

Incorporating Environmental Safeguards in Mangrove Habitats



Hesham Alahmadi

Compliance Reporting - Specialist

Saudi Arabia

[linkedin.com/in/hesham-alahmadi-667692b3](https://www.linkedin.com/in/hesham-alahmadi-667692b3)

RedSeaGlobal.com



Incorporating Environmental Safeguards in Mangrove Habitats

Case Study: Preserving Mangroves at AMAALA – Six Senses Resort

Hesham Alahmadi | Compliance Reporting – Specialist

IAIA 2026 Conference

An aerial photograph of a coastal landscape. In the foreground, a sandy area with tire tracks leads to a group of four camels standing near a body of water. The water is filled with numerous small, dark mangrove trees. The background shows a flat expanse of land with more mangroves under a clear sky.

Agenda

01 |

Background &
Context

02 |

Mangrove
Survey &
Results

03 |

Design
Evolution &
Optimization

04 |

Regenerative
Development
& Ecological
Enhancement

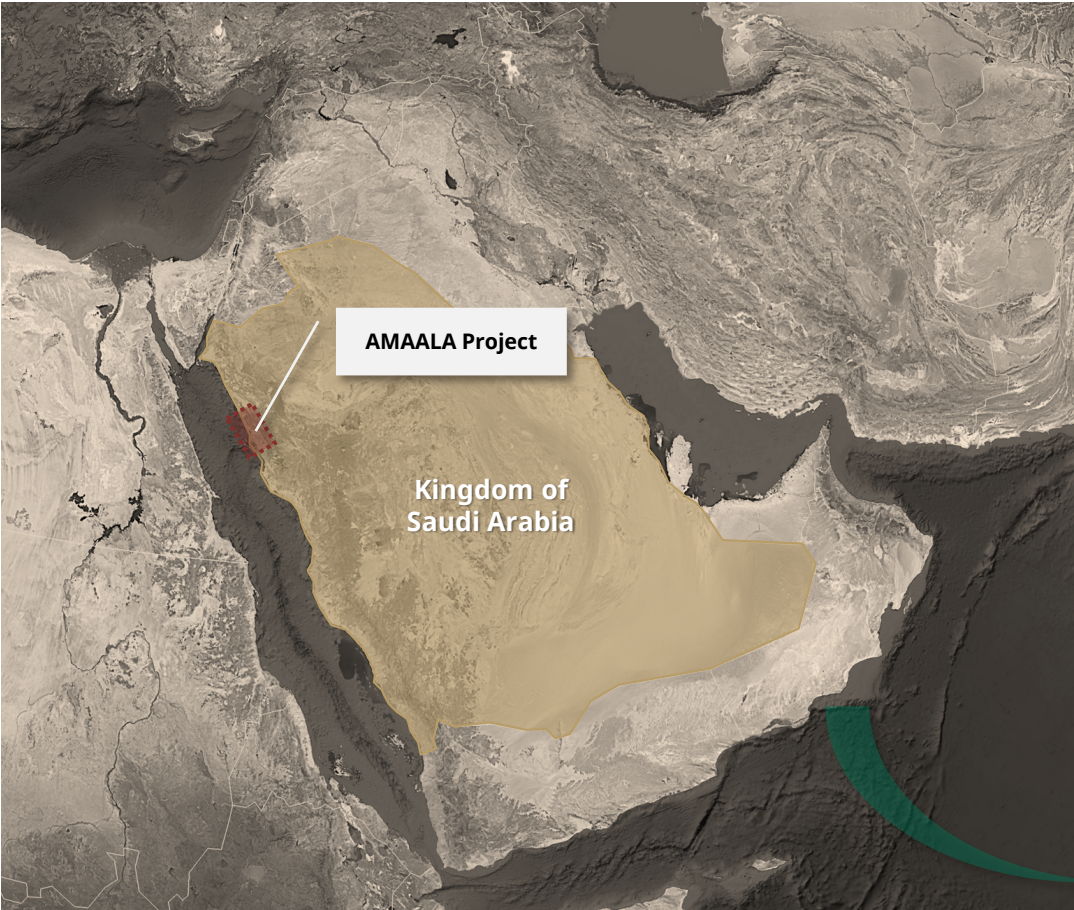
05 |

Conclusion

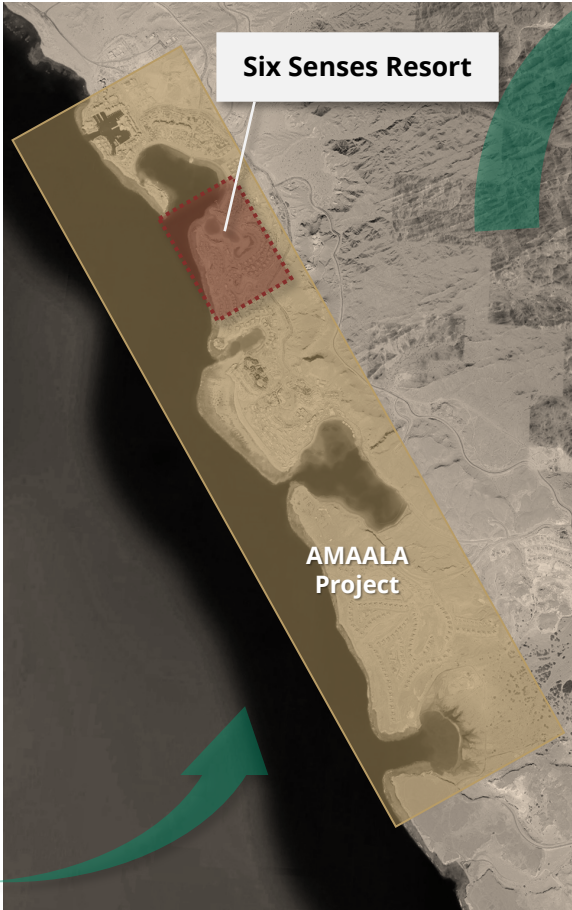
01 | Background & Context

01 | Background & Context

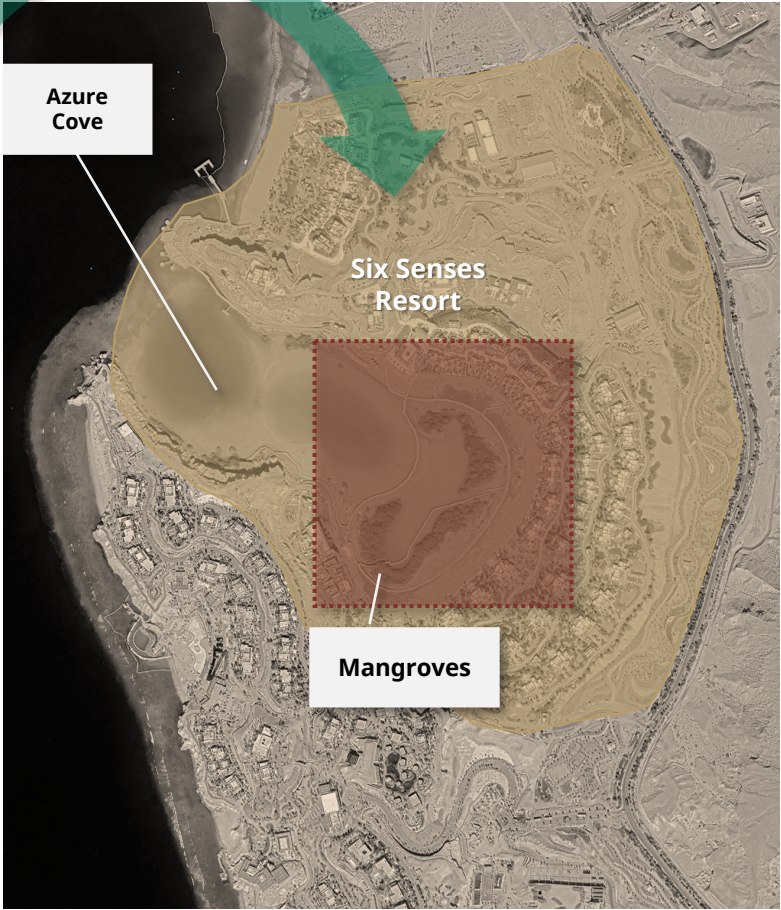
Project Context



North-Western KSA, Red Sea Coast



Project Developer “Red Sea Global”
Strong Alignment with Vision 2030



Avicennia marina (Grey Mangroves)

Regulatory Framework

Regulatory Oversight

- Environmental Law, Royal Decree (M/165).
- Ministry of Environment, Water and Agriculture (MEWA).
- National Center for Environmental Compliance (NCEC) – Permits for construction & operational activities.
- National Center for Vegetation Cover (NCVC) – Permit for vegetation removal and translocation.

