PROTECTION AND PROACTIVE CONSERVATION OF CORAL REEFS USING AI ALGORITHM

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MOL Mauritius International Fund
for Natural Environment Recovery and Sustainability

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Introduction

- Coral reefs are one of the most diverse and valuable ecosystems on the planet, providing habitats for numerous marine species, protecting coastlines from erosion, and supporting important fisheries and tourism industries. However, these delicate ecosystems are under threat from a variety of factors including climate change, pollution, overfishing, and habitat destruction. In recent years, coral farming has emerged as a potential solution to help mitigate these threats and support the restoration and conservation of coral reefs.

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MV Wakashio

- **25th July 2020-** grounding of the vessel off Pointe D'Esny in the south-east coast of Mauritius.
- **26th July 2020-** The Government activated the National Oil Spill Contingency Plan.
- **5th August 2020-** minor oil sheen was spotted around the vessel.
- **6th August 2020-** MV Wakashio flooded and started sinking, spilling oil at a high rate. An estimated 1000 tonnes had leaked from the ship prompting the Government to declare an Environmental State of Emergency. The coral ecosystems were badly affected.

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EcoMode Society

- The EcoMode Society (EMS) is an NGO working to preserve our environment be it terrestrial or marine. As the name suggests, the team supports eco-friendly lifestyles through implementation of national programmes dealing with Solid Waste Management, Protection of Marine Ecosystem and Biodiversity, Resource Management, Resource Conservation and Public Awareness Campaigns.

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Coral Farming

- Construction of coral nurseries

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On site welding and measurement of ropes to fix corals

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- Broken coral colonies and fragments were collected from the Wakashio site.
- The broken corals were then taken to the nursery site at Pointe Aux Feuilles.

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- The fragmented corals were then twisted onto the ropes.

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- The ropes were then attached to each end of the tables and fixed with a temporary cable ties.

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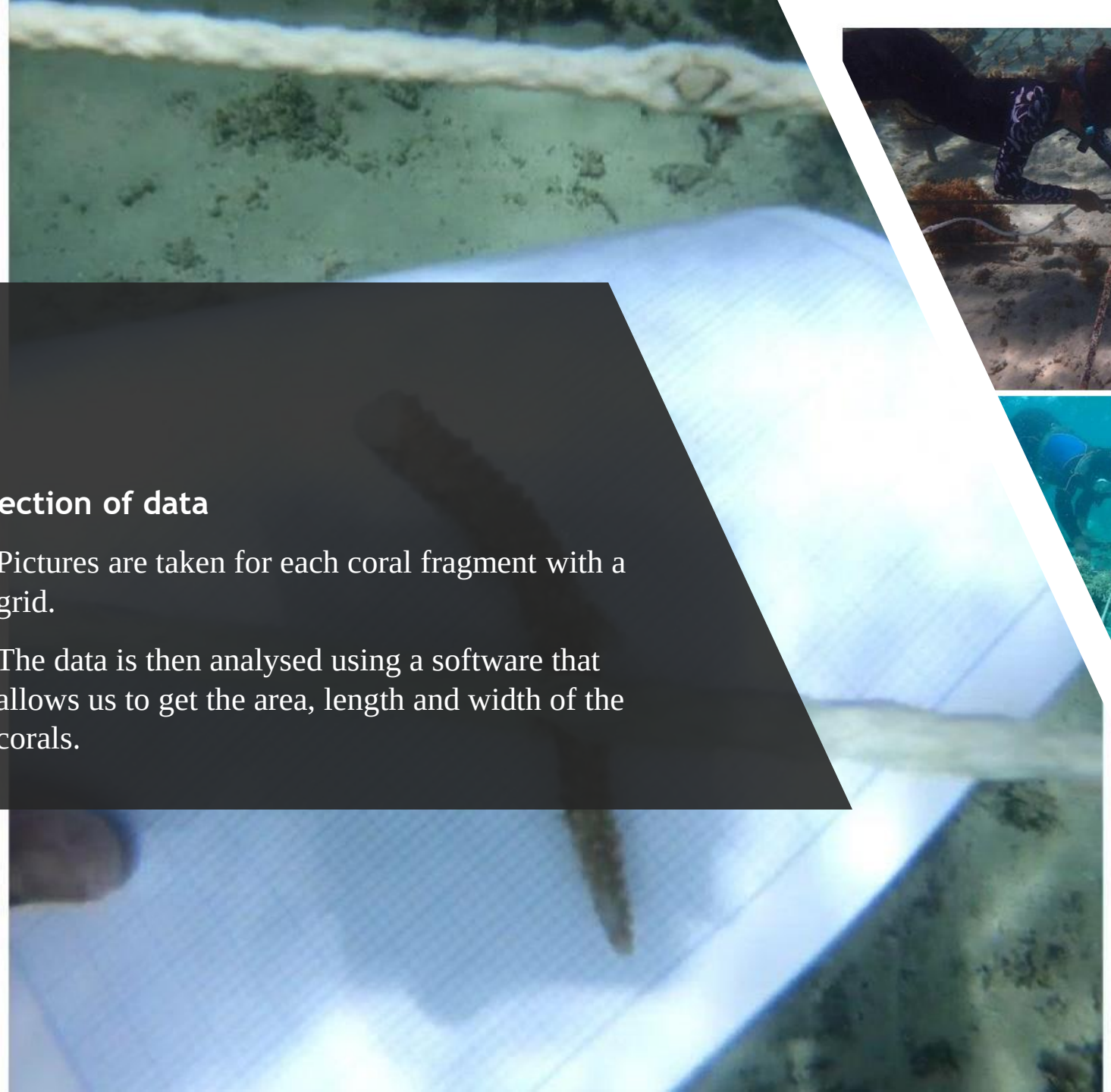
Collection of data

