is like (are the workers Maldivian or do they mainly come from Bangladesh and Pakistan, for example)?

Land reclamation has a substantial impact on inhabited islands. As noted by Henderson (2008) and Scheyvens (2011), the issues of power and politics have been central to the development of the tourism sector in the Maldives. Thus, power relations issues about who is involved in decision-making (scale, role, and level) need to be considered. It is important to understand if an agreement is necessary between the central and the local government, if public consultation has taken place, and, if so, at what level. Indeed, projects have triggered protests and discontent at the local level. Sometimes, as happened in Addu, negative reactions from environmental groups go unheard. Conversely, in Dhonfanu in the Baa Atoll, Muizzu in September 2025 cancelled a 13-hectare land reclamation project, previously handed over to Maldives Transport and Contracting Company (MTCC). The decision was taken citing requests from the people of Dhonfanu, after *Resilience Maldives*, an environmental protection organisation, launched a petition opposing the project, in order to protect the adjacent Hanifaru Bay, renowned for its manta ray and whale shark sightings.¹⁶ The decision was justified as being in line with public concern: manta rays and whale sharks have significant economic value from a tourism perspective. Eventually, while environmental activists were opposing the project, a large part of the local community, led by the local mayor, protested against the government's decision, asking for more land for the island. Predicting the local community's attitude, however, is not simple. As written in a social media post,¹⁷ “In Maldivian political vocabulary, *tharaggee* has become a convenient sleight of hand. It is a word repeatedly invoked to suggest progress, while quietly narrowing its meaning to concrete, asphalt, and large buildings. Communities are encouraged to believe that development looks like replicating Malé's dense concrete landscape (roads, buildings, etc.), regardless of whether these structures meaningfully improve daily life”.

¹⁵ See <https://presidency.gov.mv/Press/Article/31703>.

¹⁶ See <https://maldivesindependent.com/environment/thats-a-complete-lie-scrapped-reclamation-near-marine-sanctuary-sparks-protests-in-dhonfanu-ebca>

¹⁷ <https://www.facebook.com/ibrahim.zuhoor.35>

With land reclamation, changes in the island's functions are usually quite common. If the landscape is drastically modified, it is possible that these transformations have an impact on the local population and disrupt their sense of place and identity. Moreover, on local islands, the potential for sustainable tourism development can be nullified by the radical changes brought about by large-scale land reclamation. For instance, the presence of an airport may be useful for implementing regional connectivity, at the atoll scale; but it does not provide an attractive context matching the tourist dream of a tropical island at the local scale. Therefore, the owner of a guesthouse on a small, inhabited island where an airport is being built risks benefiting from the passage of tourists bound for other islands but not having guests who stay for long periods at his/her establishment. So, as a local entrepreneur said to us, "The airport is useful, but should be a little away from the island".

There are also doubts about the impact that land reclamation may have on the tourist future of a given island, or on the success of a "man-made" island (as artificial islands are locally called). Some comments from TripAdvisor raise concerns: "As the island ground is reclaimed land, it's quite hard, especially on bare feet, as below the sand is concrete"; "Not enough greenery compared with another island"; "Hotel is built on a man-made island, so you have less fish and natural elements of the sea missing. It felt like a Dubai palm site". There are already resilience issues with tourism that call for spatially sensitive adaptive strategies and crisis-ready governance frameworks (Jaroensutasinee et al. 2025).

Lastly, the environmental impacts are crucial to understand and acknowledge, which is a controversial issue. As we have seen, local politics are now convinced that the engineering answer is the right answer. Of the same opinion is a paper published by Brown et al. (2023, 1), stating that "structural adaptation using land claim and island raising can be utilised within an adaptation pathway approach to sustain enough islands and land area above rising sea levels to satisfy societal and economic needs over multiple centuries". They place island raising at the centre of the adaptation in the national strategy, with the creation of a Greater Malé area. This includes the existing islands of Malé and Hulhumalé, as well as a new conceptual island called Abadhah-Malé, which should be raised several meters above sea level. The long-term adaptation they propose includes advancing and raising the islands, as well as migrating the population between the three islands if necessary. As sea levels rise, increased coastal fortification will initially provide protection against flooding until the threshold of coexistence with sea level rise is exceeded (in the strategy, 1.2 m rise that is expected to occur around 2150). Then, people will migrate to another island, leaving the original island uninhabited. The project envisages a kind of circular migration, whereby two of the three islands will be inhabited while the uninhabited island is raised and prepared for future occupation. So, as they conclude, "Atoll nations, such as the Maldives, may not drown with SLR as often perceived by the media, and with transformational adaptation can remain a thriving nation long into the future, albeit a reshaped one compared to what exists today. Island raising and advancing thus provides a positive future for island nations and expands the adaptation and development options far into the future" (Brown et al. 2023, 22).

In the meanwhile, with ongoing and intensifying land reclamation, wetlands and mangrove forests are uprooted, while reefs, coastal plains and coral reefs are covered by the accumulation of sediment. This wipes out native plants and fish species and challenges a wider socio-ecological resilience of coastal systems (see Hughes et al. 2003). In this regard, concerns about the environmental consequences of such human interventions on the island environment were evident already in a 1989 UNEP survey, already quoted in the Introduction, which anticipated that "Assuming a mean global sea-level rise of 20 cm by the year 2025, those islands in the archipelago which have been structurally modified can expect increased rates of erosion and coastal alteration" (Pernetta, Sestini 1989). Pernetta and Sestini also stressed that the ongoing land reclamation process would reduce the capacity of the reef system to absorb the wave energy. Similarly, Readshaw (1994) estimated that human-made alterations to the coastal areas could make islands more fragile instead of protecting them. "Land reclamation projects implemented without proper consideration of the geomorphological

forces operating in a reef flat or a particular part of the atoll may increase an island's vulnerability to sea level rise and severe weather events induced by the ocean" (Shaig 2006, 9). Moreover, islands are formed of accumulations of biogenic material, and corals may be damaged by coastal modification activities.

