

# EnviroSmart Abu Dhabi

## Concepts & Challenges

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**Middle East Geospatial Forum 2014, Dubai**

**2 February 2014**

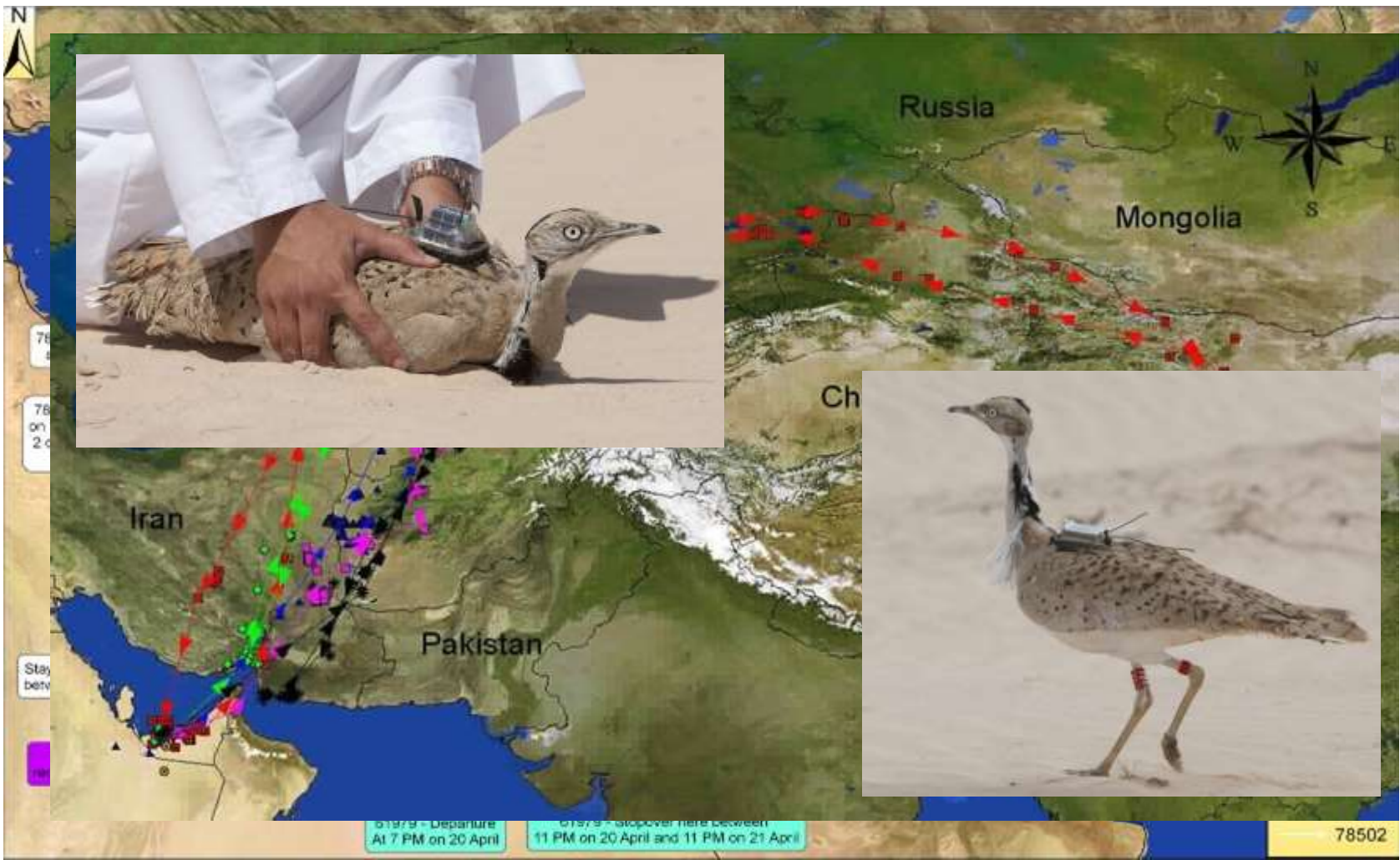
# Introduction

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- **Governmental agency**
- **Established in 1996 as ERWDA**
  - **previously existed as NARC**
- **Designated Competent Authority in 2000**
  - **Charged with implementing Environmental laws**
- **Overall function of**
  - **Protection, Conservation & Management**
  - **Promote sustainable development**
  - **Assist the AD Govt in implementing environmental laws, policies and regulations**

