

## Architectural Adventures: Bridging Theory and Reality of Resilient Design

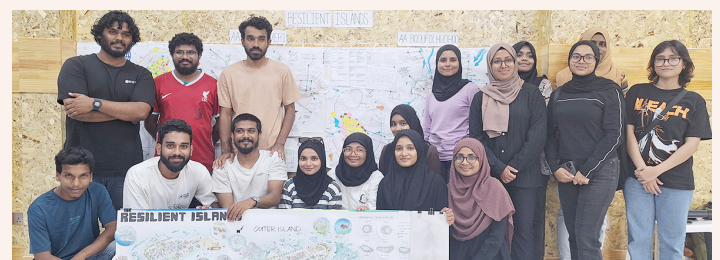
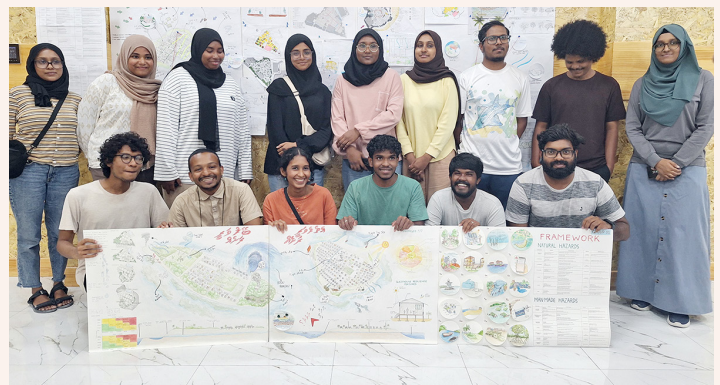


In an effort to bridge the gap between theory and practice and to gather data to guide the students in their studio project, third-year architecture students of the Faculty of Engineering, Science, and Technology recently undertook an exciting field trip in the North Ari Atoll. From February 25th to March 2nd, a group of thirty enthusiastic students, accompanied by three lecturers, travelled to study the existing context of the Island of Aa. Mathiveri, exploring architectural design and resilience.

The first several days were dedicated to collecting data from Aa. Mathiveri, including the study of the existing natural and built environment, zoning, infrastructure, amenities, cultural and social attributes of the island. Additionally, the students focused on an in-depth study and documentation of several aspects of existing guesthouses and their infrastructure as well as their vulnerability to disasters and climate change effects.

Interviews with relevant stakeholders provided valuable information with respect to the challenges as well as perceptions towards resilient designs. This was followed by a trip to the neighboring island of Aa.Bodufolhudhoo for a comparison study of guesthouses and tourism establishments in the island and collected relevant data for analysis.

A key highlight of the trip included a visit to the one-of-a-kind, Nika Island Resort, one of the very first resorts in Maldives, built in 1983. The island has to be considered as a piece of cultural heritage, thanks to its collection of vernacular architectural masterpieces which still survive to date. The visit provided valuable insights into traditional practices of using





the local environment, climate and passive design techniques to ensure sustainability of both the built and natural environment.

In the final stage of the trip, the preliminary findings and ideas were presented to the island council to get their feedback and additional knowledge which the students will use in developing proposals for resilient designs.



This field trip was not merely a recreational excursion; it served as a catalyst for the students' ongoing Architectural Design Project 5. This semester, the students are tasked with designing prototypes of resilient guesthouses, aligning with the thematic focus on "resilient design". The project demands contextual awareness, attention to architectural details, technological requirements, and logistical considerations.

As the students return from their enriching field trip, they carry with them, the memories of picturesque landscapes as well as a deeper understanding of architect's role in fostering resilience and sustainability in island communities. Their journey exemplifies the faculty's commitment to experiential learning and the pursuit of knowledge that transcends classroom boundaries.





# Coastal Study for Kaafu Huraa

Earlier in February, students from the Bachelor of Marine Science visited Huraa to conduct studies related to the ecology and socio-economic aspects of the island. The main focuses were on the water quality and an evaluation of coastal ecosystems to create a coastal zone management plan for the island.

The studies conducted by the students include:

- Survey of the public opinion on coastal ecosystems and their role in the economy.
- Aerial mapping of the island.
- Soil Quality testing in the mangrove (parameters such as: pH, Nitrates, Potassium, Phosphates).
- Water quality assessments conducted (parameters such as: Temperature, pH, Electrical Conductivity, Total Dissolved Solids, Acidity, Alkalinity, Hardness, Dissolved Oxygen, BOD, Nitrates, Phosphates, E-coli).
- Assessment of beaches using beach profiles.
- Microfauna survey of plankton species within the mangrove.
- Rapid biodiversity assessment to identify the species found.



Beach profiling works at the western beach of K. Huraa, using an auto level and a telescopic measuring staff.



