



مشروع تحديث الاستراتيجية الوطنية للتنوع البيولوجي
National Strategy Biodiversity
and Action Plan (NBSAP) EGYPT

Biodiversity assessment (status and trends): Case study from Egypt

Dr. Khaled Allam Harhash

10/12/2013

Resources

- Planning Core Team (two ecologists – two geologists – one IT & GIS)
- Advisory team (15 experts)
- Software (ArcGIS v.10.2 - ERDAS v. 2013)
- Data collection & metadata
- Sub-setting & coding
- Aggregation
- Database queries (SQL statements)



Section 1

Old NBSAP assessment

(implementation & knowledge)

مشروع تحديث الاستراتيجية الوطنية للتنوع البيولوجي
National Strategy Biodiversity
and Action Plan (NBSAP) EGYPT

Old NBSAP assessment

Programs	Components	Status of implementation	Level of knowledge
Program 1: Institutional development and capacity building for nature conservation program for nature conservation	Component 1: Develop the structure and build the capacity of the NCS within the EEAA to fulfill its mandate under Law 102, Law 4 and international conventions.	In complete	Good
	Component 2: Capacity building within, and networking between, other Line Ministries, Governorates and other government organizations having an impact upon Egypt's natural heritage resources.	Limited & localized	Poor
Program 2: Protected area identification and management program	Component 1: Identification involves the establishment of a system plan that assesses all existing, candidate and potential protected areas and reviews and assesses them through field and desk studies.	Completed	Excellent
	Component 2: Develop management and infrastructure of the PA network, including the development and implementation of management plans for existing protected areas.	Fairly completed	Very good
Program 3: National biodiversity and natural heritage inventory and monitoring program	Component 1: The Biodiversity Department will be strengthened to be a focal point to coordinate and facilitate biodiversity research and monitoring	Partially completed	Very good
	Component 2: Institutional strengthening and capacity building for other organizations involved in biodiversity research and monitoring	In complete	Poor
	Component 3: A Natural History Museum will be established to promote the study and research of biodiversity in Egypt and the region (Middle East/North Africa)	In complete	Poor
Program 4: National hunting management program	This program consists of the development of a comprehensive system of wildlife management in Egypt with sustainable management and financial systems.	Partially completed	Fairly good
Program 5: Natural heritage resources management program	This is a program to address the adverse impacts of current activities on, and to develop protection measures more specific for the management of, natural heritage resources outside Protected Areas	In complete	Poor

Old NBSAP assessment (continued)

Programs	Components	Status of implementation	Level of knowledge
Program 6: International conventions compliance program	Establish the necessary institutions, legislation and other mechanisms to comply with Egypt's international and regional obligations dictated by the conventions to which it is signatory.	Fairly completed	Fairly good
Program 7: Public awareness, education and involvement program for natural heritage	Component 1: Build public awareness capabilities within the NCS.	Partially completed	Fairly good
	Component 2: Improve the quantity and quality of information about natural heritage and capacities of information distributors to disseminate this information.	Fairly completed	Fairly good
	Component 3: Integrate natural heritage and biodiversity conservation into the national education curriculum and build education institutions and teaching capacities in this field.	Partially completed	Poor
	Component 4: Increase awareness of the business, NGO and local community about natural heritage issues.	Partially completed	Poor
Program 8: National wetlands management program	To establish a national framework for wetlands management and develop and implement integrated management plans for priority wetlands.	Partially completed	Moderately good
Program 9: National marine and coastal management program	Component 1: Establish a dynamic process for national comprehensive coastal zone planning, encompassing economic and social issues, and based upon strategic planning activities undertaken at the national level.	Fairly completed	Moderately good
	Component 2: Sustainable use of marine and coastal resources is to be achieved through a combination of scientific research, appropriate quotas and regulations, active monitoring and enforcement, and pilot projects allowing exploitation of certain resources	Partially completed	Poor
Program 10: National arid lands management program	To establish a national framework for the management of arid lands and will develop and implement integrated management plans for desert areas which are valuable rangelands and important natural and cultural heritage sites.	Partially completed	Moderately good
Program 11: Nature-based tourism: management and development	Promote environmentally sound, sustainable tourism through the development of a national system to manage nature-based tourism.	Fairly completed	Good

Section 2

Data availability

(international & national)

Major data categories needed

Section A: Social, Political and Economic issues

Section B: Biological data

Section C: Ecosystems valuation and services

Section D: Climate change (effects, adaptation, resilience and mitigation)

Section E: Available free web resources for data



Section A: Social, Political and Economic issues

A: Human population demography		International	National
1	Population density and distribution	x	x
2	Projections of population density and distribution (10, 30, 50 years)	x	x
3	Exist and projected growth rate	x	x
4	Age distribution	x	x
5	Gender distribution	x	x
6	Educational levels	x	x
7	Literacy rate distribution	x	x
8	Health services (major diseases distribution, no of doctors/population, etc)	x	x
9	Relative proportion and distribution of urban/rural population	x	x
10	Size and patterns of human settlements	x	x
11	Population migration (historical, seasonal, current, expected movements)		x
12	Identification of key resources used by population	x	x



Section A: Social, Political and Economic issues

	B: Infrastructure	International	National
1	Existing transportation network (density, pattern, types)		x
2	Projected transportation network over 10, 30, 50 years		x
3	Existing waste network (density, pattern, types)		x
4	Projected waste network over 10, 30, 50 years		x
5	Existing irrigation and drainage network (density, pattern, types)	x	x
6	Projected irrigation and drainage network over 10, 30, 50 years		x
7	Existing health services and hospitals network (density, pattern, types)	x	x
8	Projected health services and hospitals network over 10, 30, 50 years		x
9	Existing industrial infrastructure (density, pattern, types)	x	x
10	Projected industrial infrastructure over 10, 30, 50 years		x
11	Agriculture	x	x
12	tourism	x	x



Section A: Social, Political and Economic issues

	C: Land use and tenure	International	National
1	Existing and projected investment map		X
2	Existing governorates boundaries and land ownership		X
3	Tribal land territory		X
4	Inland fishing areas	X	X
5	Marine fishing areas	X	X
6	Fresh water and marine aquaculture	X	X
7	Quantitative data and spatial distribution of quarries and mines		X
	D: Economic aspects		
1	National annual income (per capita) (historical, current, expected)	X	X
2	Employment and un-employment statistics	X	X
3	Annual agriculture and aquaculture production and income	X	X
4	Annual oil and gas production and income	X	X
5	Annual tourists numbers and income	X	X
6	Annual industry production and income	X	X



Section A: Social, Political and Economic issues

	E: International conventions and agreements	International	National
1	Date of signing and ratification	X	X
2	Date and copy of national reports	X	X
3	Responsible governmental bodies	X	X
4	Amount and date of financial contribution, if any		X
5	Summary of planned and implemented actions	X	X



Section B: Biological data

	A: Habitat classification and use	International	National
	1. Major habitat category:		
1	types of sub-habitats/ecosystems,	x	x
2	area and distribution,	x	x
3	% to major habitat as well as to Egypt,		
4	rate of habitat change over 10, 20 years ago and its future projections		
	2. Agriculture:		
1	Crop types (also wild or genetically modified)	x	x
2	Crop production methods	x	x
3	Intensity of crop production	x	x
4	Rate of change in Intensity of crop production over 10, 20 years		
5	Amount of fertilizers use	x	x
6	Amount of herbicides and pesticides	x	x
7	Efforts for invasive species control		x
8	Areas and % of sustainable and unsustainable agriculture	x	x



Section B: Biological data

	A: Habitat classification and use	International	National
	3. Livestock:		
1	Livestock density	x	x
2	Degree and distribution of livestock diseases and control efforts		x
3	Paste, current and expected pasture		x
	4. Fisheries:		
1	Annual production for each fresh water fish species over 10, 20 years	x	x
2	Annual production for each marine fish species over 10, 20 years	x	x
3	Annual production of crustacea and molluscs over 10, 20 years	x	x
4	Annual catchment of marine mammals over 10, 20 years	x	x
5	Annual catchment of sponge and corals over 10, 20 years	x	x
6	List of most economically targeted species	x	x
7	List and intensity of catchment methods for targeted species	x	x
8	Migration routes of species outside the jurisdiction zone	x	x
9	National case of over-fishing		x



Section B: Biological data

	B: Habitat pattern	International	National
	1. Physical parameters:		
1	Surface geology and structure	x	x
2	Soil types	x	x
3	Meteorology	x	x
4	Topography	x	x
5	Hydrology	x	x
	2. Natural vegetation:		
1	Areas in km ²	x	x
2	% of total country area	x	x
3	% within protected areas		x
4	Vegetation quality (over 10 years ago, current, projected)		



Section B: Biological data

	B: Habitat pattern	International	National
	3. Coastal and marine habitats:		
1	Sedimentary features		X
2	Rocky/cliffed features		X
3	Bay		X
4	Riverine outlets	X	X
5	Brackish lagoons		X
6	Intertidal mud / sand flat		X
7	Coastal dunes		X
8	Coastal plains		X
9	Coral reefs	X	X
10	Islands	X	X
11	Algal and sea grasses bed	X	X
12	Salt marshes		X
13	Mangroves	X	X
14	Coastal grass	X	X
15	ridges		
16	Areas in km ²		X
17	% of total country area	X	X
18	% within protected areas		



Section B: Biological data

	B: Habitat pattern	International	National
	4. Wetland habitats:		
1	Shallow marine water		X
2	Subtidal aquatic beds		
3	Coral reefs	X	X
4	Rocky marine shore		
5	Sandy beaches		X
6	Estuarine water		
7	Permanent rivers and streams	X	X
8	Seasonal streams	X	X
9	Inland deltas	X	X
10	Riverine flood plains	X	X
11	Permanent freshwater lakes	X	X
12	Seasonal freshwater lakes		X
13	Saline lakes/marshes		X
14	Freshwater ponds/marshes		X
15	Water storage areas		
16	Aquaculture ponds		X
17	Salt pans	X	X
18	Intertidal mudflats		



Section B: Biological data

	B: Habitat pattern	International	National
	4. Wetland habitats:		
19	Salt marshes		X
20	Mangroves	X	X
21	Brackish saline lagoons		X
22	Freshwater lagoons		
23	Shrub swamps		
24	Freshwater swamp forests		
25	Freshwater springs	X	X
26	Geothermal wetland		
27	Excavations		
28	Waste water treatments		X
29	Irrigated land, rice fields	X	X
30	Seasonally flooded arable land		X



Section B: Biological data

	C: Species populations	International	National
1	Country endemic species		X
2	Country threatened species	X	X
3	Endemic threatened species		
4	Globally migratory species	X	X
5	Country red list		
6	Species for social importance		
7	Flagship/indicator species		X
8	Species within protected areas		X
9	Species ex situ sites		
10	Species abundance/change in abundance		
11	Alien species distribution		X
12	Invasive species distribution		
13	Habitats types used by species		X
14	Threats		X



Section B: Biological data

	D: Protected Areas	International	National
1	Gap analysis	X	X
2	RAPPAM	X	X
3	METT		X
4	Finance of PAs		X
5	PAs management plans		X
6	National policies		X
7	Threshold of habitats within PAs		
8	Site level evaluation	X	X
9	PAs baseline inventory		X
10	Threats		X
11	Indicators		X
12	No. visitors		X
13	PAs boundaries and zonation	X	X
14	Buffer zones of PAs		X
15	PAs staff classification, qualifications, training and ranks		X



Section B: Biological data

	E: Threats	International	National
1	Major threats	X	X
2	Types of threats	X	X
3	Geographical coverage of threats		X
4	Root causes of threats		X
5	Threats ranking		X
6	Reversibility of threats		
7	Mitigation measures		
8	Feasibility to remove threats		
9	Costs and duration of remediation		



Section C: Ecosystems valuation and services

		International	National
1	Watershed management areas	x	x
2	Wildlife management areas	x	x
3	Soil erosion and control areas		
4	Freshwater fisheries areas		x
5	Costal protection zone		x
6	Fish spawning areas		x
7	Riparian protection zones		x
8	Tourism/recreation	x	x
9	Nature conservation areas	x	x
10	Flood control		x
11	Salinity and toxicants removal		
12	Migratory birds habitats		
13	Species protection areas	x	x
14	Educational areas		x
15	Other services		x



Section D: Climate change (effects, adaptation, resilience and mitigation)

		International	National
1	Historical fragmentation patterns (20 to 50 years ago).		
2	Data about future predictable fragmentation patterns (10, 20, 30 years)	x	
3	Habitats and species isolation (historical and projection).		x
4	Different habitats and species adaptation mechanisms.	x	x
5	Species distribution and demography under climate change.		
6	Baseline thresholds and tipping points for species and habitats (normal – climate change).		
7	National mitigation measures.		x
8	Meta-population prediction models		
9	Other data		