Environmental Permits

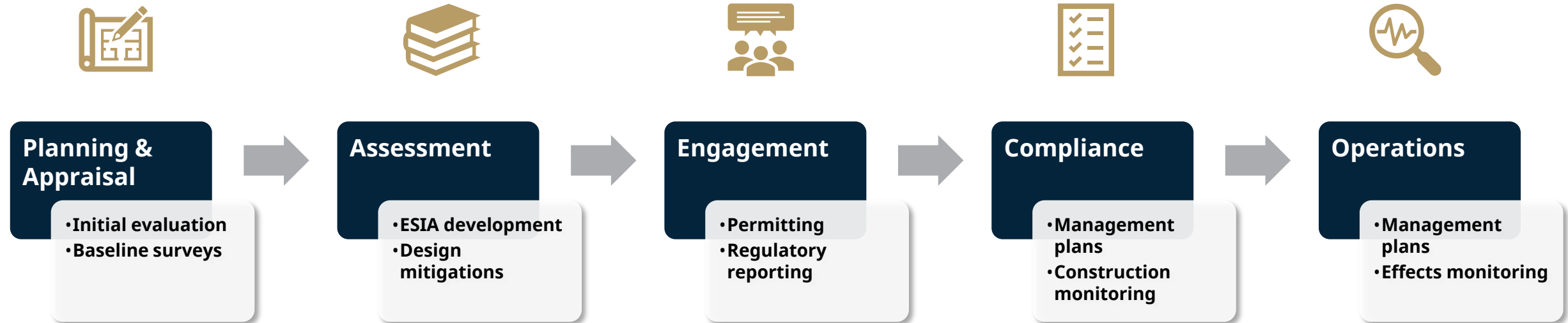
- Permits issued by relevant national environmental authorities.
- Based on project-specific assessment studies.
- Stipulate:
 - general conditions.
 - activity-specific environmental requirements.
 - Compliance obligations for project lifecycle.

Compliance Approach

- Integrated within Red Sea Global Environmental & Sustainability framework.
- Stage-gate reviews across all project phases.
- Contractor obligations enforced through:
 - Construction Environmental & Social Management Plans
 - Alignment with national laws, permit conditions and assessment findings.