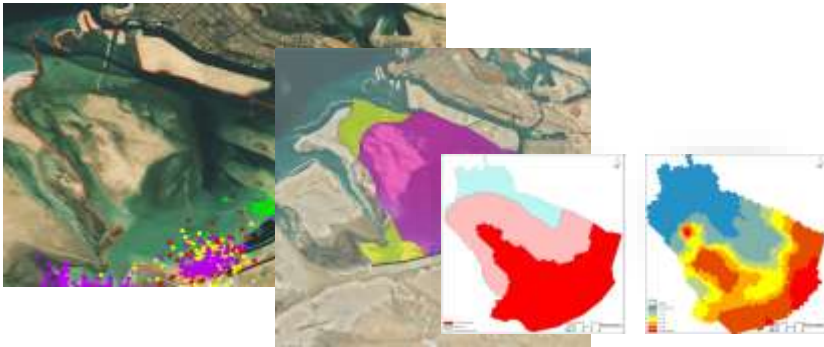


# Wildlife Tracking

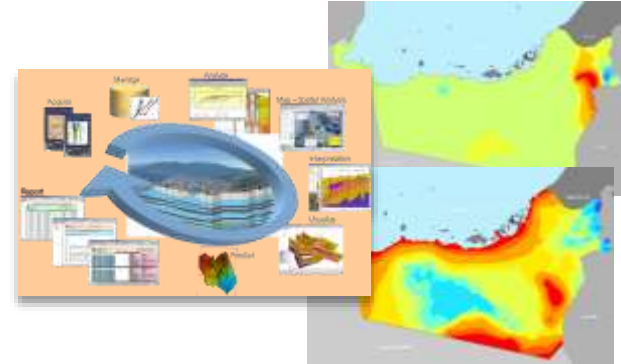


# Geospatial Initiatives

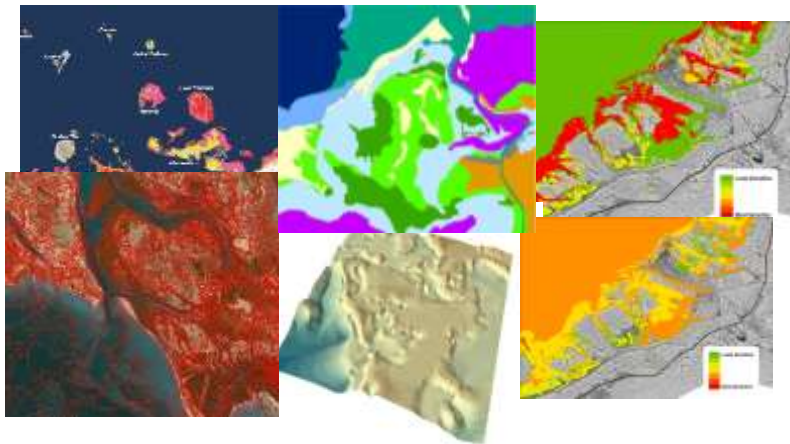
## Protected Area Delineation



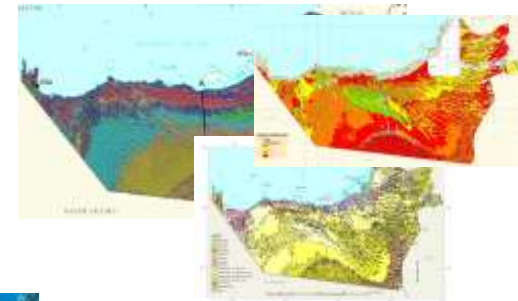
## Groundwater Management



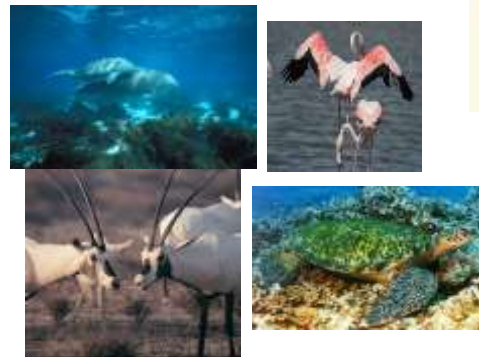
## Coastal Sensitivity & Vulnerability



## Soil Studies



## Wildlife Conservation

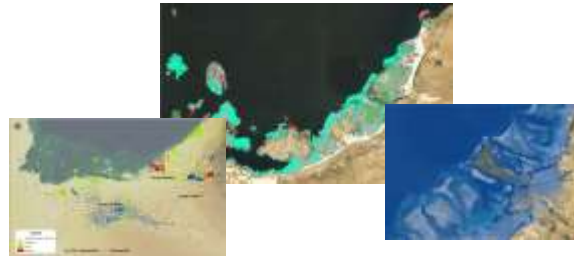


# Geospatial Initiatives

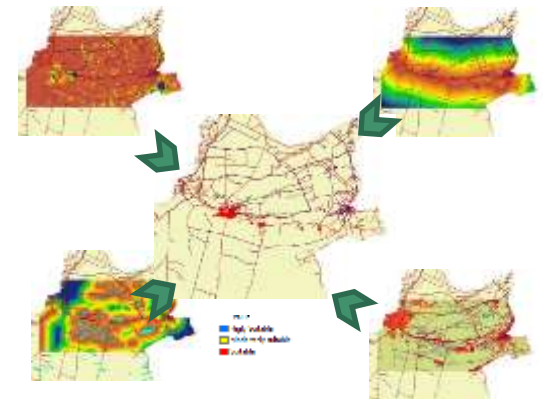
## Air Quality Monitoring



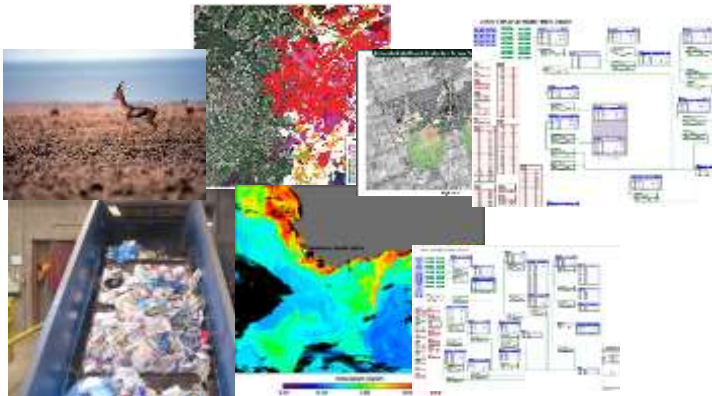
## Climate Change Studies



## Geospatial Analysis



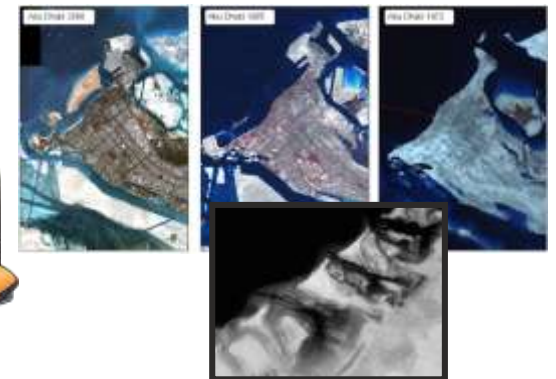
## Environmental Database



## Mobile Solutions



## Imagery Database



# Geospatial Portal

The screenshot displays the Abu Dhabi Environment Agency's Geospatial Portal. The interface includes a header with the agency's logo and navigation links (Home, Search, Download). A search bar is prominently featured. Below the search bar is a 'Map Gallery Browser' with a grid of map thumbnails. A 'Login' section is located at the bottom left, with fields for 'Username' and 'Password', and 'Register' and 'Login' buttons. A 'Map Viewer' section is visible, showing a 3D terrain map with a red highlighted area. A 'News' section on the right lists recent updates. The portal also features a 'Feature Info' window over a map, displaying details for a specific location.

