



Netherlands Enterprise Agency

# Geodata tools for integral planning coastal zone protection, Maldives

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Ministry of Foreign Affairs

Ministry of Infrastructure and Water Management

Netherlands Enterprise Agency



[www.drr-team.nl](http://www.drr-team.nl)

#NLDRRteam

# Flood threat in the Netherlands

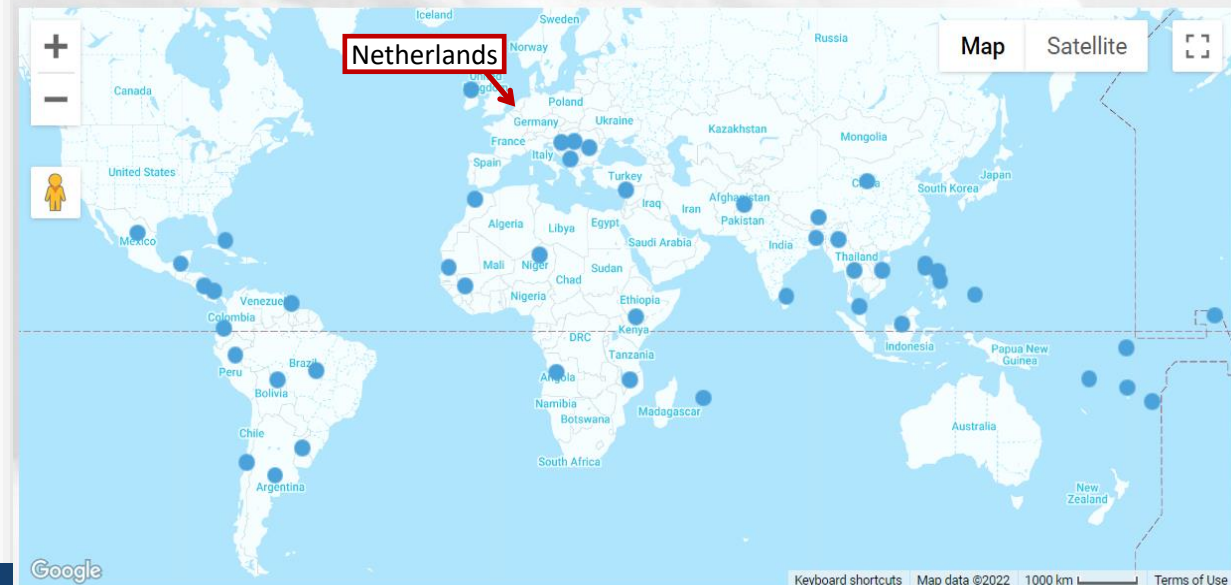


- > 2/3 of the country is threatened by floods
- > Cities below sea level: Amsterdam, Rotterdam and The Hague



Prevent or mitigate the effects of water-related disasters

## Mission reports





# Request from the Maldives

**By Minister of State Dr Abdulla Naseer (ECCT):**

- Development projects are required to accommodate increasing population and need for facilities.
- To improve decision making, spatial planning and disaster management support is requested on analyzing, mapping and understanding historical data of physical coastal processes.







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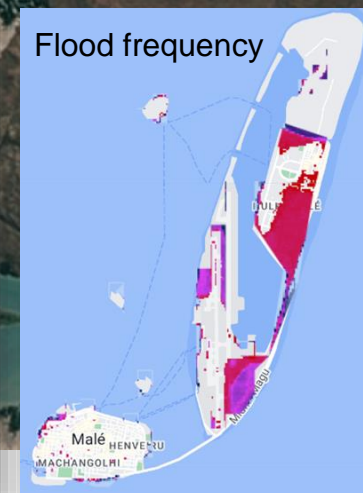
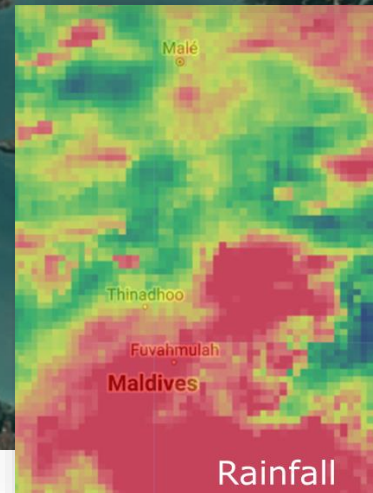
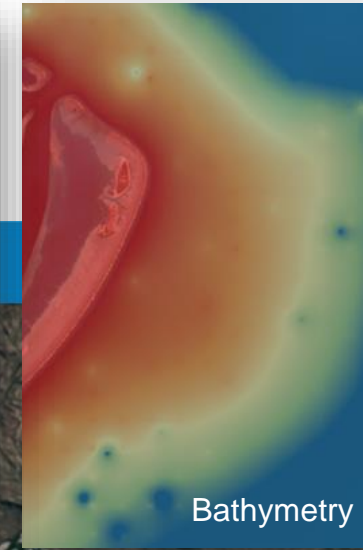


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# Natural reef and island dynamics



## Example: Fahala Island

- Natural resiliency after tsunami event in 2004
- Opportunities to use these forces of nature in projects?



2000

2005

2011

2014

2020



After Tsunami event



Example from the Netherlands :



# Marker Wadden

- One of the biggest nature restorations in western Europe (100 km<sup>2</sup>)
- Land reclamation: construction of islands with natural shores
- Sediments settle in shore basins
- Improve habitat for endangered plants and animals





# Projects on land reclamation



## Examples: Diffushi and Maafushi

- Monitoring of impacts
  - Consider various spatial scales
  - Interactions between islands
- Cost-benefit
  - Land reclamation
  - Protection from sea
  - Biodiversity
  - Tourism
  - ...

Diffushi



Maafushi



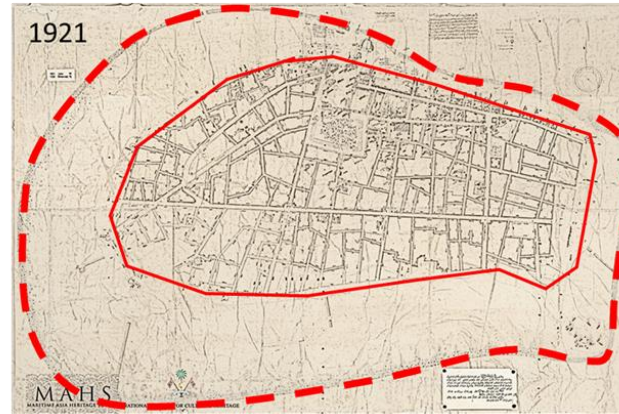
# Projects on land reclamation



## Examples: Eydafushi island

- Monitoring of impacts
  - Consider various spatial scales
  - Interactions between islands
- Cost-benefit
  - Land reclamation
  - Protection from sea
  - Biodiversity
  - Tourism
  - ...

Malé



Eydhafushi Island





## Take-aways



### > **Continue training in GIS analysis and mapping**

- Keep up with modern technologies (remote sensing, forecasting)
- To plan and assess projects
- To anticipate and mitigate hazards (Early warning, Risk reduction)

### > **Increase attention to system behaviour and sustainability**

- Consider interactions at various spatial scales
- Use opportunities to work with nature
- Use wider scope in cost-benefit of assets



## Take-aways

Thank you!

→ [Staff Overview](#)

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