Available free web resources for data

1. [ArcGIS - Alliance for Zero Extinction \(AZE\) 2010](#)
2. [GecoServ- Gulf of Mexico Ecosystem Services Valuation Database](#)
3. [Global Maps](#)
4. [APAAT - The assessment of African protected areas - European Commission](#)
5. [Climate Change Knowledge Portal 2.0](#)
6. [Egypt, Middle East and North Africa > The World Bank - Mapping for Results](#)
7. [Global GIS Online Data](#)
8. [SD : Environment : Specials : GIS](#)
9. [Web Maps | population SEDAC](#)
10. [Digitized Maps | EROS](#)
11. [GeoCommons](#)
12. [Go-Geo! - International search](#)
13. [EarthExplorer](#)
14. [Species Distribution Modelling - spatial-analyst.net](#)
15. [Red list Data Download](#)
16. [WCMC Datasets, Tools & Reports](#)
17. [Home - CropLife International](#)
18. [Welcome to CERA](#)
19. [Earth Conservation Toolbox](#)
20. [UNEP DTIE SCP Branch: Publications](#)
21. [FAO Country Profiles](#)
22. [ETI - Search the World Biodiversity Database](#)
23. [Reef Check Monitoring Instruction](#)
24. [Global Atlas](#)

Available free web resources for data

25. [Species 2000 - Welcome to Species 2000 website](#)
26. [Global Biodiversity Information Facility Portal](#)
27. [THE REPTILE DATABASE](#)
28. [Critical Site Network Tool - Site search](#)
29. [Global Deserts Outlook](#)
30. [Species of Conservation Concern - Taxonomic-1st-level-Search](#)
31. [CITES Trade database](#)
32. [World Population Prospects, the 2012 Revision](#)
33. [GeoNetwork - The portal to spatial data and information](#)
34. [Data Access | LP DAAC :: ASTER and MODIS Land Data Products and Services](#)
35. [Global land cover - Data User Element](#)
36. [Global GIS Datasets Links | EDENext Data Portal](#)
37. [Africa Soil information service - Map tool](#)
38. [Geophysical Survey Data Viewer | nqdc.noaa.gov](#)
39. [Coverage map viewfinderpanoramas.org](#)
40. [CGER / Global Drainage Basin Database \(GDBD\)](#)
41. [An inventory and comparison of globally consistent geospatial databases and libraries](#)
42. [Free GIS Datasets - Categorized List](#)
43. [USGS HydroSHEDS download](#)
44. [Free Spatial Data | DIVA-GIS](#)
45. [Data: Impacts | NCEAS](#)
46. [crops Datasets](#)

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Protection Level

Trends

?



Section 3

Standardized classification & definition of habitats

Egyptian Habitat Classification

Some used literatures:

- Cameron, A. & Askew, N. (2011, eds). EUSeaMap – Preparatory Action for development and assessment of a European broad-scale seabed habitat map. Final report. February 2011. EC Contract No. MARE/2008/07.
- Coltman, N, Golding, N. & Verling, E. (2008). Developing a broadscale predictive EUNIS habitat map for the MESH study area.
- Davies, C.E., Moss, D. & Hill, M.O. (2004). EUNIS Habitat Classification Revised 2004. Report to European Environment Agency, European Topic Center on Nature Protection and Biodiversity
- Dengler, J., F. Jansen, F. Glöckler, R.K. Peet, M. de Cáceres, M. Chytrý, J. Ewald, J. Oldeland, G. Lopez- Gonzalez, M. Finckh, L. Mudina, J.S. Rodwell, J.H.J. Schaminée & N. Spencer (2011). The Global Index of Vegetation-Plot Databases 1 (GIVD): a new resource for vegetation science. *Journal of Vegetation Science* 22: 582-597.
- Dengler, J., J. Oldeland, F. Jansen, M. Chytrý, J. Ewald, M. Finckh, F. Glöckler, G. Lopez-Gonzalez, R. K. Peet & J.H.J. Schaminée (2012). Vegetation databases for the 21st century. *Biodiversity & Ecology* 4: 1-447.
- EPBC Reg. (2000). Environment Protection & Biodiversity Conservation Regulations, REG 7.02 Criteria for listing threatened ecological communities. Commonwealth of Australia.
- European Commission (2009). Composite Report on the Conservation Status of Habitat Types and Species as required under Article 17 of the Habitats Directive. Report from the Commission to the Council and the European Parliament. Brussels.
- Guth, J. & Kučera, T. (2005). Natura 2000 habitat mapping in the Czech republic: methods and general results. *Ekológia (Bratislava)*: 24, suppl. 1.
- IUCN (2011a). Analysis of the Relationship between Red Listing & Conservation Status assessment. Manuscript, October 2011.
- JNCC (2010) Correlation Table showing relationships between Marine Habitat Classifications (2004 and 2007 versions) and Habitats Listed for Protection. December 2010. JNCC.
- Keith, D. A. et al. (2012, in review). Scientific foundations for an IUCN Red List of Ecosystems.
- Konula, T. & Raunio, A. (2009). New method and criteria for national assessments of threatened habitats types. *Biodiversity & Conservation* 18:3861-76.
- Rodriguez, J.P., Rodriguez-Clark, K.M., Keith, D.A., Barrow, E.G., Benson, J. Nicholson, E. & Wit, P. (2012). IUCN Red List of Ecosystems.

Egyptian Habitat Classification

Habitats are classified into 5 main habitat systems, 12 habitat sub-systems and 38 habitat classes.

System	Sub-system	Classes
Marine	Pelagic	Epipelagic – Mesopelagic – Bathypelagic - Abyssopelagic
	Islands	Small islands – large Islands
	Corals	Corals
Artificial	Terrestrial	Arable Land & Rural Gardens – Urban areas
	Aquatic	Water Storage Areas - Aquaculture Ponds - Salt Exploitation Sites - Canals and Drainage
Wetlands	Fresh	Rivers banks - Swamps - Freshwater Marshes - Springs and Oases
	Brackish	Saline, Brackish or Alkaline Lakes – Marshes
	Marine	Rocky Shoreline - Sandy Shorelines - Mud Shoreline - Salt Marshes – Tidepools - Mangrove Submerged Roots
Desert	High Land	Mountains – Hills – Plateaus
	Desert plain	Sand dunes & Sand sheets - Hamada Desert - Coastal Sand Dunes
	Low land	Valleys and canyons - Depression - Dry Sabkha
	Caves	Dry Caves
Fresh Water	Inlands	Rivers – Lakes - Islands



Habitat Maps

Habitat Maps

Mountains

Hills & Plateaus

High Areas

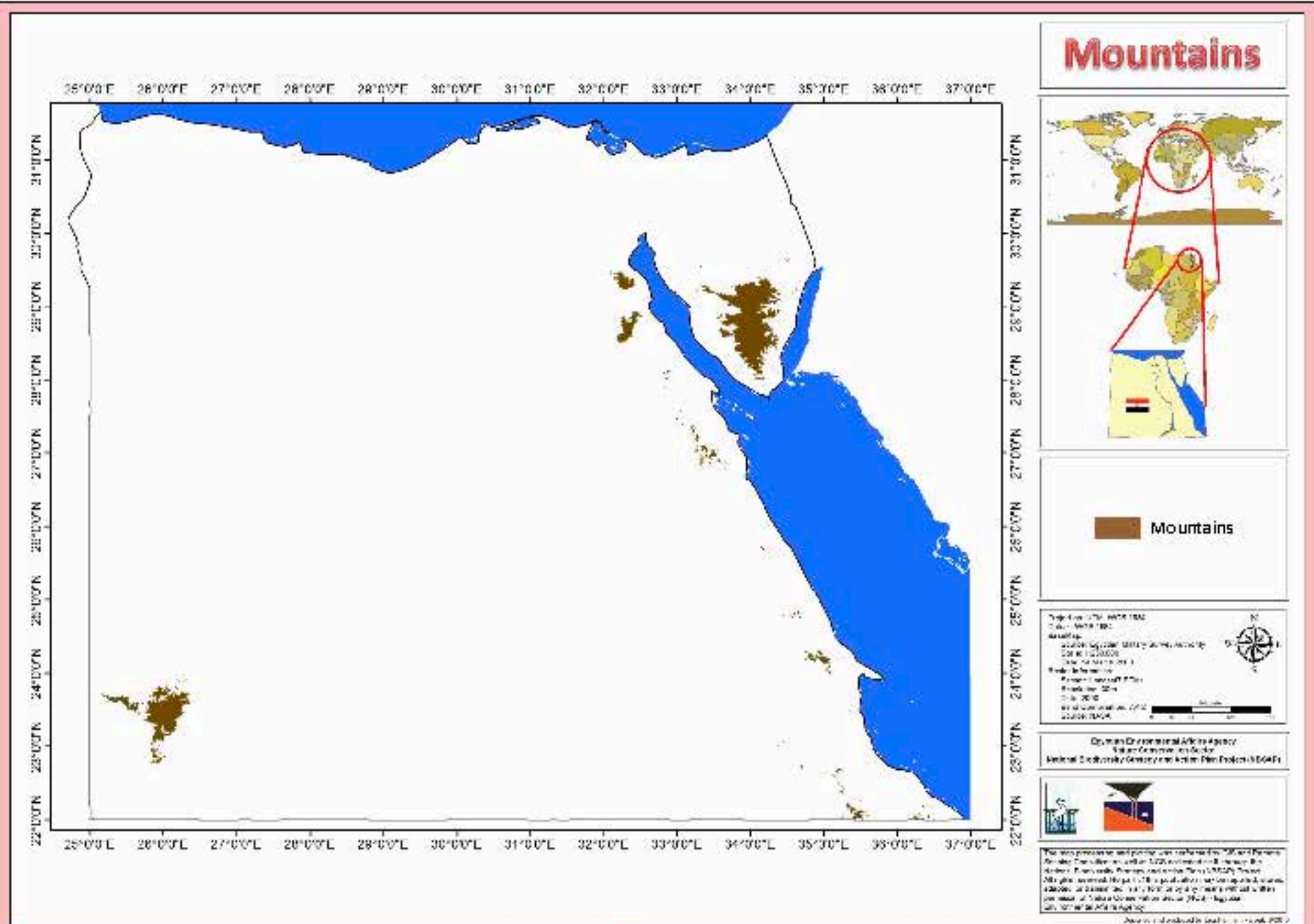
Plain Areas

Depression

Sand Dunes

Inland Water

Corals



Mountains



 Mountains

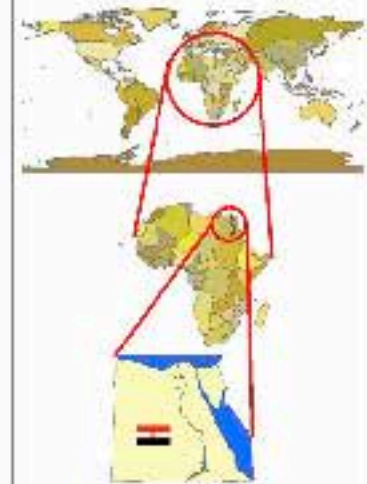
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 Date: [Date]
 Project: [Project Name]


Government of Ethiopia
 National Biodiversity Conservation and Action Plan Project (BONAP)



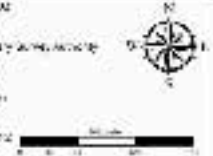
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Hills & Plateaus



 Hills & Plateaus

High Resolution 30m
Scale: 1:500,000
Map Date: 2010
Data Source: SRTM30 PLUS
Projection: UTM
Datum: WGS 84
Units: Meter



Geomatics Engineering Agency
Ethiopian Commission for Geomatics Engineering
National Geomatics Center for Action Plan Project (GOMC)




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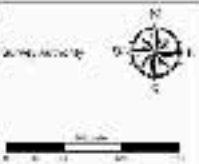
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High Area



 High Area

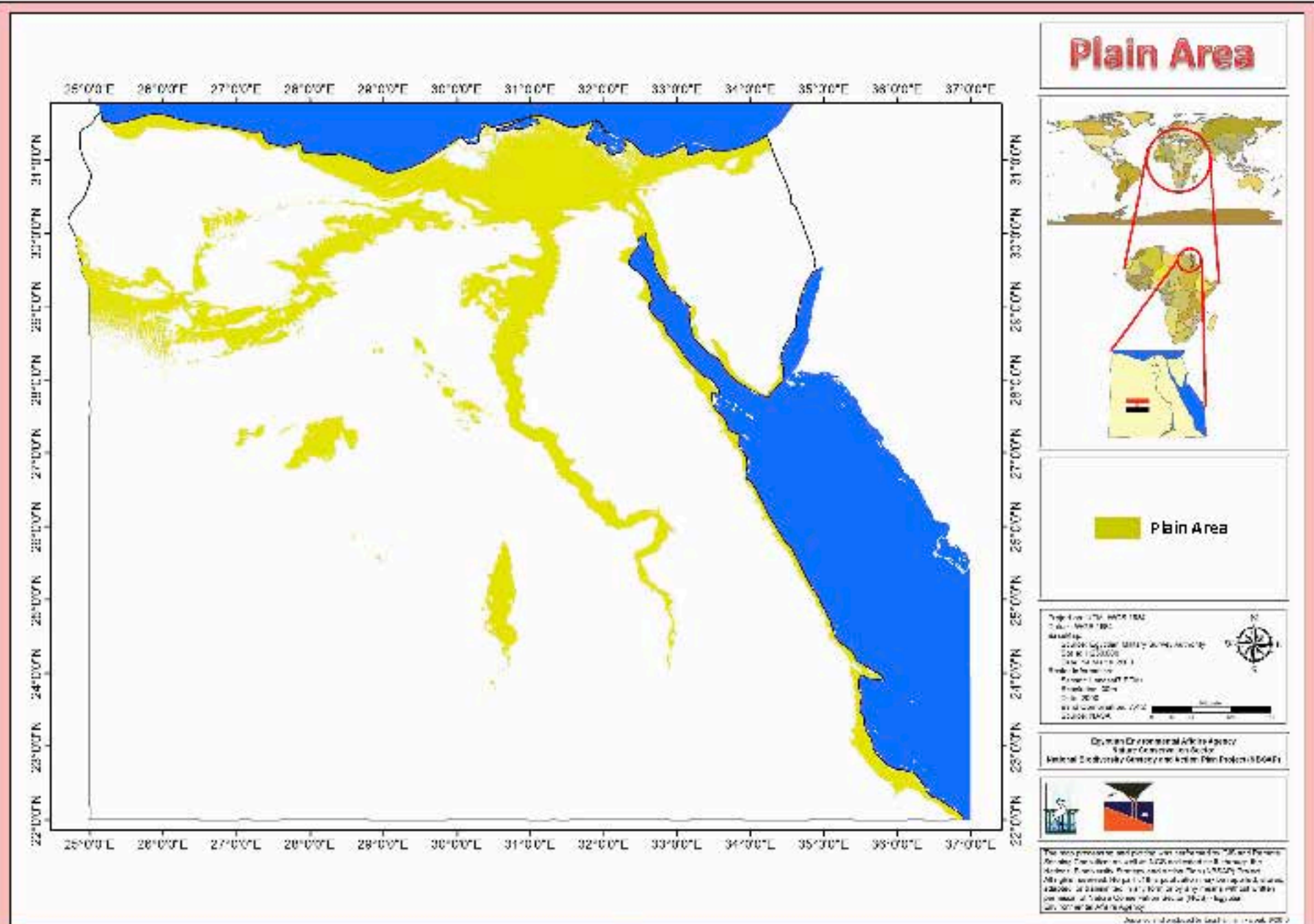
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Datum: WGS 84
Units: Meter



