

## KEY POINTS

- Improved interisland connectivity and accessibility to services and economic centers play important roles in achieving inclusive economic growth in Maldives, especially in remote atolls.
- In addition to continuing tangible investments in harbor infrastructure, harbor operation and maintenance should be key areas for development to ensure the sustainability of interisland connectivity and accessibility.
- Outreach to local communities will help them understand the opportunities the project provides, especially for the poor and for vulnerable groups including women.

## Sustaining Harbor Operation and Maintenance in Maldives

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### INTRODUCTION

In 2016, the Government of Maldives received a grant amounting to \$9.69 million from the Asian Development Bank (ADB) to construct a new passenger and cargo harbor as an expansion of the existing multipurpose harbor on Kulhudhuffushi Island.<sup>1</sup> For the investment in the harbor infrastructure to be effective and sustainable, ADB provided technical assistance of \$0.5 million to support the government to (i) enhance the institutional capacity of the operator in harbor operation, maintenance, safety, and financial management; and (ii) help promote income-generating livelihood opportunities for local communities in the northern region. The project improved interisland connectivity in the northern region by increasing (i) harbor passenger and cargo capacity in Kulhudhuffushi and (ii) institutional capacity in harbor operation, maintenance, safety, and financial management. The technical assistance was implemented from August 2017 to June 2018.

This document summarizes the challenges and recommended mitigation actions for the Government of Maldives in sustaining harbor operation and maintenance. It is distributed among key stakeholders and local councils to increase awareness on the need for sustainable harbor operation and maintenance in all public harbors in Maldives. The full version of the technical assistance report can be found on the ADB website (footnote 1).

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<sup>1</sup> ADB. 2016. *Report and Recommendation of the President to the Board of Directors: Proposed Grant and Technical Assistance Grant to the Republic of the Maldives for the Kulhudhuffushi Harbor Expansion Project*. Manila. <https://www.adb.org/sites/default/files/project-document/190083/36111-013-rrp.pdf>.