Generally speaking, land reclamation is considered to have negative impacts on coastal and marine ecosystems, impacts that may "compromise the protection services that they deliver to island communities through wave energy attenuation and sediment supply" (Mycoo et al. 2022, 2052). Therefore, even though islands are made larger and higher, and thus seem more capable of coping with rising sea levels, land reclamation risks being a short-term solution that in the long run may worsen the overall picture. For this reason, Pernetta and Sestini (1989, 4) concluded their initial report by stating that "Sustainable development in the Maldives can only be achieved by a careful and simultaneous consideration of all aspects of these islands' fragile environment".

Indeed, atolls are living ecosystems that are fragile and vulnerable. Coral reefs grow up to just below the low water level, and as sea level rises, they will tend to grow and to keep up with it. In the Maldives they have grown 10-20 m upwards within the last 10,000 years as sea-level has risen following the last glaciation (Woodroffe 1989). However, Stokes et al. (2025) stated that even the ambitious target of the Paris Climate Agreement to limit global warming preferably to +1.5 °C above pre-industrial level is too high for the Polar regions: if sustained, the global warming may generate several meters of sea-level rise in the future. As the current mitigation policies in place are projected to result in over +2.5 °C global warming above pre-industrial levels, this may happen faster than the coral reefs can keep up, resulting in extensive loss and damage to coastal populations and environments in the Maldives and beyond. Indeed, the future ability of reefs worldwide to accrete at a sufficient pace to respond to SLR "is a subject of significant debate amongst scientists" (Brown et al. 2023, 3). Therefore, reclaimed lands may not serve the politics of climate resilience in practice. In this respect, a pessimistic view comes from Duvat (2020): "The Maldivian Island model of 'reclamation-fortification' has detrimental impacts on the environment while also questioning the future capacity of the Maldives to face a hard path under increasing risks". Artificial islands and reclaimed lands in natural islands can be elevated two or three meters above sea level and can be surrounded by artificial barriers capable of breaking waves. But, for how long?

A different perspective, advanced by Oppenheimer et al. (2019) and Masselink et al. (2024), suggests "Ecosystem-based adaptation" (EbA), based on the conservation or restoration of coastal ecosystems such as wetlands and reefs. Indeed, "Restoration of the vegetation along the island perimeter can be achieved on most islands with relative ease and will have an immediate impact on the extent of flooding", while "Beach nourishment and construction of gravel berms can also be effective against flooding and erosion, whilst at the same time increasing resilience" (Masselink et al. 2024, 43-44). However, these are interventions that must be calibrated on a case-by-case basis and whose long-term costs and benefits are yet unknown (Brown et al. 2023). Certainly, restoring mangroves and regenerating beaches is likely to be a complex and expensive operation that does not offer the "unique opportunity for investors" promised in RasMalé by the Maldivian Ministry of Economic Development and Trade.¹⁸

5. Conclusions

The Maldives are often referred to as "vanishing islands", and the tourism industry promotes the idea of visiting the archipelago before it disappears. However, the Maldives are not actually disappearing; in fact, they are growing in size and number. This process is largely due to human

¹⁸ <https://trade.gov.mv/en/invest-maldives/>

intervention. Many islands are being enlarged, while new ones are being created from scratch through a process of land reclamation. The main rationale offered by politicians is the lack of land and the need to protect the islands from climate change and the resulting sea level rise. Land reclamation is presented as the most effective way to ensure the survival of the Maldives as a nation, a tool for material resilience against future climate change. However, the resilience based on land reclamation is ambiguous from many points of view.

On the one hand, these are very expensive operations, partly covered by the sale of the new building plots (Bisaro et al. 2020), partly by international loans, which increase public debt (and consequently dependence on foreign investors and capital) (Ishiwatari, Maekawa, Fujikura 2025). On the other hand, the creation of tailor-made building space generates capital, which is likely to be the core motivation behind accelerating land reclamation. Instead of being a tool for resilience building, land reclamation is a form of neoliberal logic of creating wealth for investors. Moreover, land reclamation creates new lands, raises the level of the islands above sea level, and modifies coastal zones and processes, which all damage the ecosystem and the coral reef. This raises the question which perhaps deserves critical discussion on the role of human intervention, i.e. whether it is harmful in terms of climate change or beneficial thanks to engineering solutions. This approach risks oversimplifying the complex and multifaceted nature of atolls, which are not exclusively geological or anthropogenic in origin: they are the result of the activities of countless living beings, which can react to change in ways that are not easily predictable.

Indeed, the Maldives are not just geological or human-made formations. They are based on living coral reefs and coral is the very reason for the existence of the islands in the first place. It is their wave energy-absorbing capacity which has allowed sediments derived from their erosion to accumulate and be shaped by waves and currents into dry land. Once islands are established, it is primarily the offshore protection provided by the reefs which maintains the islands' integrity. Due to the dynamic nature of the system, although the coastlines of the islands may appear static, they are likely to be continually reshaped and moved.

Therefore, while appearing successful in the current economic and demographic terms, land reclamation may create future risks and potentially exacerbate environmental threats and hazards. At the same time, however, land reclamation may also fail to deliver the climate change resilience promised by the politicians. It is probable that the material resilience offered by land reclamation is only a temporary solution, which currently seems to limit the danger of the archipelago vanishing, but which, in the long term, risks accelerating its disappearance. Moreover, the material resilience thinking may conflict with socio-ecological resilience and, thus, it may risk the attractiveness of the Maldives for tourists well before the estimated sea level rise beyond tolerable levels.

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