Environment Agency - Abu Dhabi

Home | Search | Download

You can simply...

Search

Search

Map Gallery Browser

Login

Username

Password

Register | Login

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Abu Dhabi's Geoportals.  
A hub of geospatial information, finished maps and...

Map Viewer

News

- > Third Episode of 'The Environment'
- > New Decree to Allow 'Al Ghazal'
- > Third Episode of 'The Environment'
- > New Decree to Allow 'Al Ghazal'

Name	Type	Date	Agency	Department
Jabal Khat National Park	Natural	1999-01-01	MOE	MOE

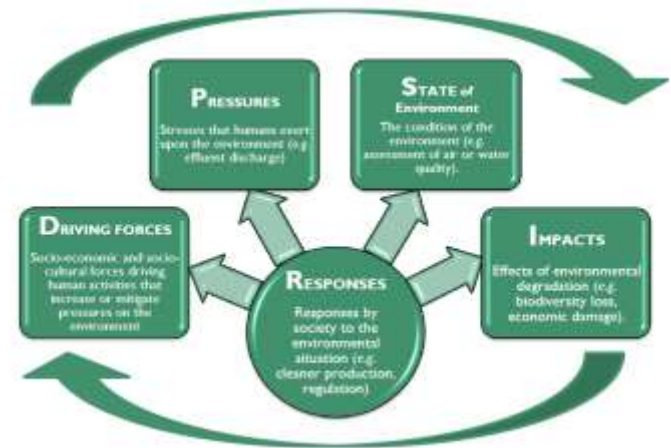
# EnviroSmart Abu Dhabi

- **State of Environment approach**

- Holistic & Integrated
- Using DPSIR framework
- Policy relevant information, knowledge & recommendations
- Emphasis is on the SoE process

- **Monitoring Programme**

- Comprehensive & long term monitoring
- Capacity to collect, process, analyze & feed outcomes/results into decision making with minimal turn around time



# State of Environment

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- What are the most pressing issues?
- What are the contributing factors to these issues?
- What information is needed to understand these issues (past, present and projected)?
- Who all needs to be involved in addressing these?
- What is the outlook for the issues?
- What conditions do we want to have in the future, and what are our priorities?
- What actions need to be taken by us and others to achieve the desired future state?
- How do we measure and manage progress towards the desired future state over time?