- Pictures are taken for each coral fragment with a grid.
- The data is then analysed using a software that allows us to get the area, length and width of the corals.



Community Involvement

- Ocean literacy is the bedrock of ocean action.
- Knowledge being the key to restore the ocean, through this project there was dissemination of information by scientists working on the project. There is a difference between what scientists know and what the general public knows. Local stakeholders will feel more concerned and integrated in ocean restoration if there is passing of information from grassroot level to global level.

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Training of Local Fishermen

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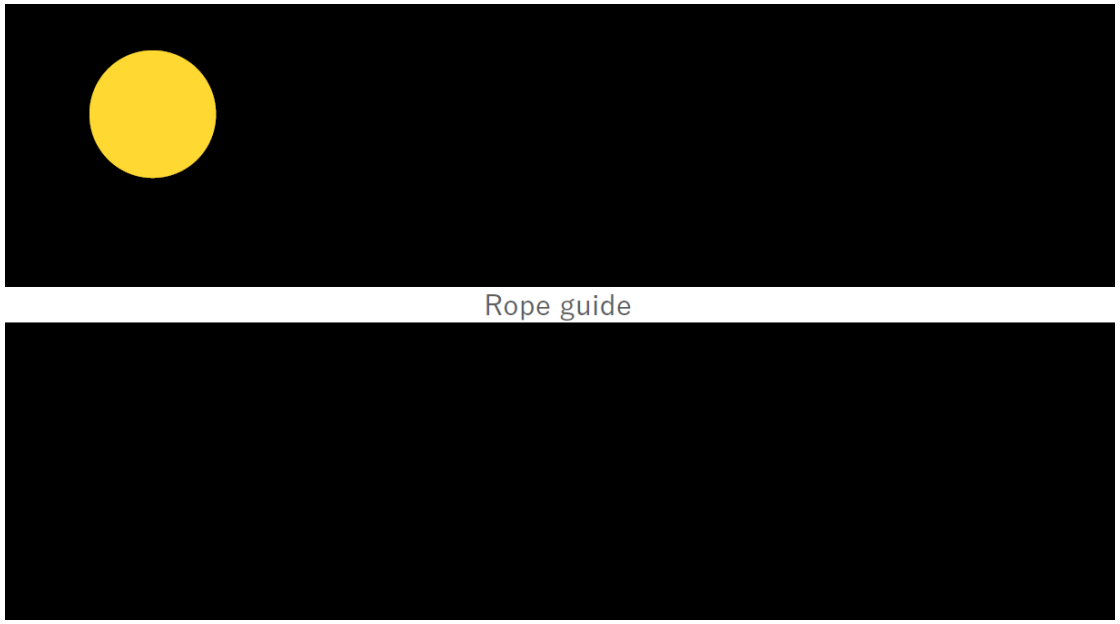
AI Algorithm



Rope guide

- The AI Algorithm was developed to allow maximum coral growth rates calculation and to save time from conventional assessment of coral growth rates.