Testing dissolved oxygen content of ground water samples collected using test kits

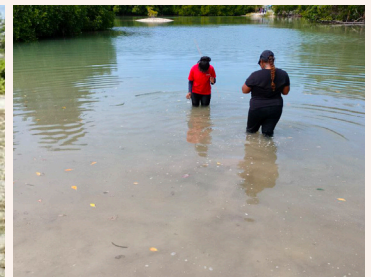


Soil sample testing at the mangrove in K.Huraa

Studies conducted experiments in the mangrove and groundwater of the island. Ground water was the water we used for all our needs in the earlier days. So, one of the main purposes was to find out whether this ground water is still usable for drinking and daily needs. The other aim is to identify any pollution or contamination of the water in the mangrove or the groundwater lens. Species found in the area near the mangrove can be studied and this can be indicative of water quality.



Mapping K. Huraa using RTK drone imaging



Sample collection from the edge of the mangrove for water quality assessments



Preparing to go collect samples from the inner areas of the mangrove.



# Embracing Nature: The Power of Biophilic Design in Architecture

By: Dr. Sarah - Department of Architecture



In an era marked by technological advancements and urbanization, there's a growing recognition of the importance of reconnecting with nature in our built environments. Biophilic design, a concept rooted in the innate human tendency to seek connections with nature, has emerged as a transformative approach in architecture, fostering harmony between the natural and built worlds.

**Understanding Biophilic Design:** At its core, biophilic design seeks to integrate natural elements, patterns, and processes into the built environment, enhancing the well-being, productivity, and overall experience of occupants. Drawing inspiration from nature's principles, biophilic design encompasses a range of strategies, including:

- **Natural Light and Views:** Incorporating ample daylight and views of nature into interior spaces not only reduces reliance on artificial lighting but also promotes a sense of connection to the outdoors, improving mood and productivity.
- **Biomorphic Forms and Patterns:** Embracing organic shapes, textures, and patterns in architectural elements and furnishings evokes the essence of nature, stimulating the senses and creating visually appealing environments.
- **Natural Materials:** Utilizing materials such as wood, stone, and vegetation not only enhances aesthetics but also contributes to a healthier indoor environment by regulating humidity, absorbing pollutants, and reducing stress.
- **Living Systems:** Introducing living elements such as indoor plants, green walls, and water features fosters a dynamic and vibrant atmosphere, while also purifying the air and promoting biodiversity.

- **Outdoor Spaces:** Designing accessible outdoor areas, such as gardens, courtyards, and rooftop terraces, provides opportunities for relaxation, social interaction, and connection with the natural world.

## The Benefits of Biophilic Design:

Research has shown that incorporating biophilic elements into architectural design offers a multitude of benefits for both individuals and communities. These include:

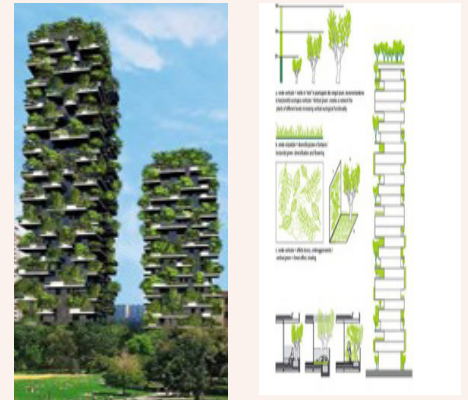
- **Improved Well-being:** Exposure to nature has been linked to reduced stress, enhanced cognitive function, and faster recovery times from illness, leading to overall improvements in physical and mental well-being.
- **Increased Productivity:** Access to natural light, views, and greenery has been shown to boost productivity, creativity, and concentration levels among building occupants, resulting in higher job satisfaction and performance.
- **Enhanced Learning Environments:** Schools and educational facilities



designed with biophilic principles have been found to support better learning outcomes, as students exhibit higher levels of engagement, focus, and academic achievement.

- **Sustainable Practices:** Biophilic design aligns with principles of sustainability by promoting energy efficiency, resource conservation, and resilience to climate change, ultimately contributing to the long-term health of both people and the planet.

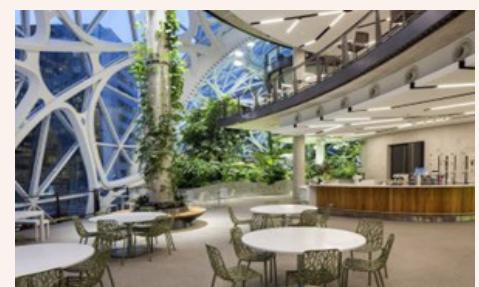
The Bosco Verticale (Vertical Forest) towers in Milan, Italy, are residential high-rises adorned with thousands of trees and plants, serving as green urban oases that improve air quality and biodiversity.



The Gardens by the Bay in Singapore showcase innovative botanical gardens and futuristic structures, combining sustainable design with immersive experiences to reconnect visitors with nature in an urban setting.

## Looking to the Future:

As society grapples with pressing environmental and health challenges, the principles of biophilic design offer a promising pathway towards creating more resilient, sustainable, and human-centered built environments. By embracing nature as a source of inspiration and innovation, architects and designers have the opportunity to shape spaces that not only enhance our quality of life but also foster a deeper appreciation for the natural world we inhabit. In doing so, we can cultivate environments that nurture both the body and the soul, creating a brighter and greener future for generations to come.



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