01 | Background & Context

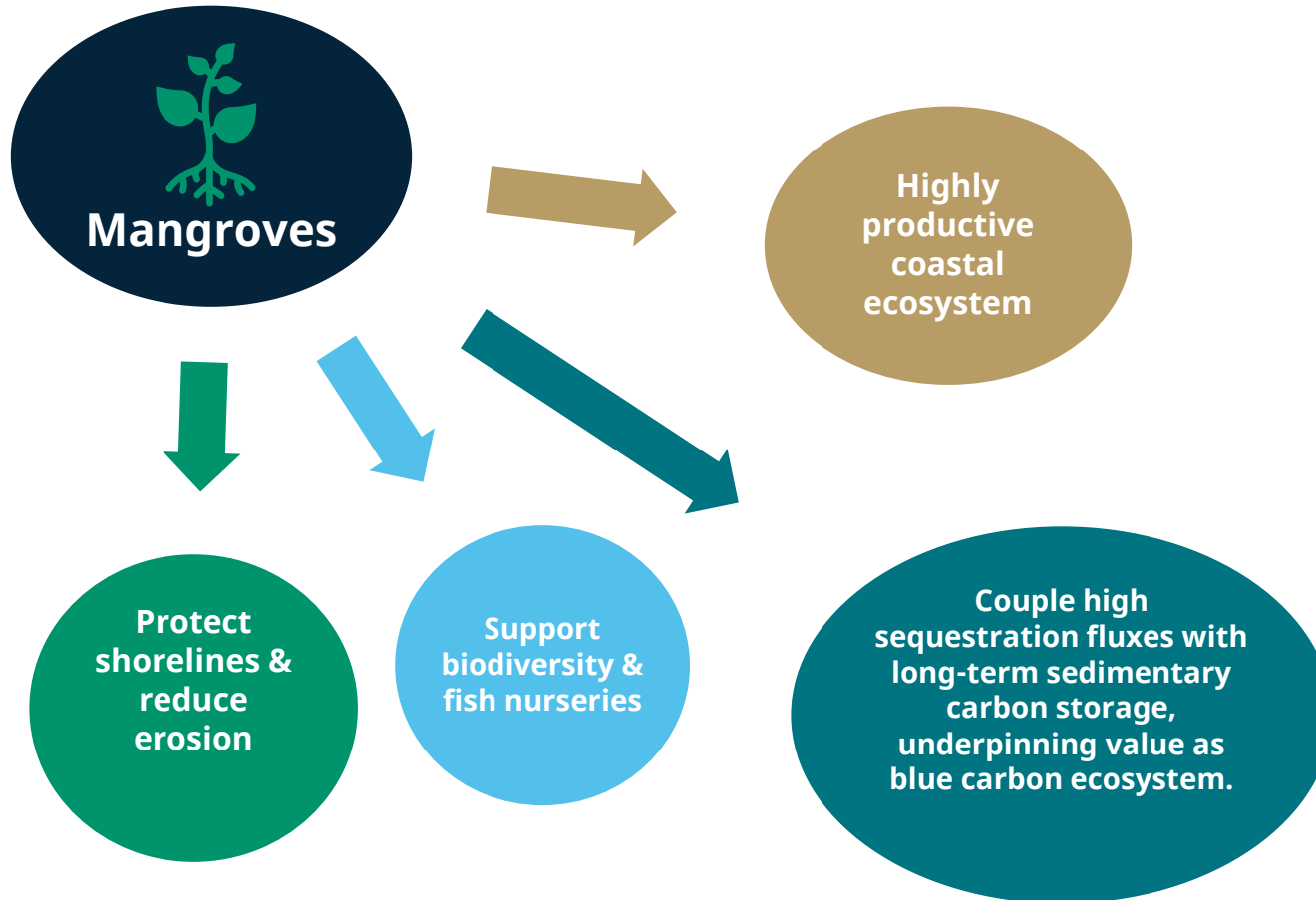
Environmental Functions at Red Sea Global



02 | Mangrove Survey & Results

02 | Mangrove Survey and Results

Value of Mangroves at AMAALA Destination – Six Senses Resort



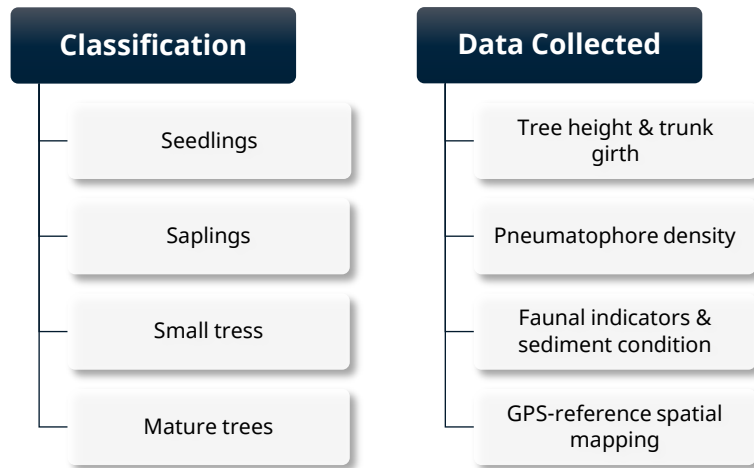
Mangroves in Six Senses Resort

02 | Mangrove Survey & Results

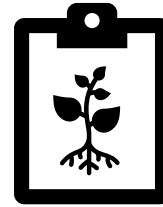
Field Surveys (February – March 2024)

A combination of **TRSDC (2020)** and adaptation of **Kauffman & Donato (2012)** methodologies were used to divide the area into plots and assign specific risk scores to each plot.

A total of **9** vegetation plots were used ($10m \times 10m$)



Key Survey Results



What are the key survey results?