- A black A4 board with a yellow dot or a 10 Rupees coin was used to acquire data underwater directly using diving/snorkeling techniques. Given that we were using the ropes techniques, the board was modified to allow the direction of a line in middle. EMS teams would dive/snorkel and take pictures with the black board underneath.

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AI Data collection

Genetics analysis at UOM Laboratory

- The aim of this study is to compare the genetic diversity of same coral species that are found in the underwater nursery with those found in its surrounding region, located in the lagoon of Mauritius island.

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Community Involvement, training, women empowerment and Sensitisation with Children

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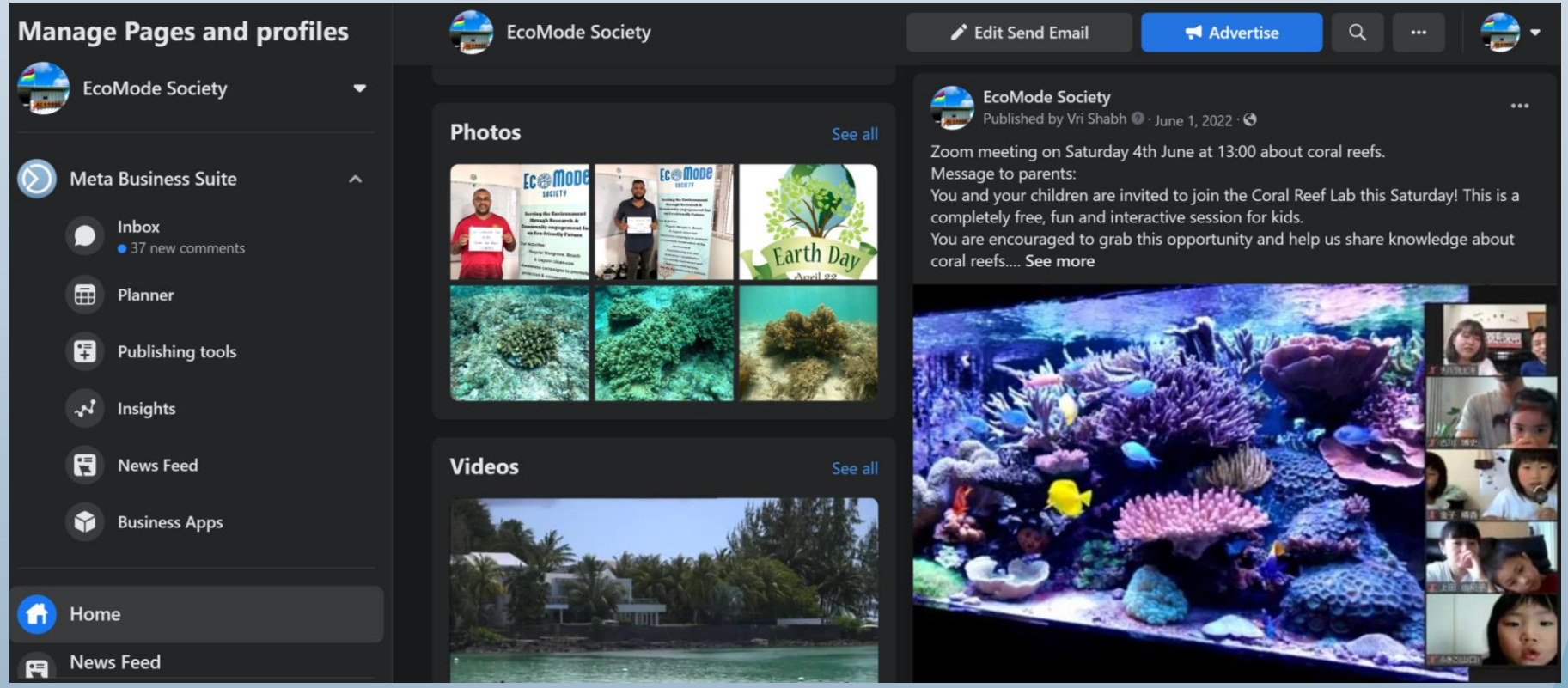
Online training with Children on Marine Biodiversity including much emphasis on coral reefs.



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THANK YOU

END

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