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Plain Area



Plain Area

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 National Environmental Science and Policy Project
 National Environmental Science and Policy Project (NEPPP)
 Project Director:
 Project Manager:
 Date: 2010
 Project Number: 2009/1004



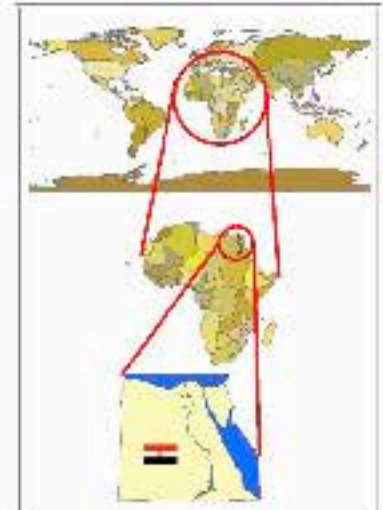
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Habitat Maps

Depression



 Depression

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 Date: [Date]
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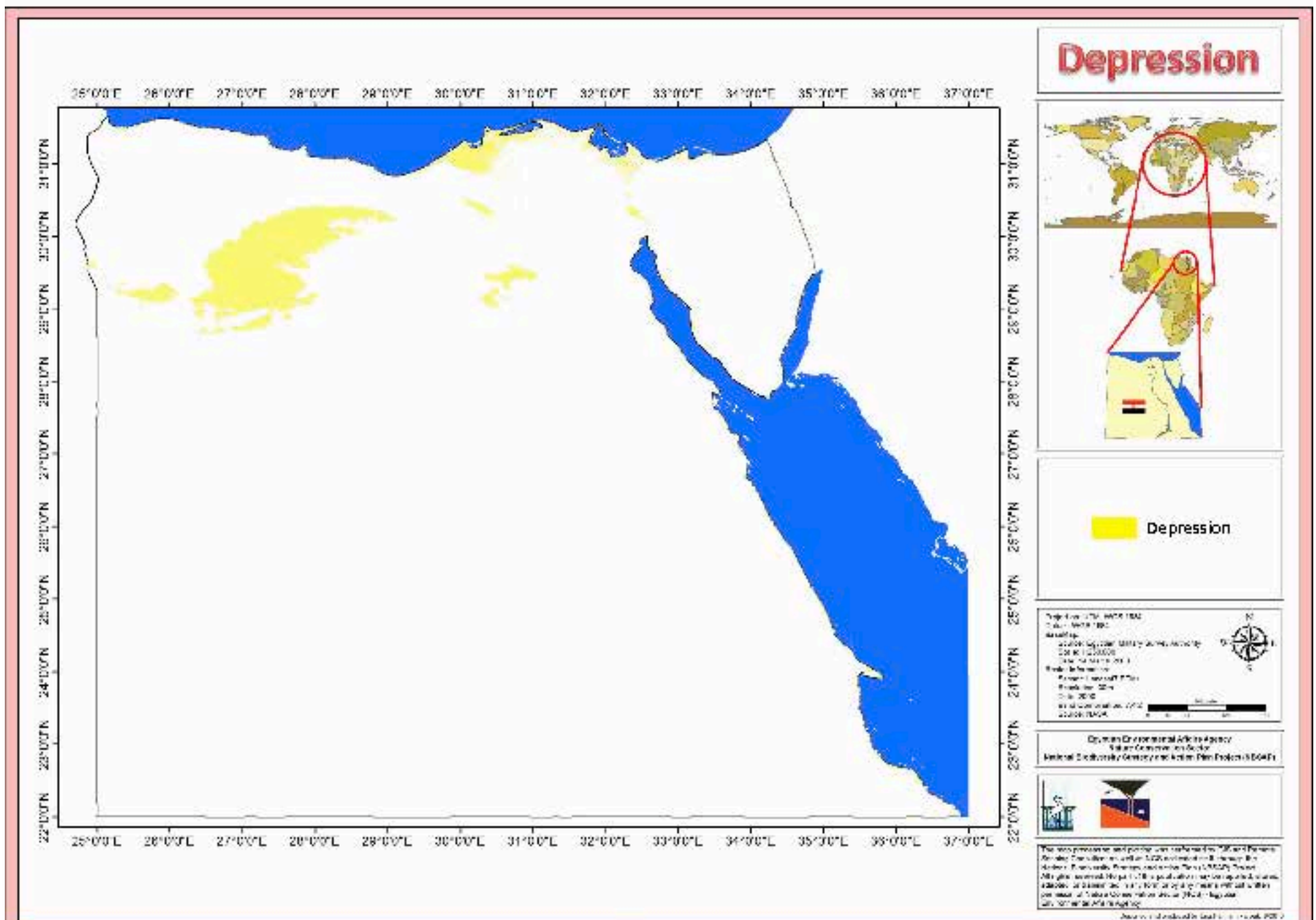


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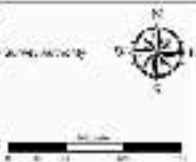


Sand Dunes



 Sand Dunes

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Scale: 1:50,000
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Author: M. Al-Sayid
2010/10/10

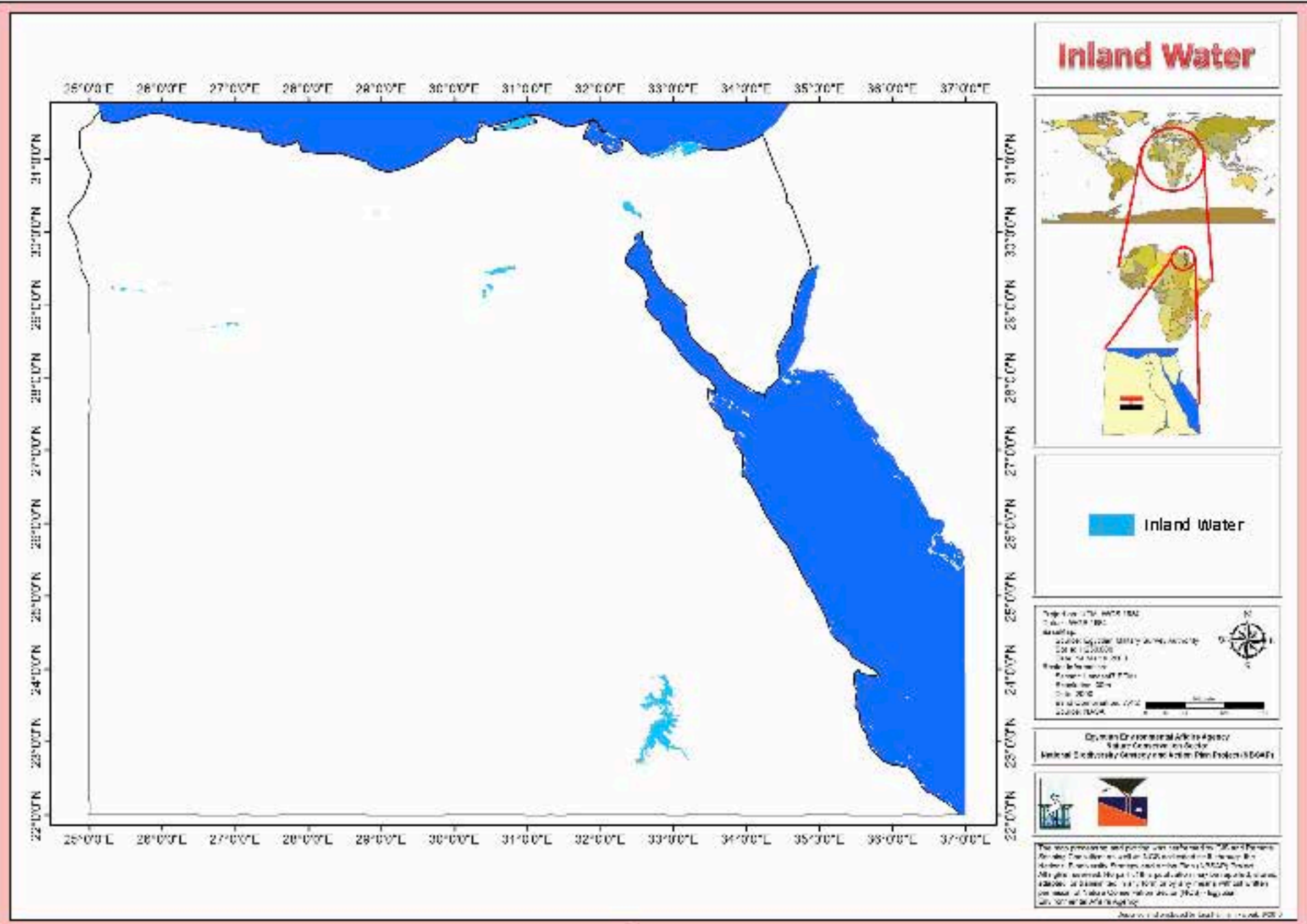


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Source: Modified from Google Earth, 2010



Inland Water



Inland Water

UTM Projection
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 Project: NDAP

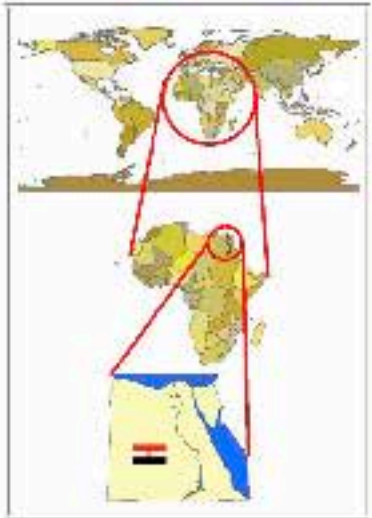



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Coral Reefs



 Coral Reefs

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 Project: [Name]