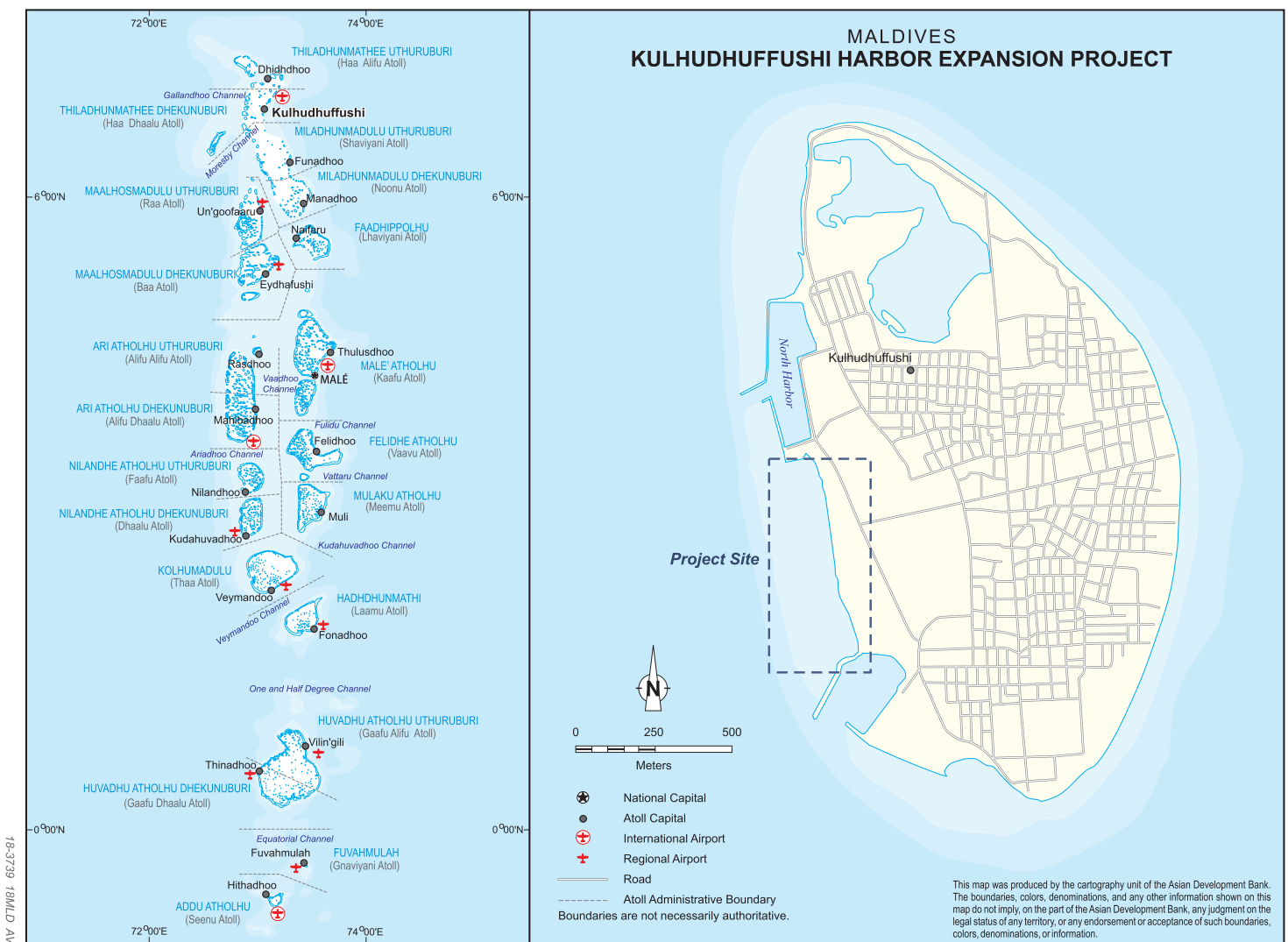
## BACKGROUND

Maldives consists of 1,190 coral islands formed by 20 natural atolls and scattered over 90,000 square kilometers of territory in the Indian Ocean, making it one of the most dispersed countries in the world. The country's total population was around 402,000 in 2014, with 96% of the population distributed across 188 administrative islands, 123 of which are occupied by fewer than 1,000 people.<sup>2</sup> These geographic and demographic characteristics pose major development challenges in Maldives in terms of infrastructure development, provision of basic social services, and access to equitable economic opportunities.

Lack of transport connectivity is a major constraint on the country's inclusive and sustainable development goals in remote atolls,

particularly in the northern region,<sup>3</sup> which have a high number of inhabitants living below the poverty line.<sup>4</sup> Imbalances in accessibility to opportunities, enterprise, markets, and services in the northern region constrain the government from achieving broad-based economic growth.

Kulhudhuffushi is a major population center in the northern region with a population of 8,200 as of 2014 (footnote 2). It is also the business hub of the north of Maldives, owing to its superior infrastructure and services including a secondary school, a university campus, a hospital, and an airport currently under construction. It also contains a local harbor and a regional harbor; the regional harbor is designed to cater to overseas vessels and allow direct importing of cargo from neighboring India and Sri Lanka.



<sup>2</sup> Government of Maldives, National Bureau of Statistics. 2014. *Population and Housing Census*. Malé.

<sup>3</sup> It consists of Haa Alifu, Haa Dhaalu, and Shaviyani atolls.

<sup>4</sup> Government of Maldives, Department of National Planning. 2012. *Household Income and Expenditure Survey*. Malé.

The expansion of the Kulhudhuffushi local harbor arises from the need to accommodate future demand; increase connectivity for passenger and cargo in the islands; improve access to services such as housing, education, and health; generate livelihood opportunities for the local population; and contribute to the development of small and medium-sized enterprises (SMEs) in the region. The civil works will begin first quarter of 2019 with a target completion date of June 2020.

The feasibility study for the harbor expansion, completed in early 2016, identified the need for enhanced institutional capacity and practices to sustain the harbor operation and maintenance in Kulhudhuffushi. Therefore, along with the funding of the harbor expansion, additional funding was set aside for a technical assistance to (i) strengthen the capacity of public agencies in charge of harbor operations, safety, maintenance, and financial management; (ii) assess the feasibility of implementing harbor user charges; and (iii) raise awareness and take advantage of growth and business opportunities brought about by the harbor's expansion.

Following the preliminary work on a situational assessment and identification of capacity gaps and needs across key project components, a program of capacity building and institutional development has been designed, developed, and implemented in coordination with public agencies and various harbor users.