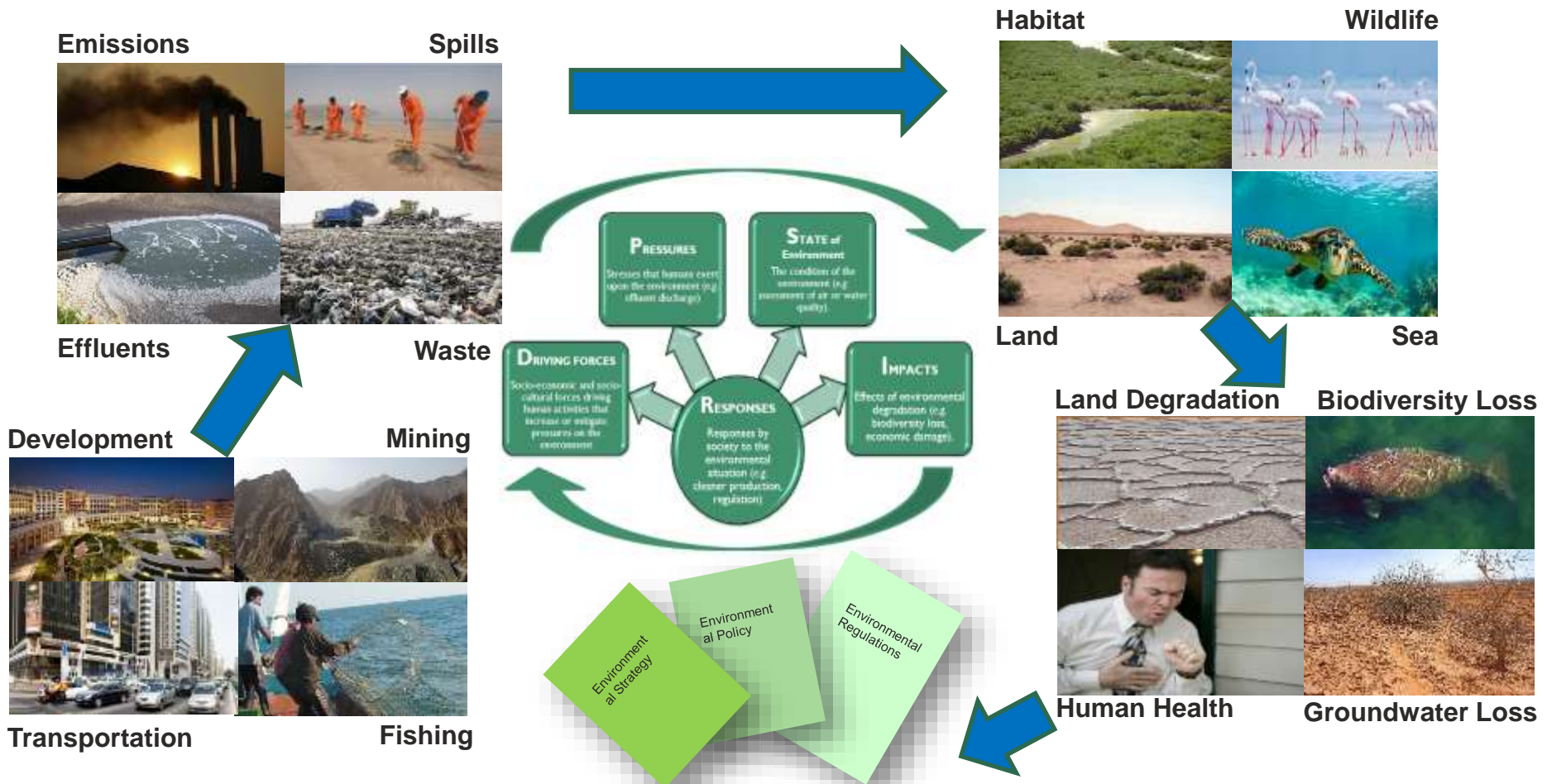
A State of the Environment provides important information regarding an area's environmental situation.....

....but underlying the report is an extensive analytical framework, body of policy relevant information, knowledge, and recommendations.

**D**rivers  
**P**ressures  
**S**tate  
**I**mpacts  
**R**esponses



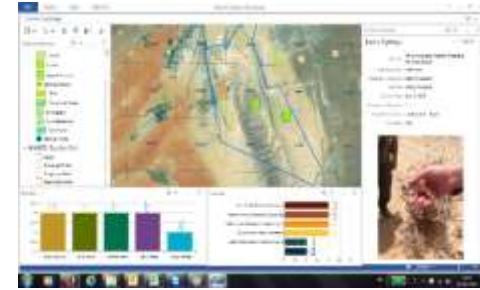
# DPSIR Framework



**Socio-economic & demographic developments (Drivers) exerts pressure on environment resulting in changes to its State leading to Impact on human health & ecosystem services. This causes societal response providing feedback on Drivers, Pressure, State and Impact.**

# Data Sharing & Exchange

- Important component of SoE process
- Requires up-to-date socio-economic data
- Interaction with key entities
  - UPC, DED, DMA, ADFCA, DoT, etc.
- Data sharing arrangements
  - ADSIC & SCAD