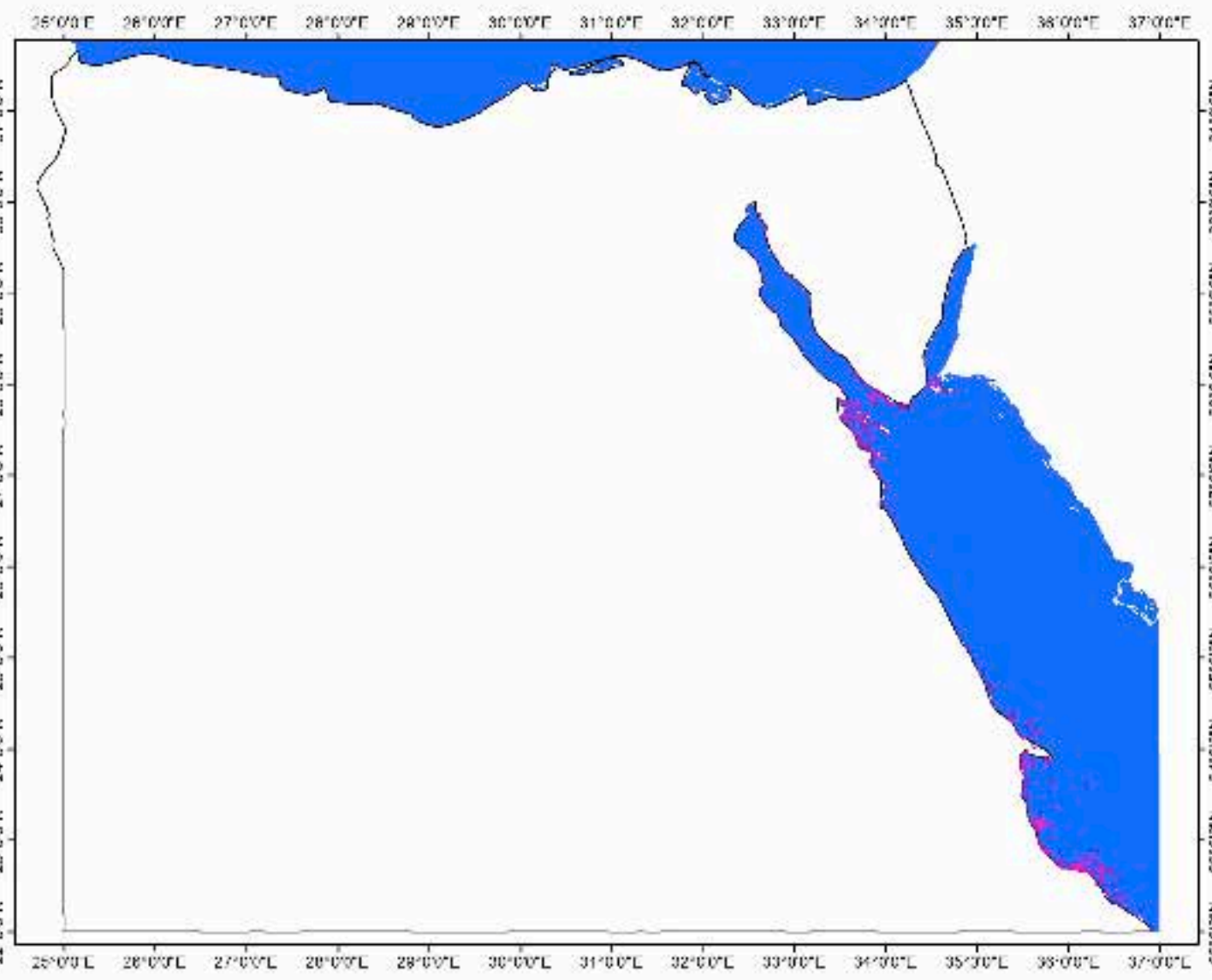


Coastal Environmental Action Agency
 National Directorate of Aquaculture and Fisheries
 National Directorate of Aquaculture and Fisheries (NDAP)



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Source: [Name]



Habitat Maps



Section 4

Habitats representativeness



Representativeness Maps

Maps
Representativeness

Mountains

Hills & Plateaus

High Areas

Plain Areas

Mangrove

Depression


Sand Dunes

Inland Water

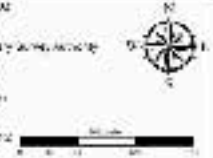
Corals

Mountains



 Mountains

High Altitude Wetland
Scale: 1:500,000
Map No. 1/20000
Scale: 1:20000
Scale: 1:20000
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Scale: 1:20000
Scale: 1:20000
Scale: 1:20000




Geomatics Engineering Agency
National Geomatics Engineering Research Institute (NGERI)



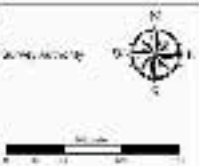
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Mountains



 Mountains

Top Data: 1:50,000
Scale: 1:50,000
Map Date: 2000
Map No: 1:50,000
Scale: 1:50,000
Projection: UTM
Datum: WGS 84
Units: Meter



Geomatics Engineering Agency
National Geomatics Center of Addis Ababa (NGCA)



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Mountains



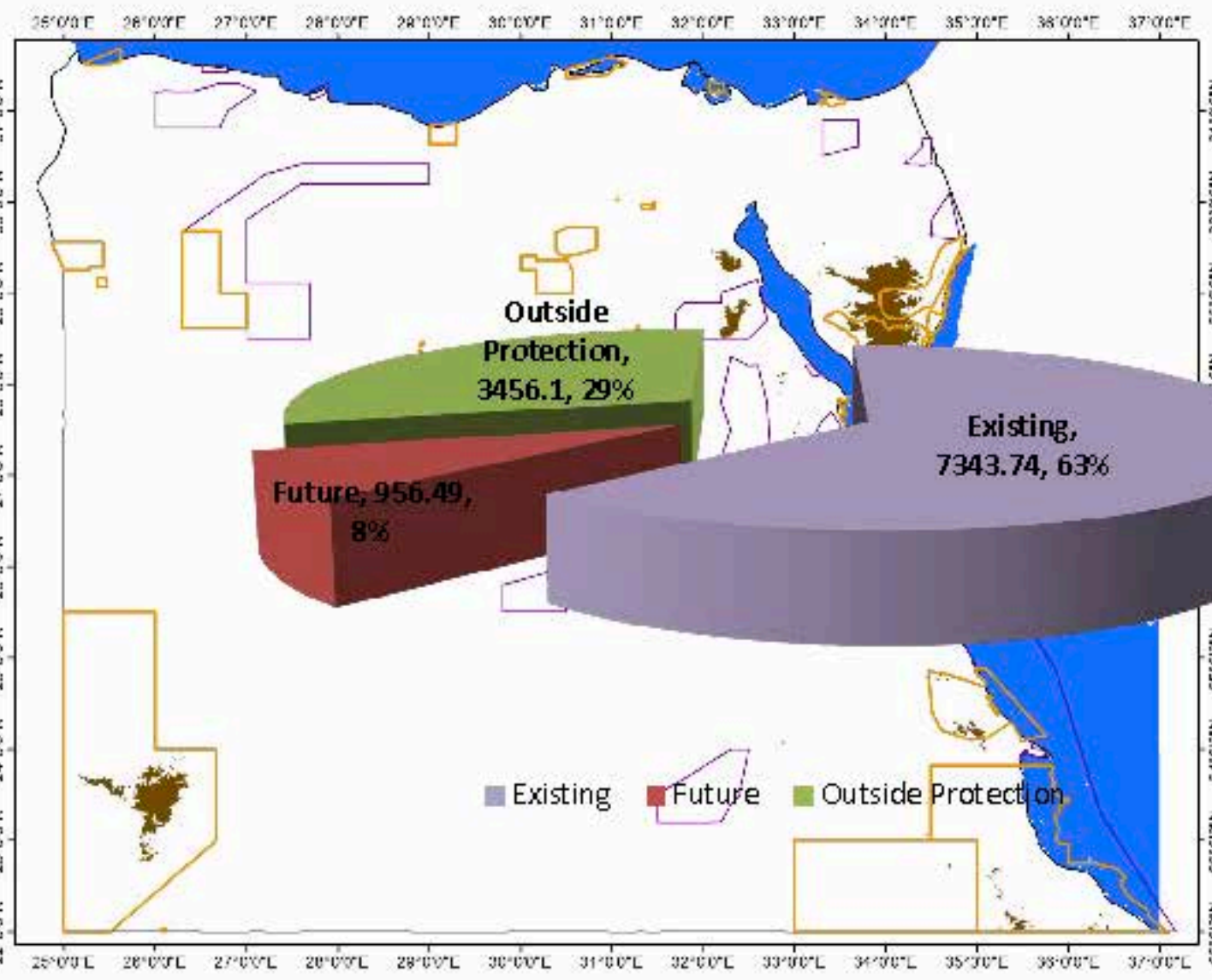
Mountains

Scale: 1:50,000
 Datum: WGS 1984
 Authority: Indian Geomatics Society
 Date: 2023
 Project: National Geomatics Society
 Version: 1.0
 Date: 2023
 Project: National Geomatics Society

Geomatics Engineering Agency
 National Geomatics Society
 National Geomatics Society



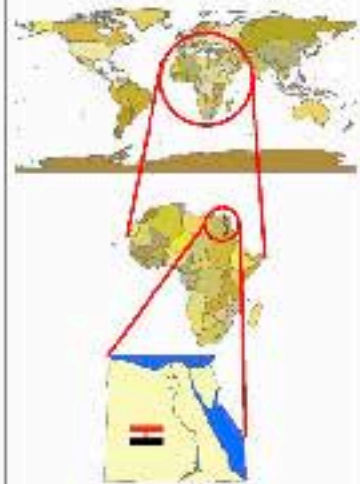
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Existing Future Outside Protection

Representiveness Maps

Hills & Plateaus



 Hills & Plateaus

Top Data: 1/250,000
Scale: 1:50,000
Projection: UTM
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Elevation: 100m
Resolution: 30m
Projection: UTM
Datum: WGS 1984
Elevation: 100m
Resolution: 30m



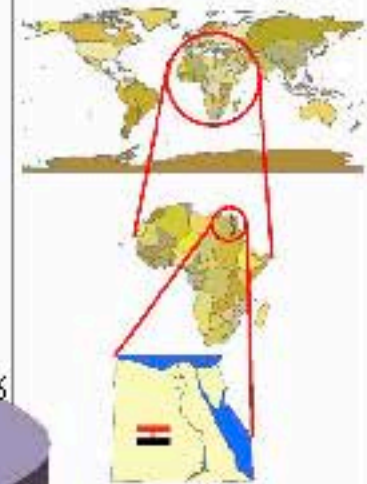
Geomatics Engineering Agency
National Institute of Technology, Kharagpur
National Institute of Technology, Kharagpur




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Source: Downloaded from <https://www.researchgate.net/publication/351111111>

Hills & Plateaus



 Hills & Plateaus

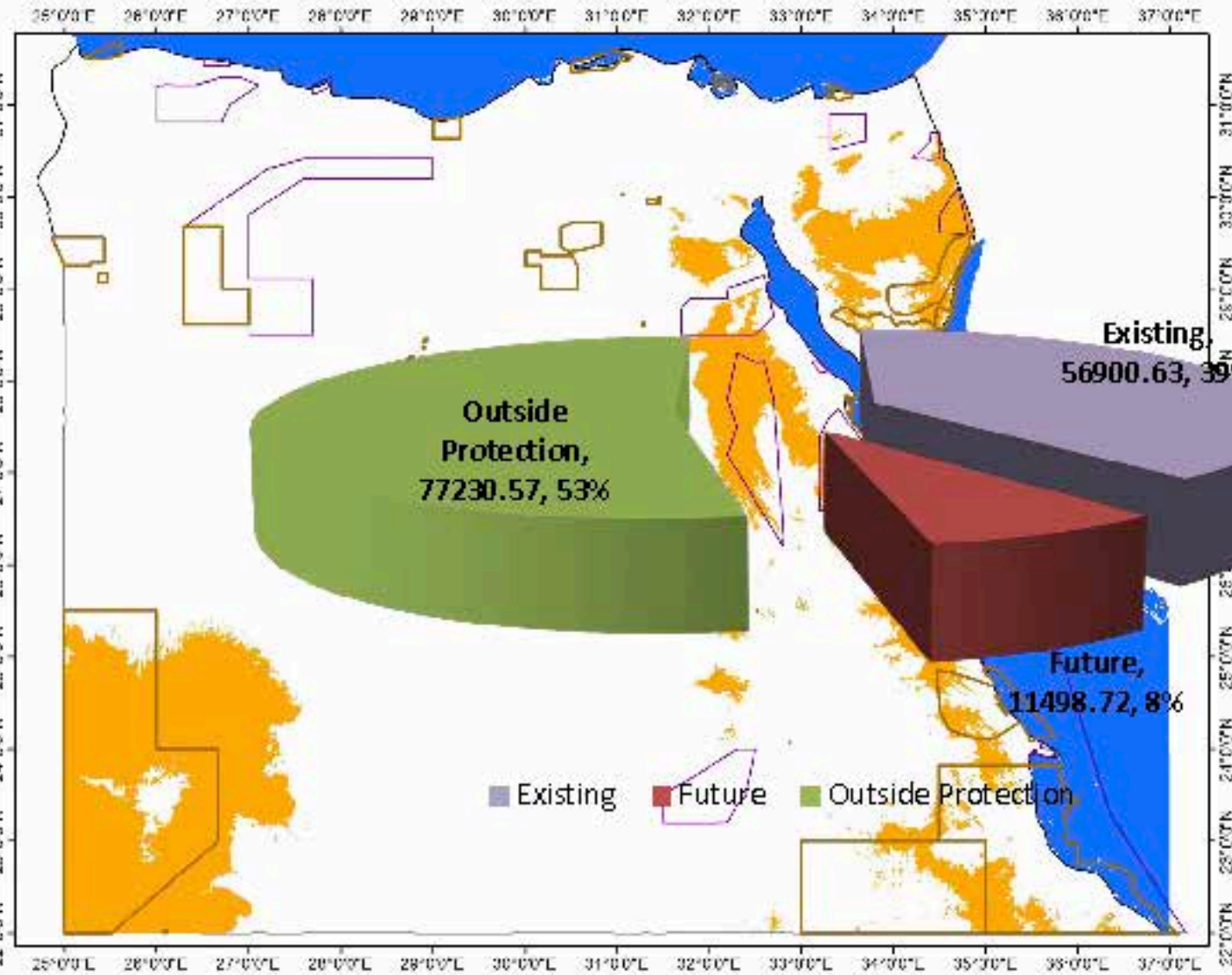


Devi's Environmental Arts Agency
 5/8, Anna Salai, Chennai
 National Biodiversity Conservation Action Plan Project (NBPAP)



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Source: Unpublished data from the field.