### PROJECT ACTIVITIES AND MAIN OUTPUTS

#### Feasibility Study and Recommendations for Implementing Harbor User Charges

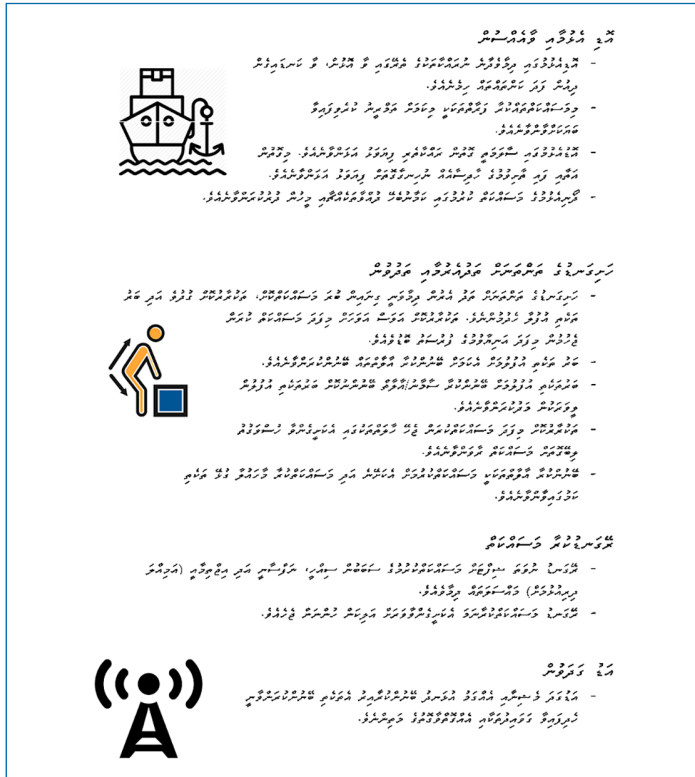
In Maldives, both the development and maintenance of local harbors are publicly funded and administered through the central government. In this process, however, local harbors compete for maintenance funding with other public expenditures from the government's central budget, which is often limited, unabatedly resulting in delays in maintenance schedules. This process also deprives local councils of the resources and tools required to operate and maintain local harbors properly. Without harbor charges, there are no incentives for or constraints on boat owners and other users for the safe and efficient use of the harbor.

Through several research methods, particularly a survey of harbor use pattern, an evaluation of the costs of harbor use and the users' willingness and ability to pay a tariff set that includes mooring fees, berthing charges, annual licenses, and passenger ticketing was proposed for the Kulhudhuffushi harbor. The total of these charges is aimed at covering funds for maintenance and daily operation. The charge for the use of the quay has the additional benefit of ensuring safe and efficient utilization, i.e., making use of the quay only when needed.



**Kulhudhuffushi harbor.** The current pattern of use in the Kulhudhuffushi harbor shows no free quay space for berthing and berth management, leading to costly ships' queuing and harbor congestion especially during busy days.





**Safety awareness leaflet.** Leaflets and brochures like this were distributed during a 1-day public harbor safety awareness event.

As a result, the study expanded its coverage where similar surveys and analyses were undertaken in other Maldives’ harbors. Selected islands in the south and central Maldives were also covered, each with different population size and harbor’s berthing and operating arrangements. The analysis has shown that the same tariff set proposed for Kulhudhuffushi can be applied across other local harbors in Maldives but with varying levels of charges, as the smallest of island populations may not be able to cover all costs.

A system of cross-subsidy among the islands to bridge any discrepancy between shortfall funding from harbor charges in some harbors and surpluses made in other harbors will be required along with initial funding from the central government for construction and capital works. The study recommends the creation of a national harbor fund in Maldives, which collects the proceeds of user charges from various harbors then allocates them according to maintenance schedules and requirements. For the harbor to be effective, the harbor fund must be established and managed for the sole purpose of servicing harbor maintenance expenditures and long-term requirements and should, therefore, be ring-fenced against other governmental spending.

The Ministry of Housing and Infrastructure carried out a high-level policy seminar to disseminate the survey works undertaken and recommendations made on the structure and levels of harbor user charges.

## Guidelines and Institutionalization of Harbor Safety and Operations

The Kulhudhuffushi harbor and other harbors in Maldives are currently operated with minimum or no supervision. There are no operational standards for ships’ mooring, berthing, and un-berthing; passengers’ embarkation and disembarkation; and cargo handling on board and ashore.

At the same time, existing regulations on domestic shipping and harbor operations do not address key issues related to harbor safety, including aspects like safe berthing policy, occupational health and work procedures, safe handling of goods and passengers, and accident prevention and mitigation. This is exacerbated by the lack of skills and resources within local councils to properly implement and monitor harbor safety rules and procedures.

Given the observed shortcomings in harbor safety and operations, a comprehensive program has been developed and implemented to help harbor agencies, operators, and users identify safety risks and hazards, implement safety action plans and regulations, and incorporate and institutionalize safety systems and procedures.

The capacity development program on harbor safety was centered around four main components: (i) a set of guidelines on harbor safety and operations, (ii) an institutional development and implementation plan targeted at the Kulhudhuffushi Council with possible extension to other local harbor authorities in Maldives, (iii) a harbor safety refresher course for local boat drivers, and (iv) a public harbor safety awareness campaign targeted at harbor users and the public.



**Kulhudhuffushi harbor day-to-day operation.** Requirement to ensure safety for harbor workers, operators, and passengers in daily routines will increase in line with the expected increase of the utilization of harbor facilities and infrastructure.