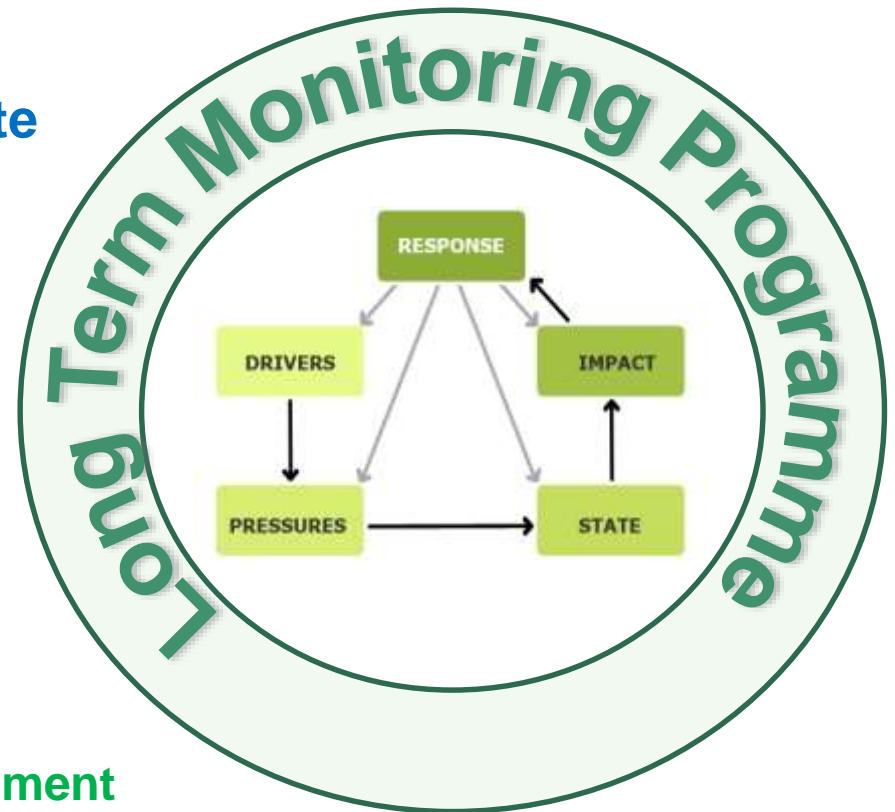
ArcGIS Online Platform



# Monitoring Programme

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- Effective & Efficient Monitoring
- Establish baseline to assess State
- Identify hotspots & indicators
- Scientifically valid methods
- Detect changes & trends
- Predictive modelling
- Real time monitoring

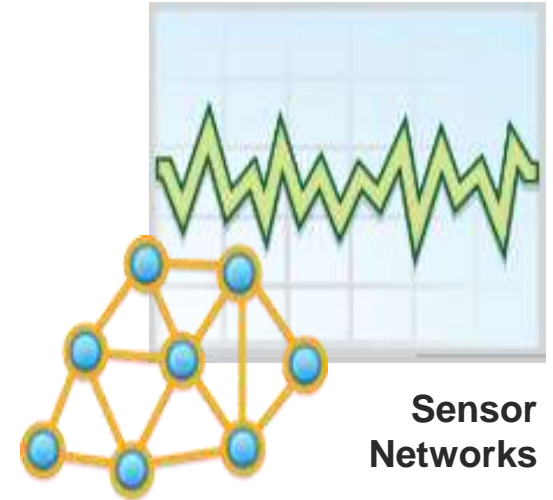


Framework for Development of Environment  
Statistics (FDES) by United Nations Statistics  
Division (UNSD)

# Real Time Data

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- Real time understanding to make better informed decisions
- “Rear view mirror driving”
- Collect, analyse and present for decision making with minimal turn around time.
- Satellite remote sensing provides a cost effective mechanism for near real time monitoring
- Limits exposure to environmental risks



# EnviroSmart Abu Dhabi



Environmental Agency – Abu Dhabi  
Conceptual Model

SoE process & comprehensive monitoring programme provides the foundation for a smart, progressive and well functioning Environmental Agency



A State of the Environment provides important information regarding an area's environmental situation.....

**D**rivers  
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**R**esponses



....but underlying the report is an extensive analytical framework, body of policy relevant information, knowledge, and recommendations.