Representativeness Maps

High Area



 High Area

High Area (1981-1982)
Scale: 1:500,000
Map No. 1/20000
Scale: 1:20,000
Projection: UTM
Datum: WGS 84
Elevation: 1000m
Scale: 1:50,000



Geomatics Department, Addis Ababa
National Geomatics Center for Academic and Research Projects (NGC-AR)



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High Area



High Area

High Area (1997-2007) Map
Scale: 1:500,000
Map Date: 2007
Map Projection: UTM
Map Datum: WGS 84
Map Spheroid: Everest
Map Units: Meter
Map Contour Interval: 50m
Map Contour Interval: 50m
Map Contour Interval: 50m
Map Contour Interval: 50m

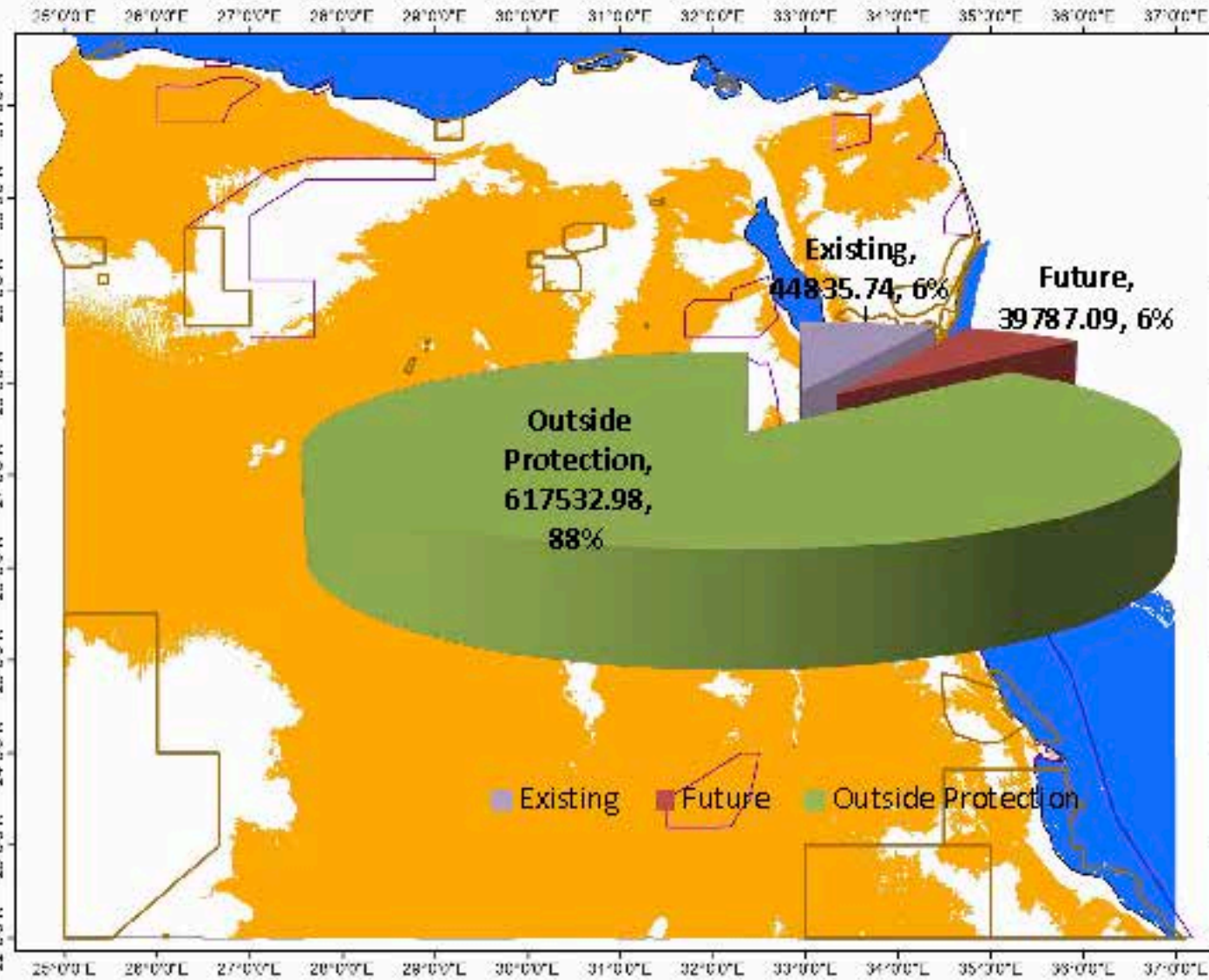


Geomatics Department, Addis Ababa
National Institute of Surveying and Mapping (NISMA)



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Source: National Institute of Surveying and Mapping (NISMA)




Existing Future Outside Protection

Representativeness Maps

Plain Area



 Plain Area

Top Sheet: 17A, 18A, 19A, 20A
Scale: 1:50,000
Map Date: 2000
Map No: 17A, 18A, 19A, 20A
Map No: 17A, 18A, 19A, 20A
Map No: 17A, 18A, 19A, 20A
Map No: 17A, 18A, 19A, 20A
Map No: 17A, 18A, 19A, 20A
Map No: 17A, 18A, 19A, 20A




Geomatics Department, Faculty of Engineering
Alexandria University, Alexandria, Egypt
National Geomatics Engineering Research Institute (NGRI)



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Plain Area



 Plain Area

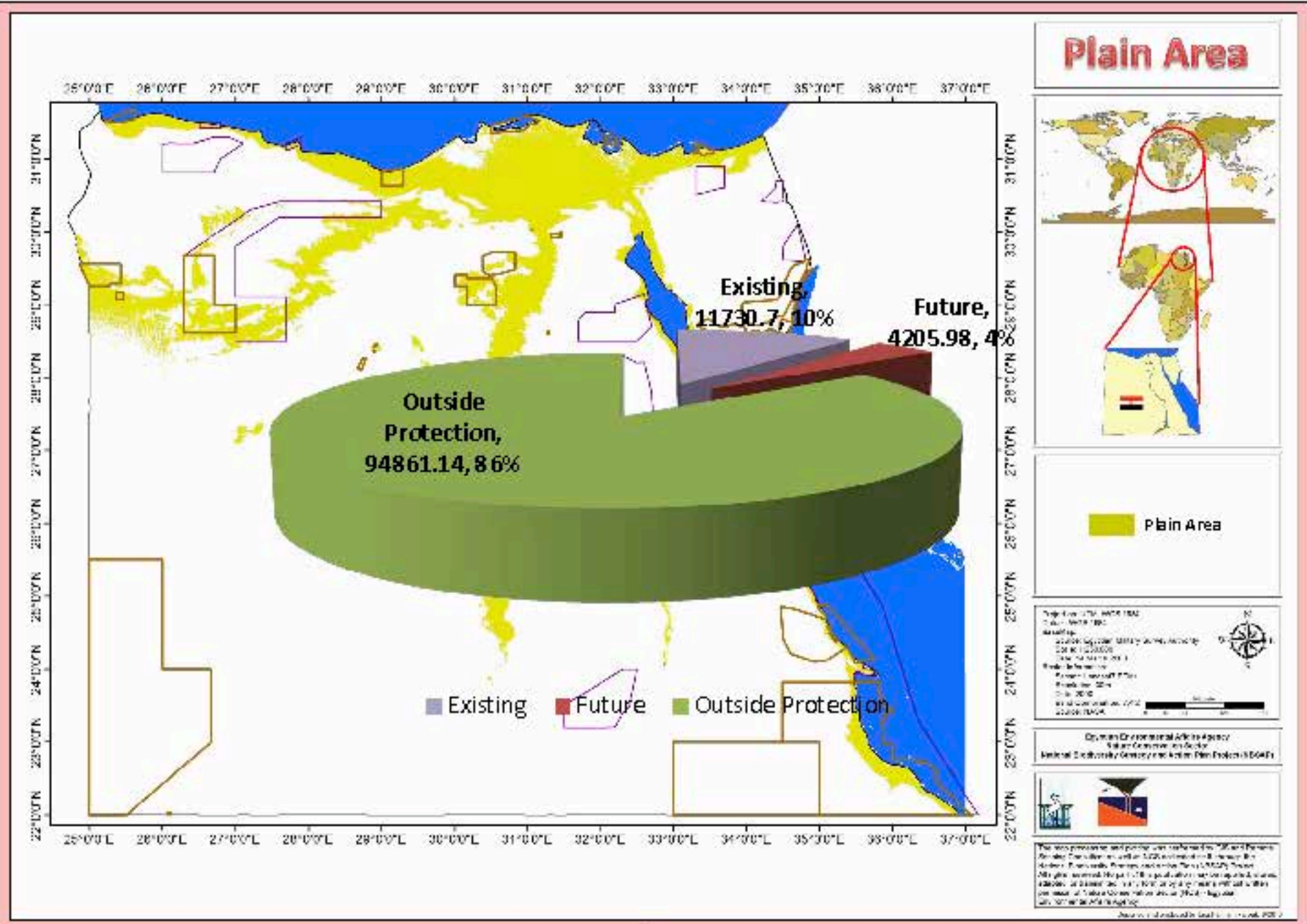
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 Project: 2008
 Date: 2008
 Date: 2008
 Date: 2008



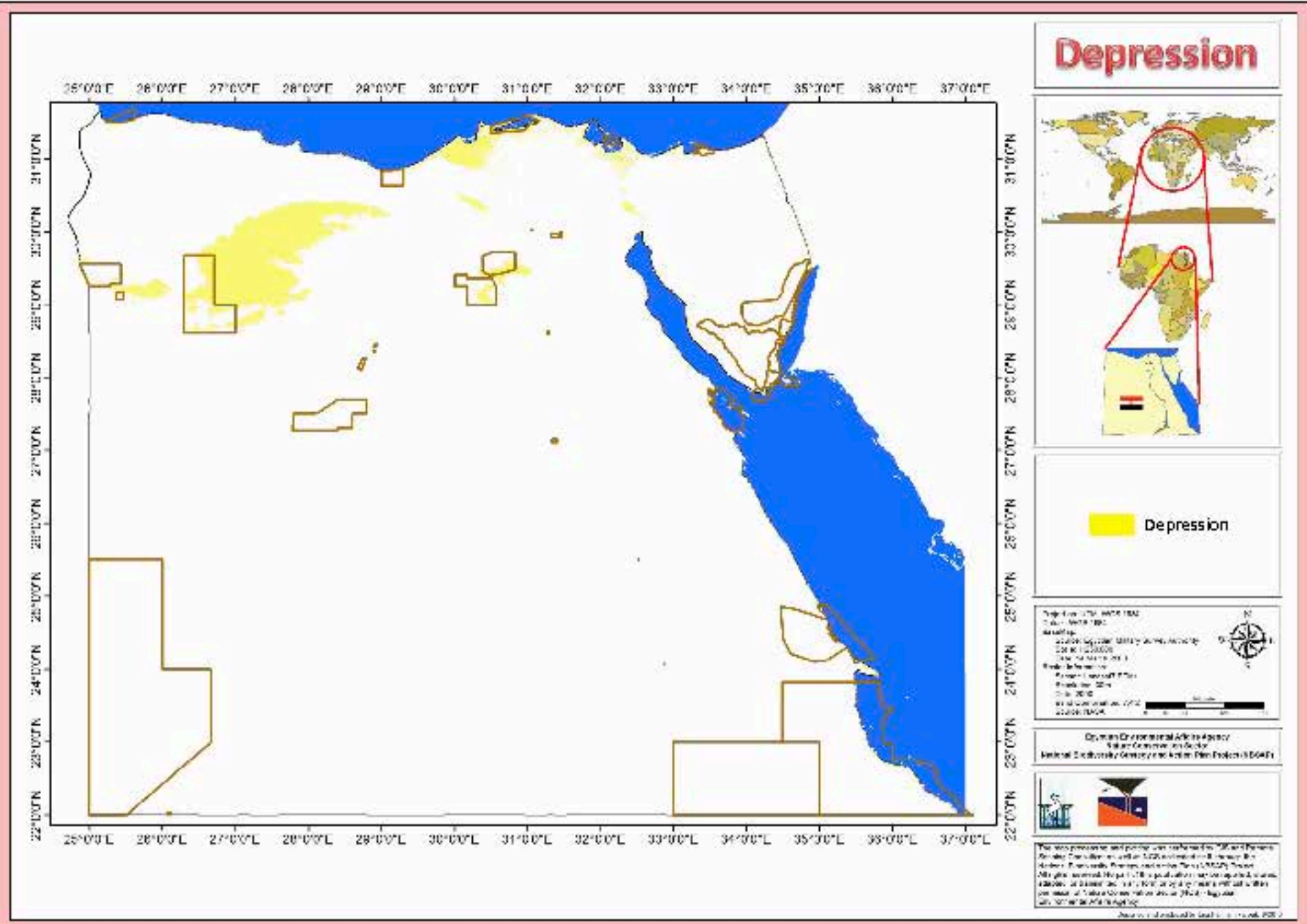
Geomatics Department, Faculty of Engineering
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 National Scientific Research Center for Earth and Planetary Sciences



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Representativeness Maps



Depression



Depression

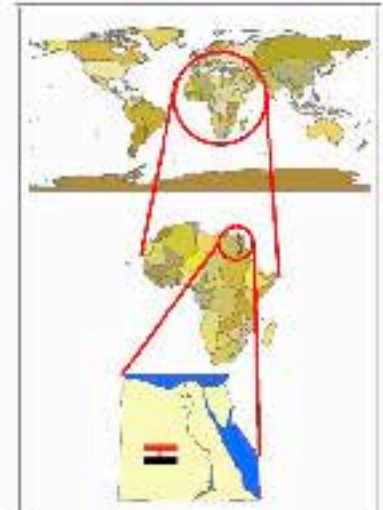
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 Datum: WGS 84
 Elevation: 0m
 Contour interval: 20m
 Contour style: Dotted


