Vulnerability of the Lakshadweep Coral Islands in India and Strategies for Mitigating Climate Change Impacts

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ABSTRACT
Strategies for mitigating climate change impact on the vulnerable Lakshadweep coral islands have been drawn up in accordance with the principles, guidelines and strategies laid down in the Indian National Action Plan on Climate Change (NAPCC). The region most vulnerable to inundation from accelerated sea level rise (at least 40 cm by 2100) is the Lakshadweep archipelago. The first section of the chapter reviews the origin and geophysical features, climate profile, sectoral impact of climate change and vulnerabilities of Lakshadweep. The second section deals with climate change strategies and their adaptation, recommending appropriate actions for coping strategies to be adopted by local communities to be resilient against the adverse impacts of climate change. The third section outlines the Lakshadweep Action Plan for Climate Change (LAPCC) and the fourth section describes integrating LAPCC within the NAPCC, successes and challenges ahead. For small islands it is a notable case study to emulate, mitigating the effects of climate change while not deviating from development goals.

INTRODUCTION
India has two island Union Territories, namely the Andaman and Car Nicobar Islands and Lakshadweep. Union Territory means it is governed by Union Government of India. The Union Territory of Lakshadweep (UTL), is a group of islands in Laccadive Sea, 200 to 440 kilometres (120 to 270 miles) off the south western coast of India (Figure 1). It consists of 39 islands/islets/reefs/atolls, out of which...
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Figure 1. Map showing islands of Lakshadweep

11 are inhabited. UTL is the smallest Union Territory of India - its total surface area is just 32 square kilometres (12 sq miles). The 2011 census showed that the population of UTL is 64,473. UTL is the only atoll coral island chain in India. The Lakshadweep archipelago comprises the most extensive coral reef and atoll system in the Indian Ocean as well as being the largest atoll system in the world. Apart from harbouring significant biological diversity and acting as a breeding ground for fishery stock, coral reefs also act as the ‘natural defence mechanism’ against sea-surges and storms. The low level of islands of Lakshadweep makes them very sensitive to sea level rise and therefore the foremost threat to these island chains is potential global climate change. The islands are geographically isolated from the mainland and have to depend on it for almost everything (Pernetta, 1992). Connectivity poses very severe problems, both for quality of life and for the marketing of local produce in the islands. Shipping is the backbone of the islands. Mangalore is the food lifeline while Calicut is the fuel lifeline. All other provisions are supplied from Kochi (Dadoo, 2010).

The distance also affects the mobility of people for activities such as education, employment, social and religious purposes, and medical treatment. In contrast to the main land, natural disasters can lead to a complete breakdown of economic processes, extensive environmental damage and disruptions in the social fabric of these islands. UTL, being a cluster of small ‘sea-locked’ coastal territories, would