Findings

325 Mangrove plants recorded

Dominant species: *Avicennia marina*

Plant density: 14-66 per 100m²

Strong pneumatophore networks



Ecological Insight

Dwarf mangrove system with high ecological value

Well-established sediment stabilization

03 | Design Evolution & Optimization



Rejected Initial Design Impact

- ~200m² mangrove area affected.
- ~110 plants potentially impacted.

Impact Classification

- Trees avoided.
- Trees partially affected.
- Trees requiring removal or relocation.



What was the priority?

"Avoid mature and reproductively active trees wherever possible."

Initial Design

- Concrete foundations.
- Wider base for stabilization.
- Low setting structure.
- Larger footprint

Design Optimization

- Shift to pile-supported boardwalk.
- Micro-siting piles to avoid mangrove root zones.
- Elevated structure to preserve tidal flow.
- Optimized alignment.



Rejected Initial Design

Results

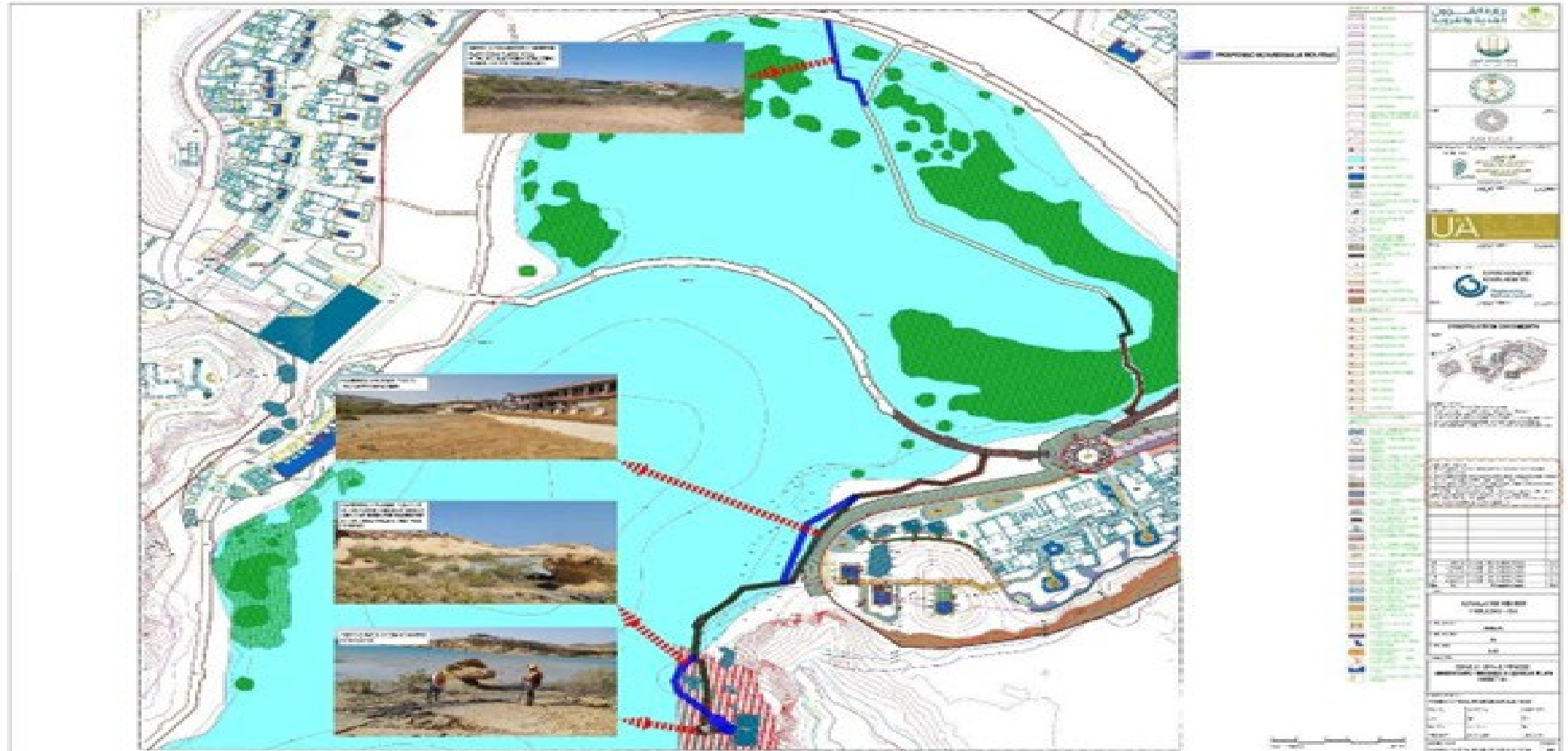
What were the results?