Geomatics Department, Addis Ababa
 Addis Ababa, Ethiopia
 National Geomatics Engineering College, Addis Ababa, Ethiopia (NGEC)



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Depression



 Depression

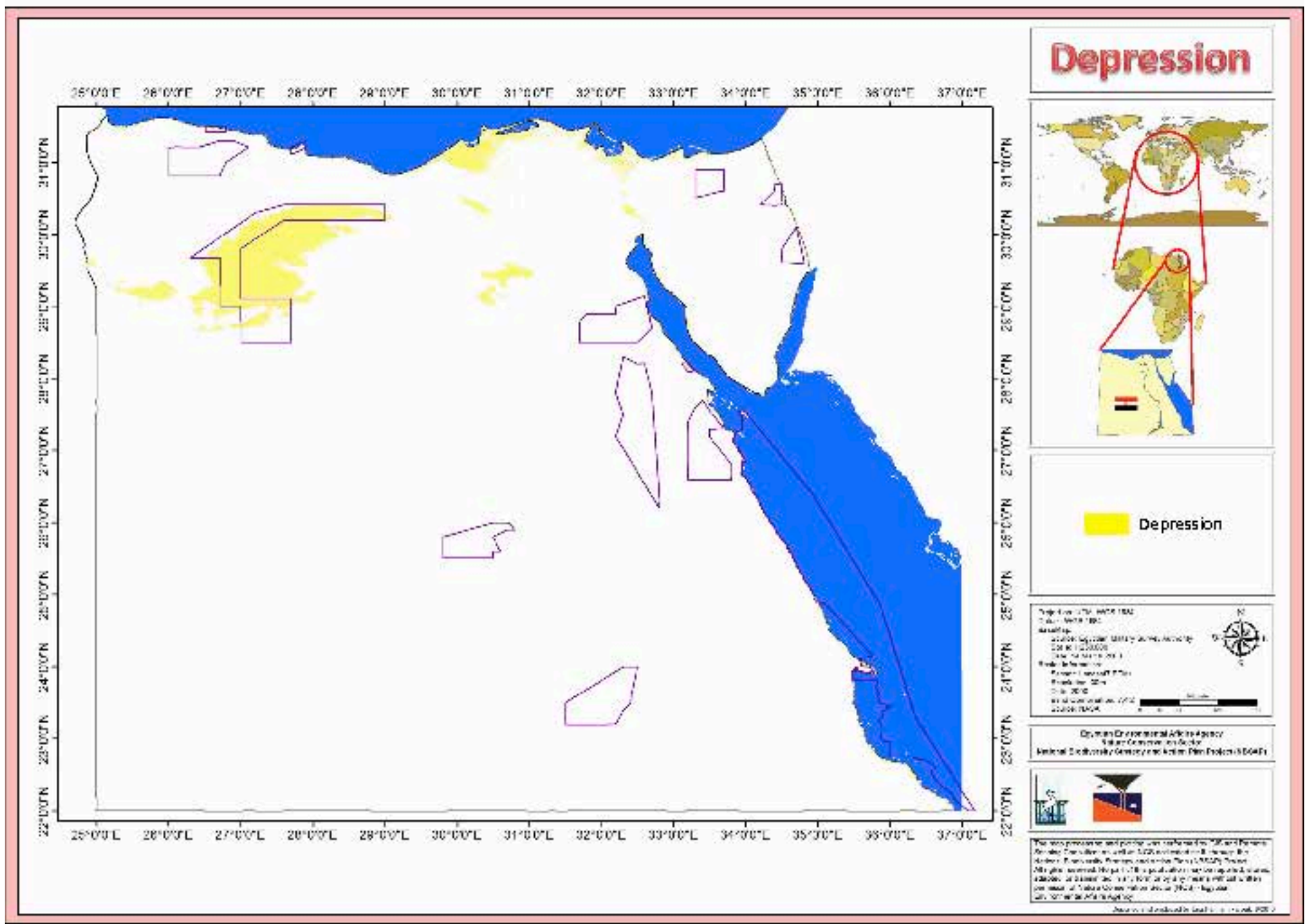
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 Project:
 Period:
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 Project:
 Date:
 Project:



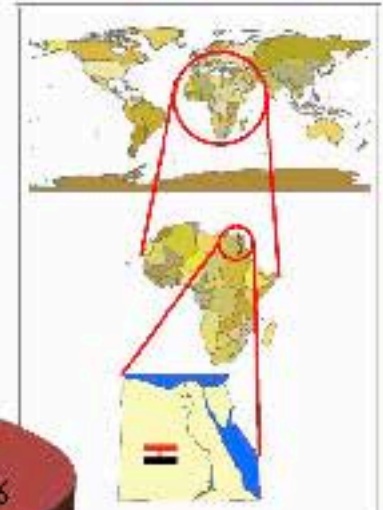
Government of India
 Ministry of Education
 National Curriculum Framework for School Education



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Depression



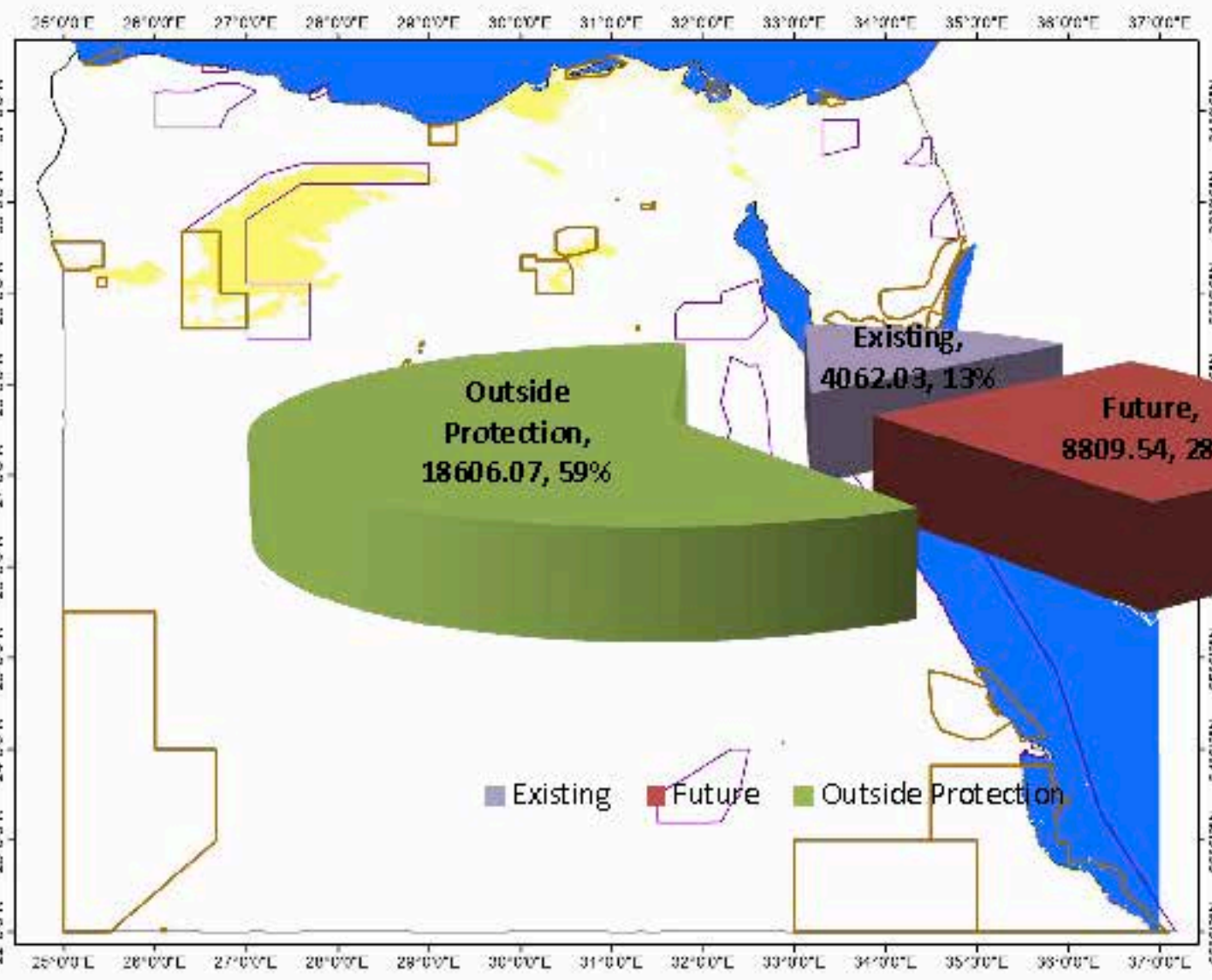
Depression

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 Projection: UTM
 Spheroid: Everest
 Datum: Everest
 Units: Meter
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 Contour File: 2000
 Contour Interval: 5m
 Contour File: 2000

Coastal Environmental Action Agency
 58, Anna Salai, Chennai
 National Disaster Management Authority, New Delhi



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Existing Future Outside Protection

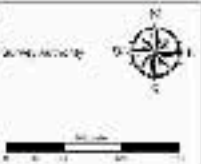
Representativeness Maps

Sand Dunes



 Sand Dunes

Scale: 1:500,000
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 Project: [Project Name]
 Funding: [Funding Source]
 Date: 2010
 Version: 1.0

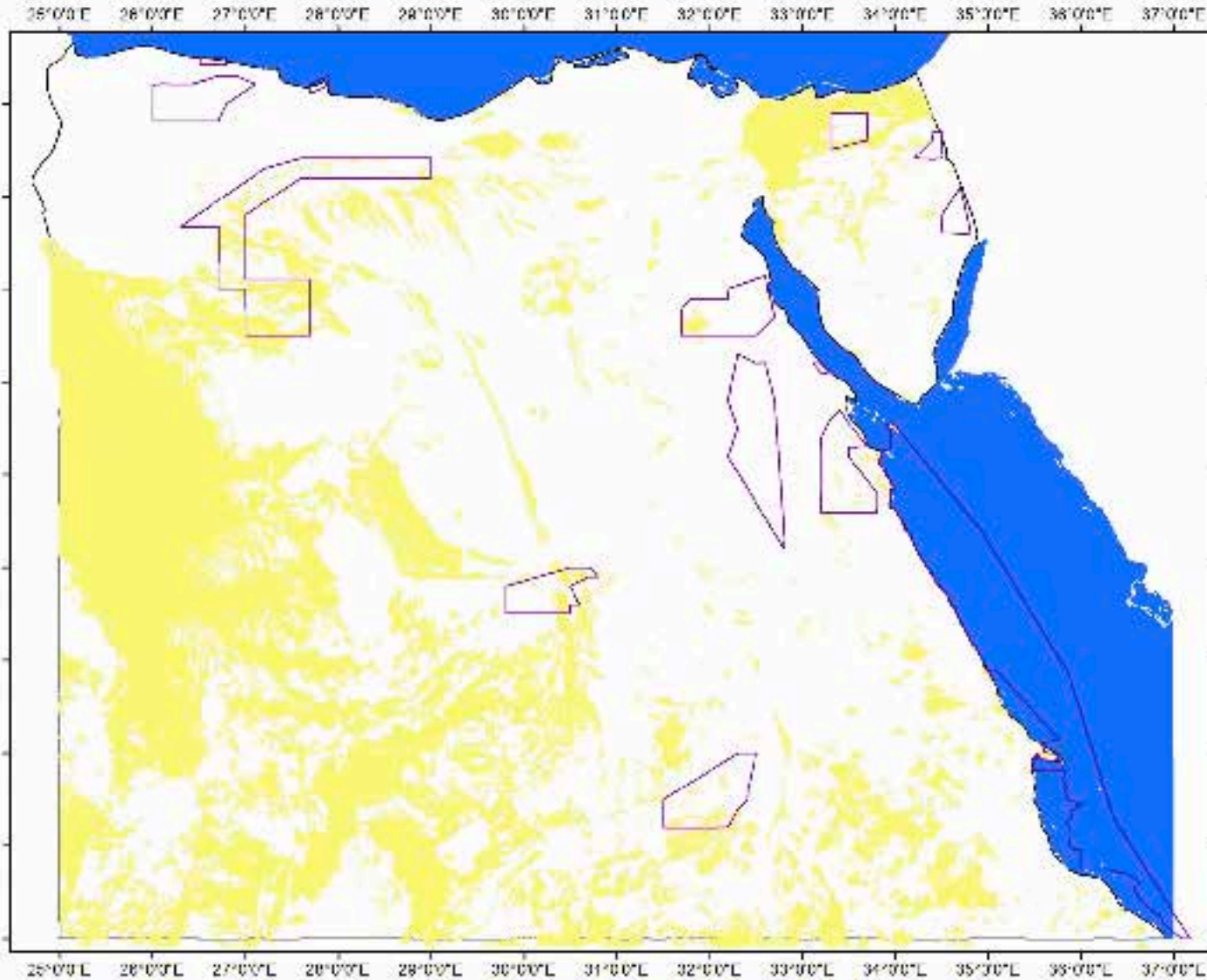


Geomatics Department, Faculty of Engineering,
 Alexandria University, Egypt



This work was supported by the Egyptian Ministry of Planning, under the National Science Foundation (NSF) Grant No. [Grant Number]. The author would like to thank the Egyptian Ministry of Planning, under the National Science Foundation (NSF) Grant No. [Grant Number], for their support in this work.