### Procedural Systems and Toolkits for Asset Maintenance and Financial Management

In Maldives, major harbor maintenance projects, such as dredging and major repairs, are implemented by central government agencies, while small-scale maintenance, like cleaning and upkeep of harbor areas, are carried out by local councils. However, no system links asset registration and inspection with maintenance works and budget expenditure. This is aggravated by inadequate skills and institutional gaps and the absence of a quality assurance system for establishing, controlling, and auditing maintenance procedures within and across harbors.

As part of this technical assistance project, a program of capacity building and institutional development for the Secretariat of the Kulhudhuffushi Council as the current harbor operator in

Kulhudhuffushi has been designed and implemented to improve asset maintenance systems and procedures within public agencies in charge of harbor operations and management, while following financial procedures for budget control and expenditure.

A toolkit for harbor asset management and maintenance as well as guidelines for financial management and internal control has been developed. The toolkit covers key areas ranging from asset registration and inspection to maintenance work orders and cost control. In parallel, a training and institutional development program has been designed and delivered through working, experimenting, and interacting with selected staff from governmental agencies on how to implement asset maintenance toolkits and procedures in the context of Kulhudhuffushi harbor asset management.



**Sustaining the benefit of the physical investment.** An appropriate toolkit and procedures for harbor maintenance will help the operators sustain the benefit of the harbor infrastructure.

Cost Centre	Reporting	Cost Code	Description	Budget for 2018	Budget (December)	Actual (end of November)	Difference	% Realisation
<b>HARBOUR GENERAL</b>								
<b>Cost to the Secretariate of Kulhudhuffushi Council</b>								
110	Cleaning of Harbour	2000	Cleaning of harbour around the basin area					
110	Cleaning of Harbour	2001	Cleaning of harbour area including public areas					
			<b>TOTAL</b>	-	-	-	-	-
110	General Maintenance (Minor)	2020	General maintenance of minor repairs					
110	General Maintenance	2030	Monthly harbour inspection					
			<b>TOTAL</b>	-	-	-	-	-
<b>Cost to the Ministry of Housing and Infrastructure (Public Works Services)</b>								
110	Maintenance & Repair (Large)	3000	Special inspection of the harbour					
110	Maintenance & Repair (Large)	3010	Dredging of the harbour channel					
110	Maintenance & Repair (Large)	3020	Dredging of the harbour basin					
110	Maintenance & Repair (Large)	3030	Maintenance of the breakwater					
110	Maintenance & Repair (Large)	3040	Maintenance of the harbour quay wall					
110	Maintenance & Repair (Large)	3050	Maintenance of the apron					
110	Maintenance & Repair (Large)	3060	Maintenance of the quay fenders					
110	Maintenance & Repair (Large)	3070	Maintenance of the mooring bollards or rings					
110	Maintenance & Repair (Large)	3080	Maintenance of the harbour navigation lights					
110	Maintenance & Repair (Large)	3090	Maintenance of the security fence					
110	Maintenance & Repair (Large)	3100	Maintenance of berth & yard lighting					
			<b>TOTAL</b>	-	-	-	-	-

**Computerized Maintenance Management System (CMMS).** Snapshot of a CMMS developed as part of the Capacity Development Technical Assistance (CDTA) toolkit and used for recording maintenance works, linking them to asset type and cost centers.



### Income-Generating and Business Opportunities for Local Populations and Small and Medium-Sized Enterprises

The development of Kulhudhuffushi harbor expansion will increase access and connectivity of the population from nearby islands to Kulhudhuffushi's economic and social facilities; improve socioeconomic conditions for small businesses in the fishing, trade, and logistics industries; and provide additional income-generating opportunities for local farmers and traders.

As part of this technical assistance project, a community awareness and participation plan was implemented to ensure widespread awareness of the expected project impact with meaningful participation of the key stakeholders, focusing on the poor and the vulnerable groups, notably

women. The reach and sustainability of development initiatives are improved when all stakeholders, including the poor and the vulnerable groups, have an opportunity to participate in shaping the programs and their voices are heard at all levels of decision-making. Stakeholder analysis was undertaken to ensure that stakeholders are identified and included in the participatory project design process.

A similar program was developed and targeted at the local SMEs and business community in Kulhudhuffushi with the design and delivery of modified training modules on port business marketing, trade finance, logistics distribution, and e-commerce. Rental of shopping and business facilities at the new passenger terminal may generate additional revenue for the harbor operator. A large business forum session on the harbor expansion and business opportunities was also conducted and attracted over 70 SMEs, including representatives from the trade and banking sectors.



**Meeting with stakeholders.** Awareness programs are conducted with affected sectors in the community, such as women.

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