# Some monitoring initiatives.....

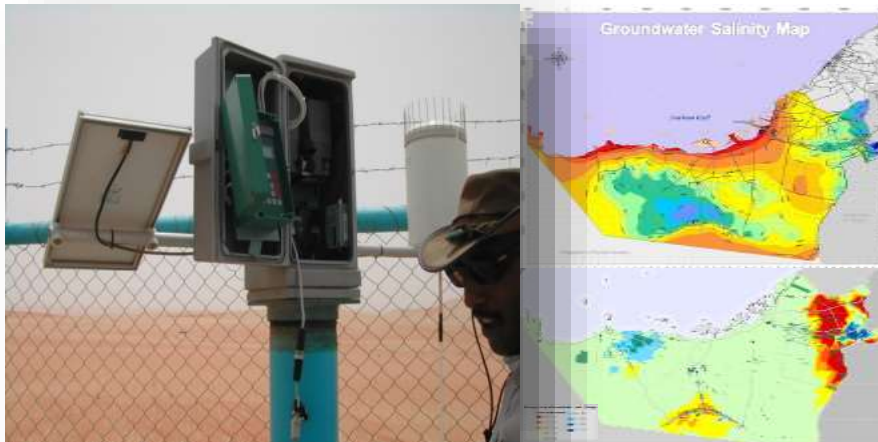
## Dugong Tagging



## Marine Water Monitoring



## Groundwater Monitoring



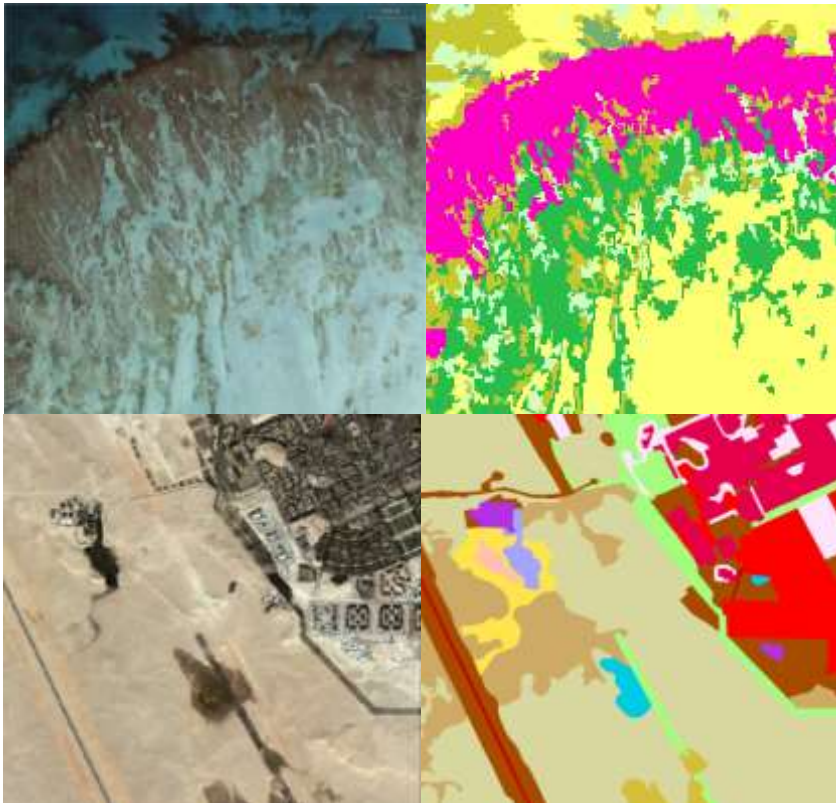
## Air & Noise Monitoring



# Habitat & Forestry Mapping

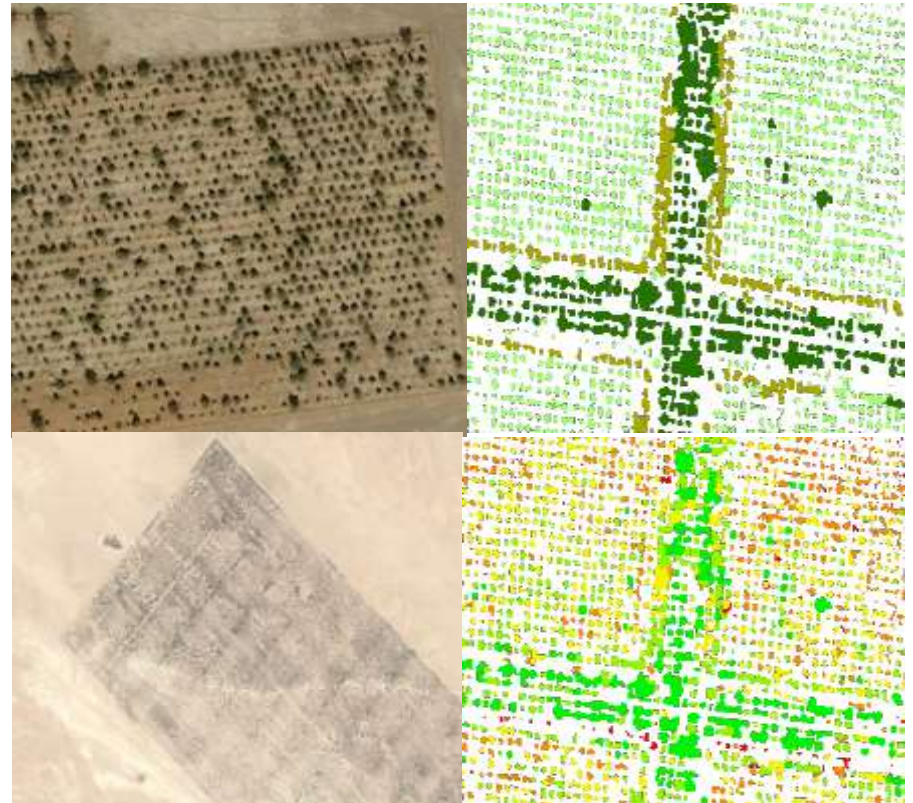
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## Terrestrial & Marine Habitat Mapping



Outputs: Habitat, Landuse & Landcover

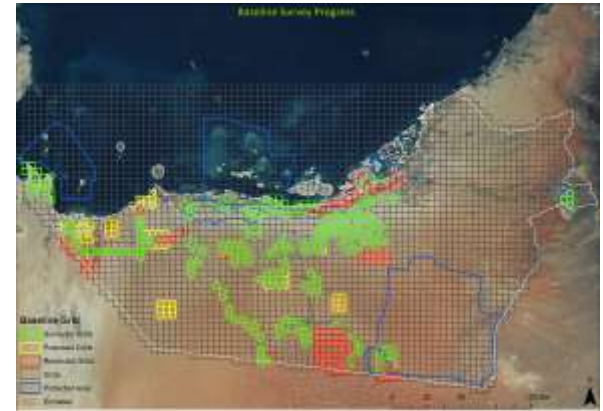
## Forestry Monitoring



Outputs: Vegetation Condition & Species Identification

# Environmental Baseline Data

- **Rapid field assessment**
  - 2,514 grids (5 X 5 Km)
- **Engaging volunteers & stakeholders**
- **Terrestrial & Marine field surveys**
  - Comprehensive baseline survey
  - Species Distribution Maps
  - Current state assessment report





# Challenges

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- **State of Environment process & DPSIR Framework - fairly new concept**
- **Requires collaboration of various entities**
- **Establishing comprehensive monitoring programme requires strong commitment and resource allocation**
- **Ability/capacity to collect, manage and process real time data**
- **Most leading GIS software have limited capability to process large real time datasets & make sense out of it**
- **Decision making – “Globally, good % of decision makers are still not aware that the Geospatial community exist”**

# Thank you all for listening !!!

## Our site links :

[www.ead.ae](http://www.ead.ae)

[www.uaesis.ae](http://www.uaesis.ae)

[enviroportal.ead.ae](http://enviroportal.ead.ae)

[www.adairquality.ae](http://www.adairquality.ae)



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