Sand Dunes



Sand Dunes

Scale 1:50,000
 Datum: WGS 1984
 Projection: UTM
 Zone: 48N
 Units: Meter
 Contour Interval: 5m
 Elevation: 0 to 100m
 Contour Interval: 5m
 Contour Interval: 5m
 Contour Interval: 5m



Coastal Environmental Action Agency
 National Directorate of Environment
 National Directorate of Environment



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Sand Dunes



 Sand Dunes

Scale: 1:50,000
 Datum: WGS 1984
 Authority: UTM
 Projection: UTM
 Spheroid: Everest
 Prime Meridian: 75° E
 False Easting: 500,000
 False Northing: 10,000,000
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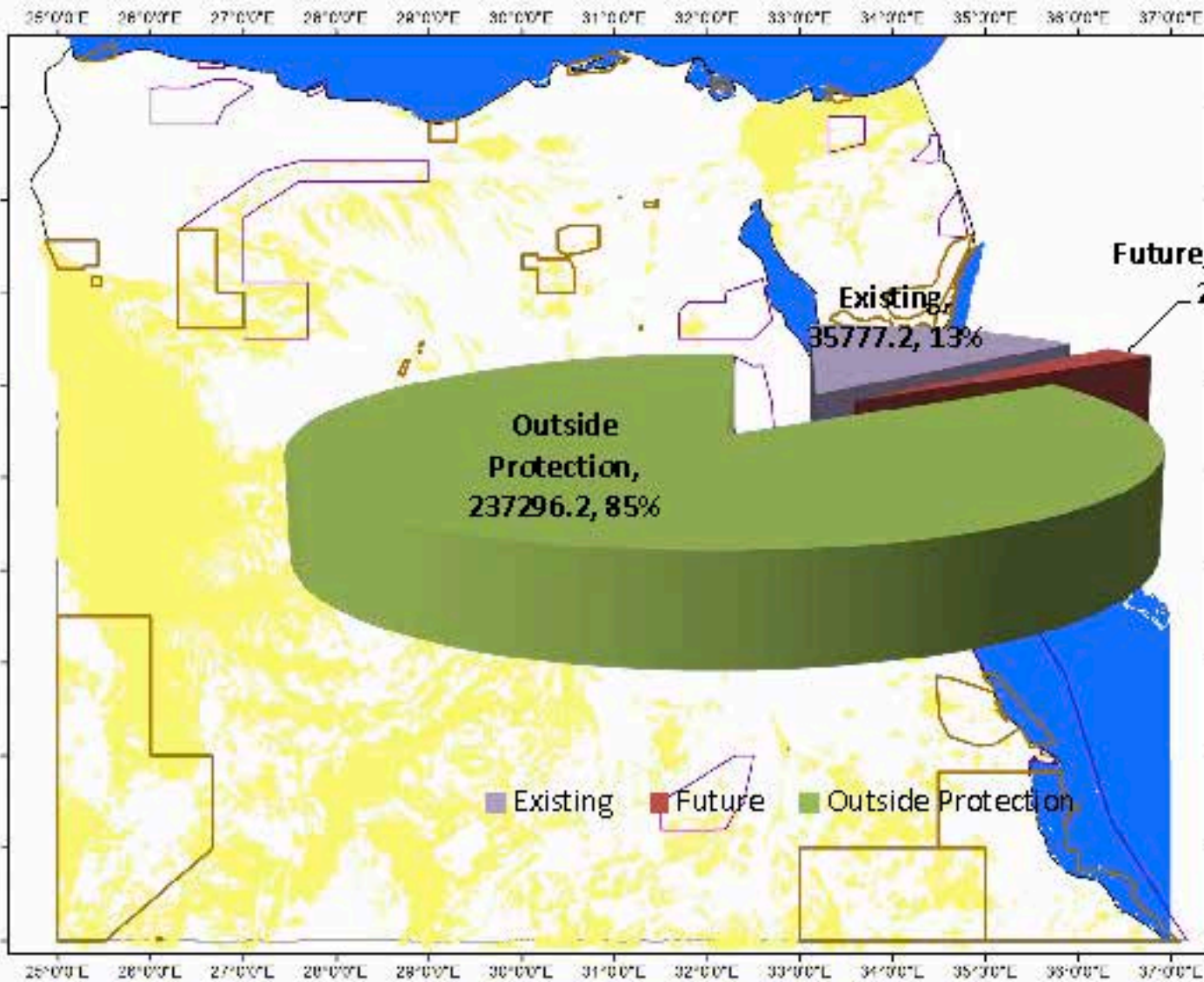


Government of Kerala
 Department of Forests, Wildlife and Environment
 National Biodiversity Conservation Action Plan Project (NBPAP)



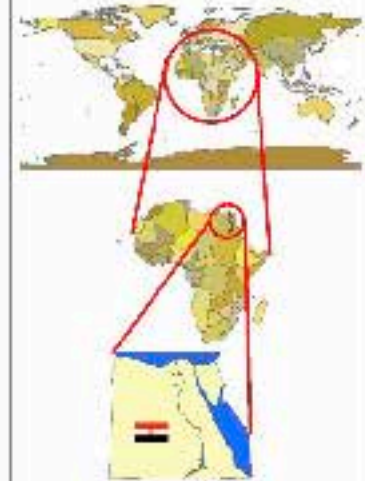
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Source: Prepared by the author in 2004.



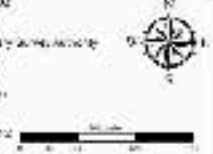
Representativeness Maps

Inland Water



Inland Water

Scale: 1:750,000
Datum: WGS 1984
Projection:
UTM Zone 32N
Units: Meter
Elevation: SRTM30 PLUS
Resolution: 30m
Date: 2010
Source: National Center for Global Change Research
2010/10/04

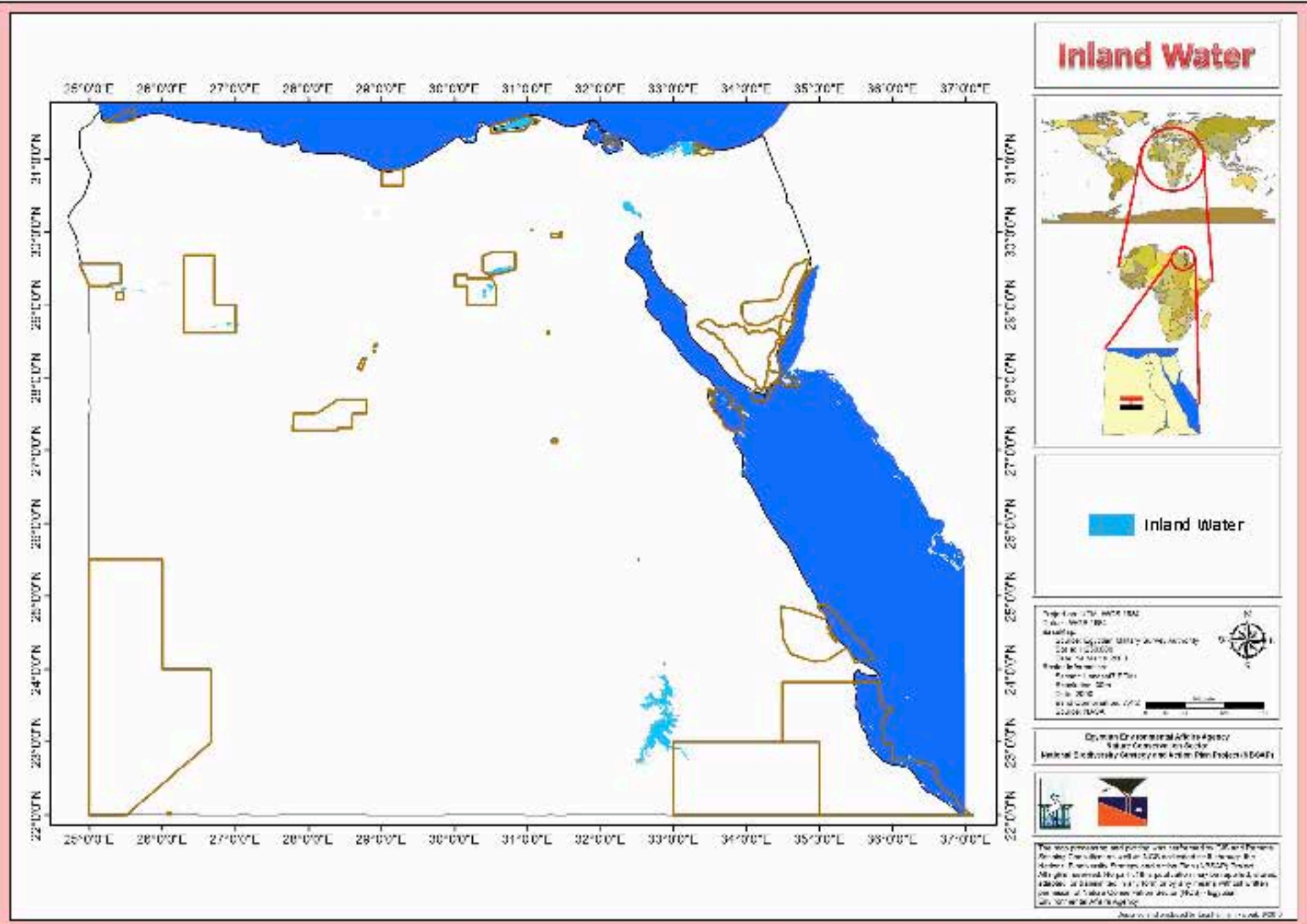


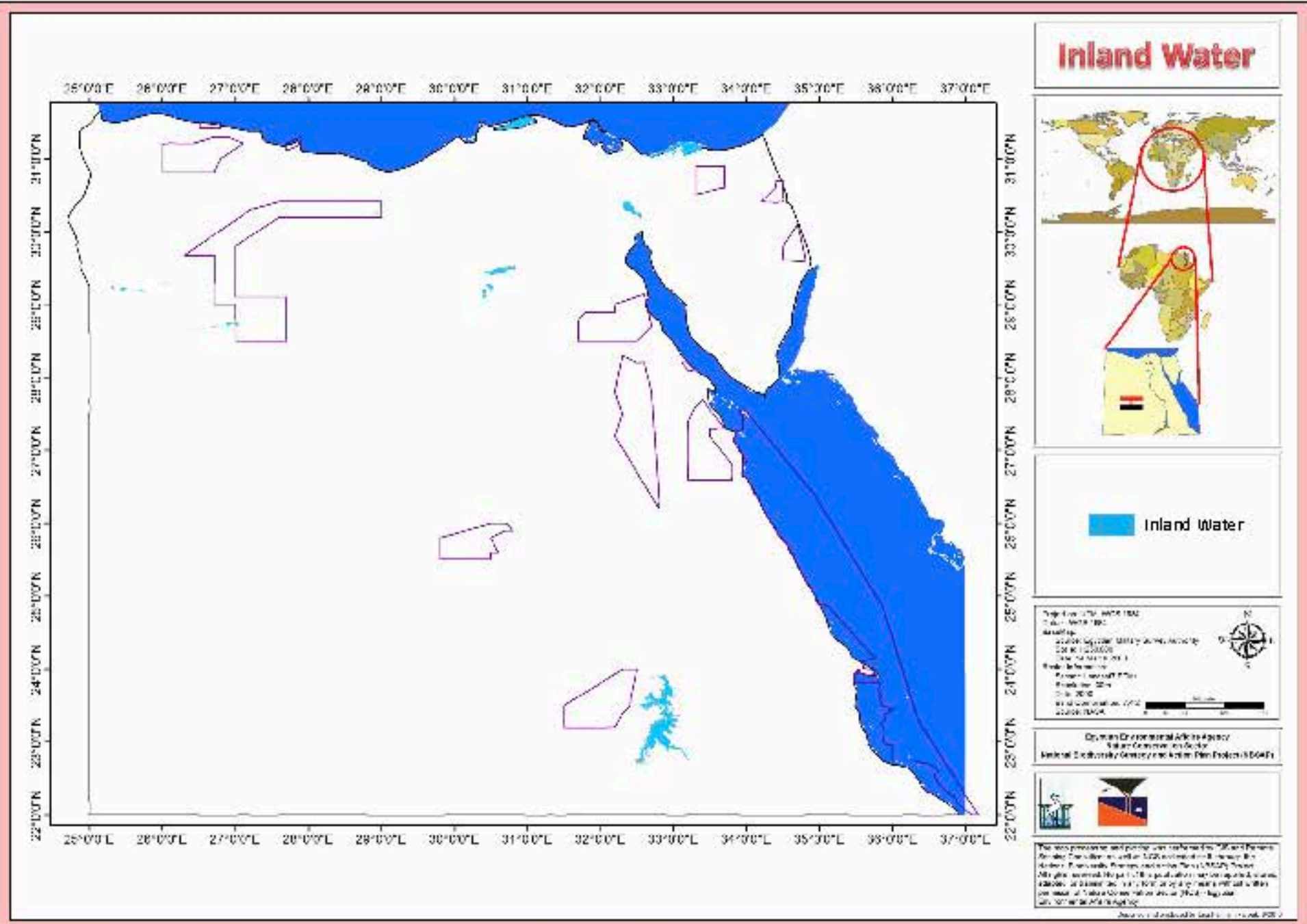
Geomatics Engineering Agency
National Center for Global Change Research
National Center for Global Change Research (NCGCR)