"Impact reduced by 66% in vegetation loss."



03 | Design Evolution & Optimization

Design Evolution



04 | Regenerative Development & Ecological Enhancement

Enhancement Zones



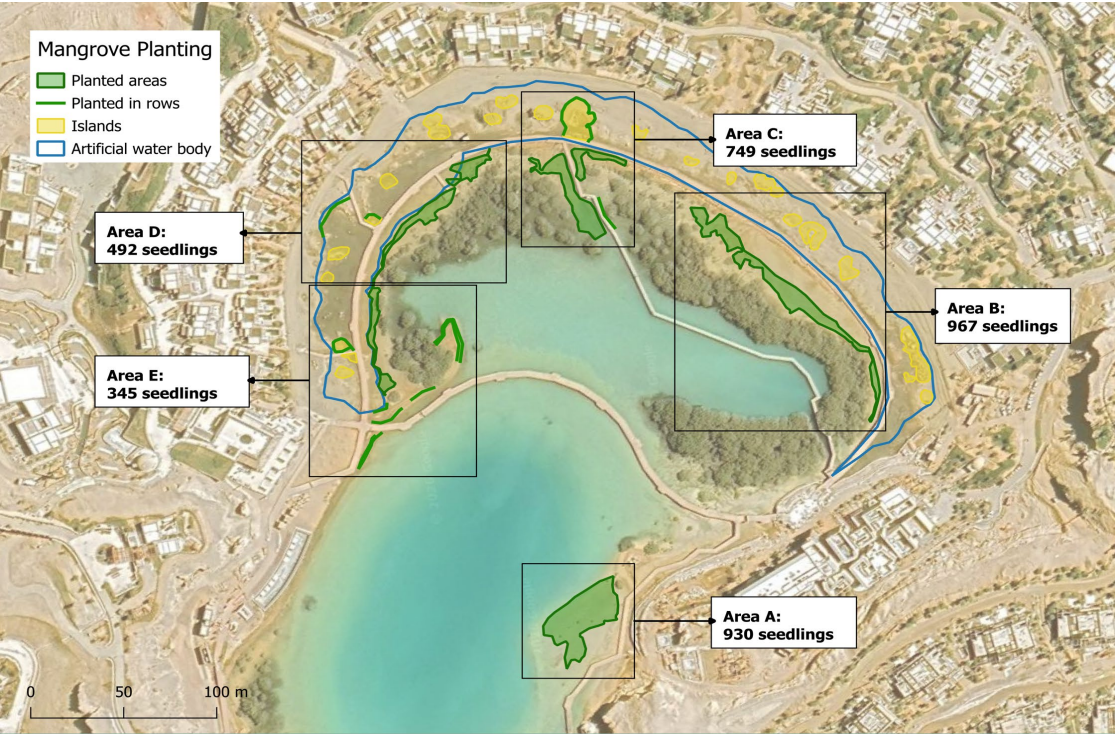
Net-Positive Outcome Strategy

- Planting 3,483 new mangrove saplings.
- Local genetic stock selection.
- Sediment preparation through aeration.
- Biodegradable wave protection for young plants.



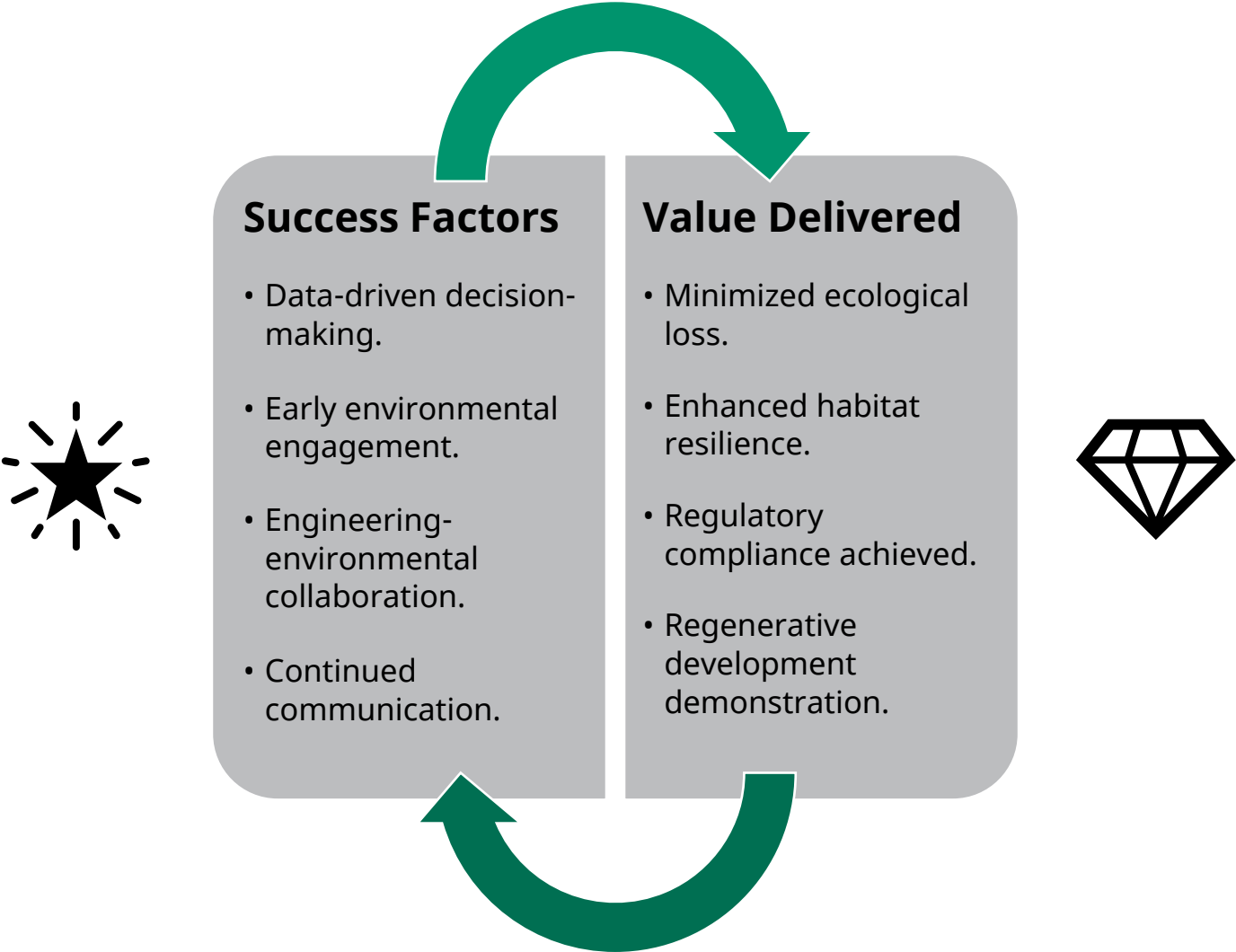
Monitoring Metrics

- Survival rates.
- Height & canopy growth
- Faunal recolonization.
- Sediment accretion.



05 | Conclusion

Key Lessons & Value



Key Takeaway

“A structured, evidence-based, and collaborative approach enables sustainable development without compromising sensitive ecosystems.”



Thank you

Our Address

Tadawul Tower No. 1.17,
KAFD, Al Aqiq District 7071,
Riyadh 13519-2827,
Saudi Arabia

Social Media

Instagram: [@redseaglobal](#)
X: [@redseaglobal](#)
LinkedIn: [Red Sea Global](#)
Facebook: [Red Sea Global](#)

Websites

www.redseaglobal.com



For People & Planet.

*Please consider the environment
before printing this document.*



Let's continue the conversation!

Message me your questions or comments in the IAIA26 app.

Hesham Alahmadi

Compliance Reporting - Specialist

Saudi Arabia

[linkedin.com/in/hesham-alahmadi-667692b3](https://www.linkedin.com/in/hesham-alahmadi-667692b3)

RedSeaGlobal.com

#iaia26