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Source: National Center for Global Change Research (NCGCR)





Inland Water



 Inland Water

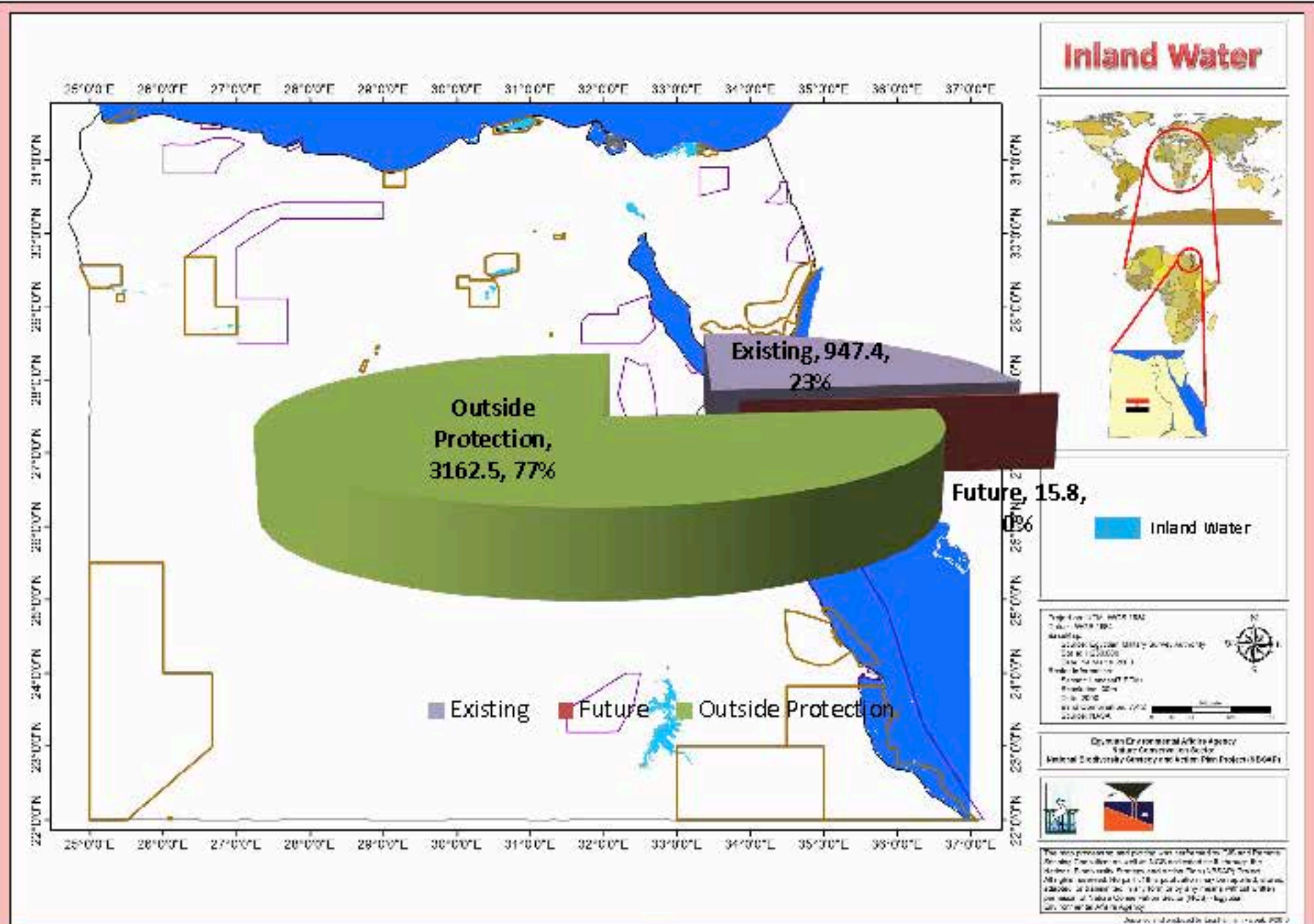
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 Projection: UTM
 Zone: 48 N
 Spheroid: Everest
 Datum: Indian
 Unit: Meter
 Contour Interval: 5m
 Projection: UTM
 Zone: 48 N



Government of Odisha
 Odisha Government
 National Bureau of Aquaculture and Fisheries

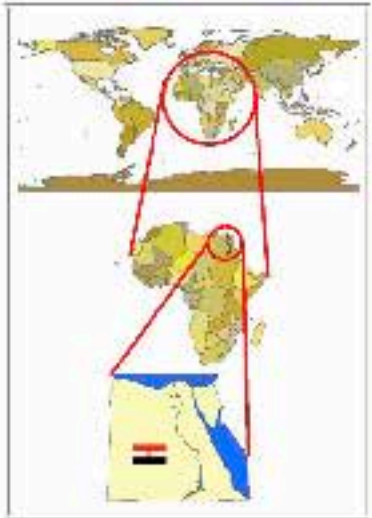



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Representativeness Maps

Coral Reefs



 Coral Reefs

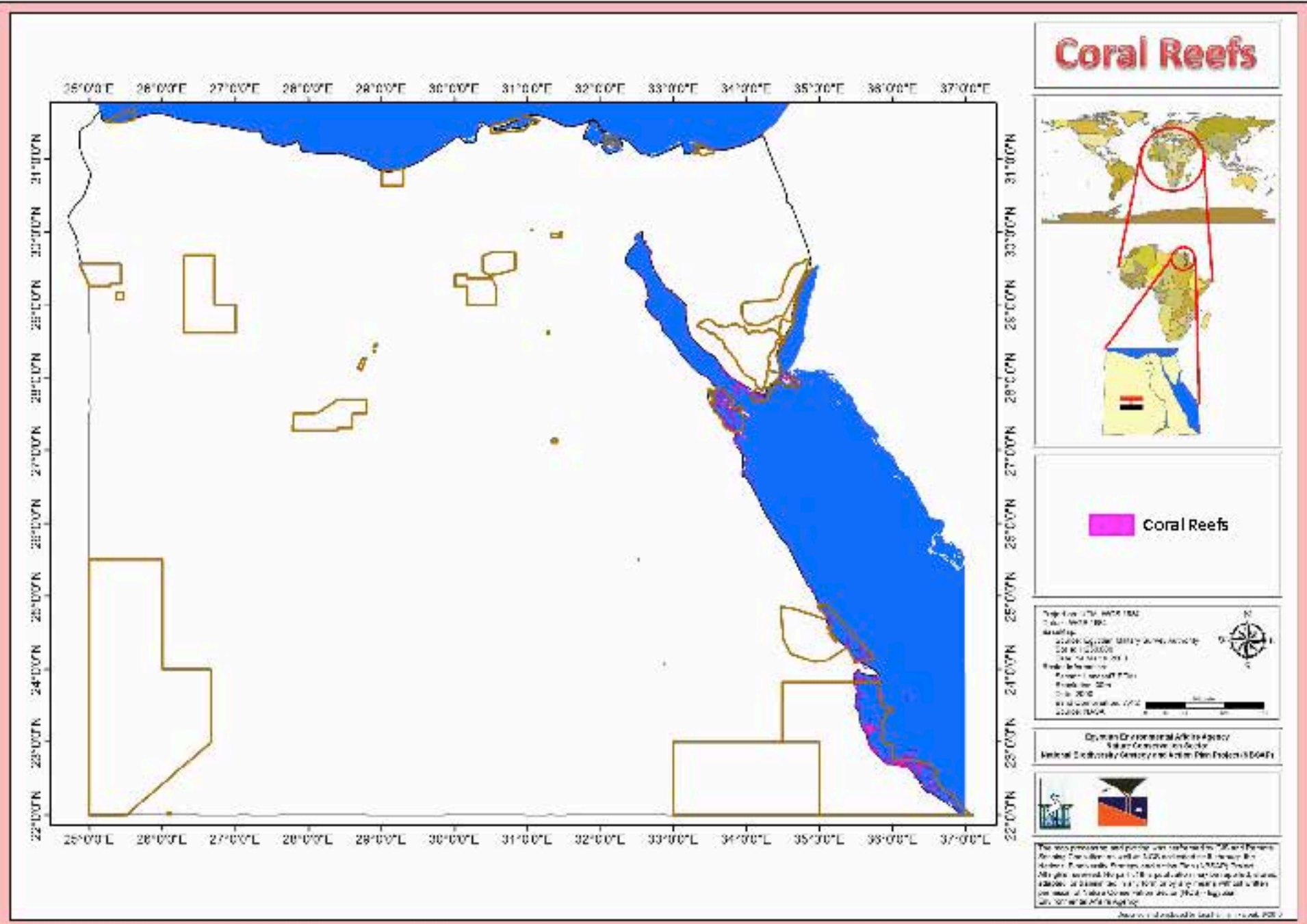
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 Datum: WGS 1984
 UTM Zone: 48N
 UTM Easting: 320000
 UTM Northing: 2200000



Oceanographic Survey Agency
 Marine Geology Division
 National Deep-sea Survey and Action Plan Project (NDSAP)




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Coral Reefs



 Coral Reefs

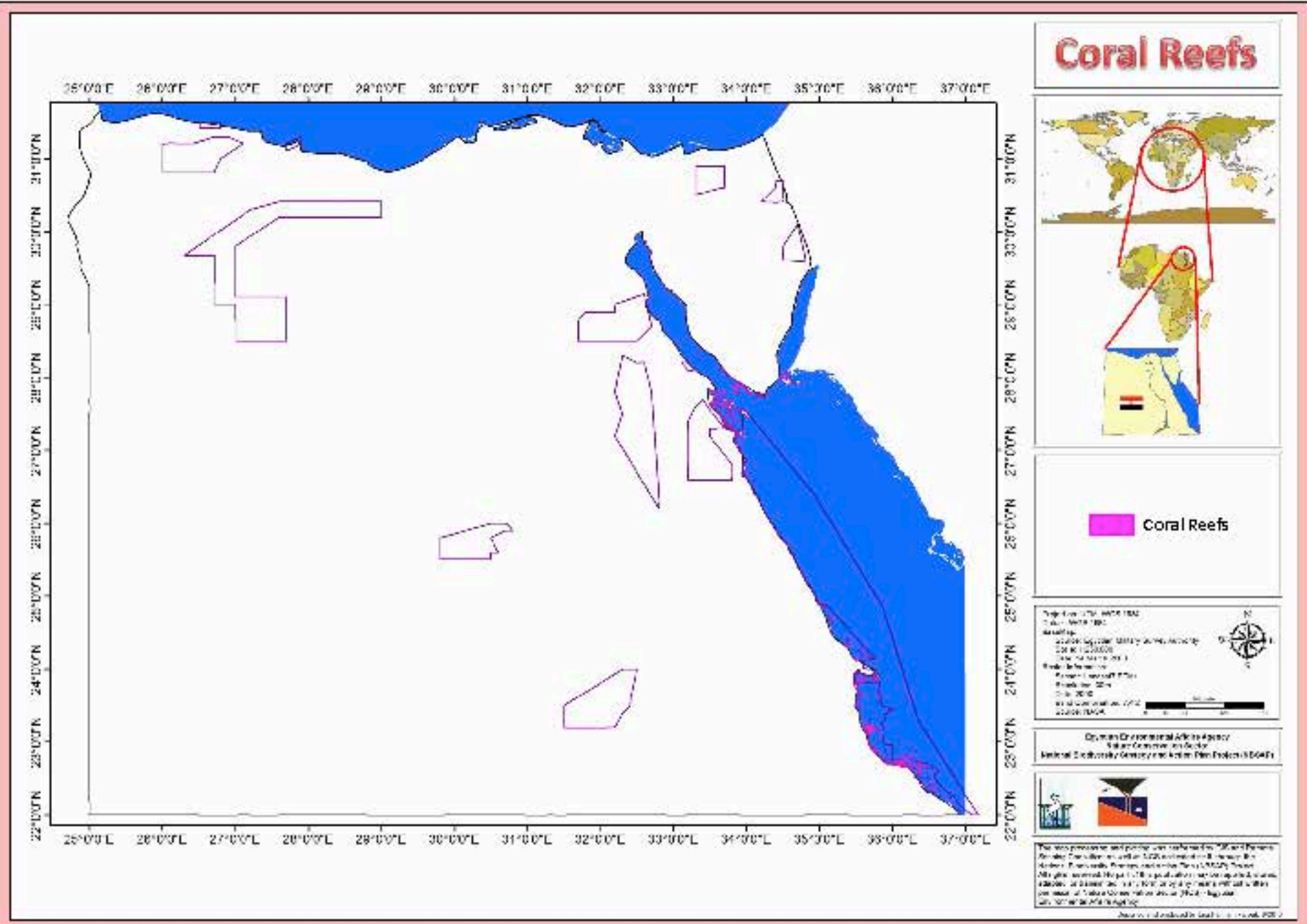
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 Spheroid: Everest
 Prime Meridian: 75°E
 False Easting: 500000
 False Northing: 10000000
 Units: Meter



Coastal Environmental Action Agency
 National Directorate of Aquaculture and Fisheries
 National Directorate of Aquaculture and Fisheries (NDAP)



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Coral Reefs



 Coral Reefs

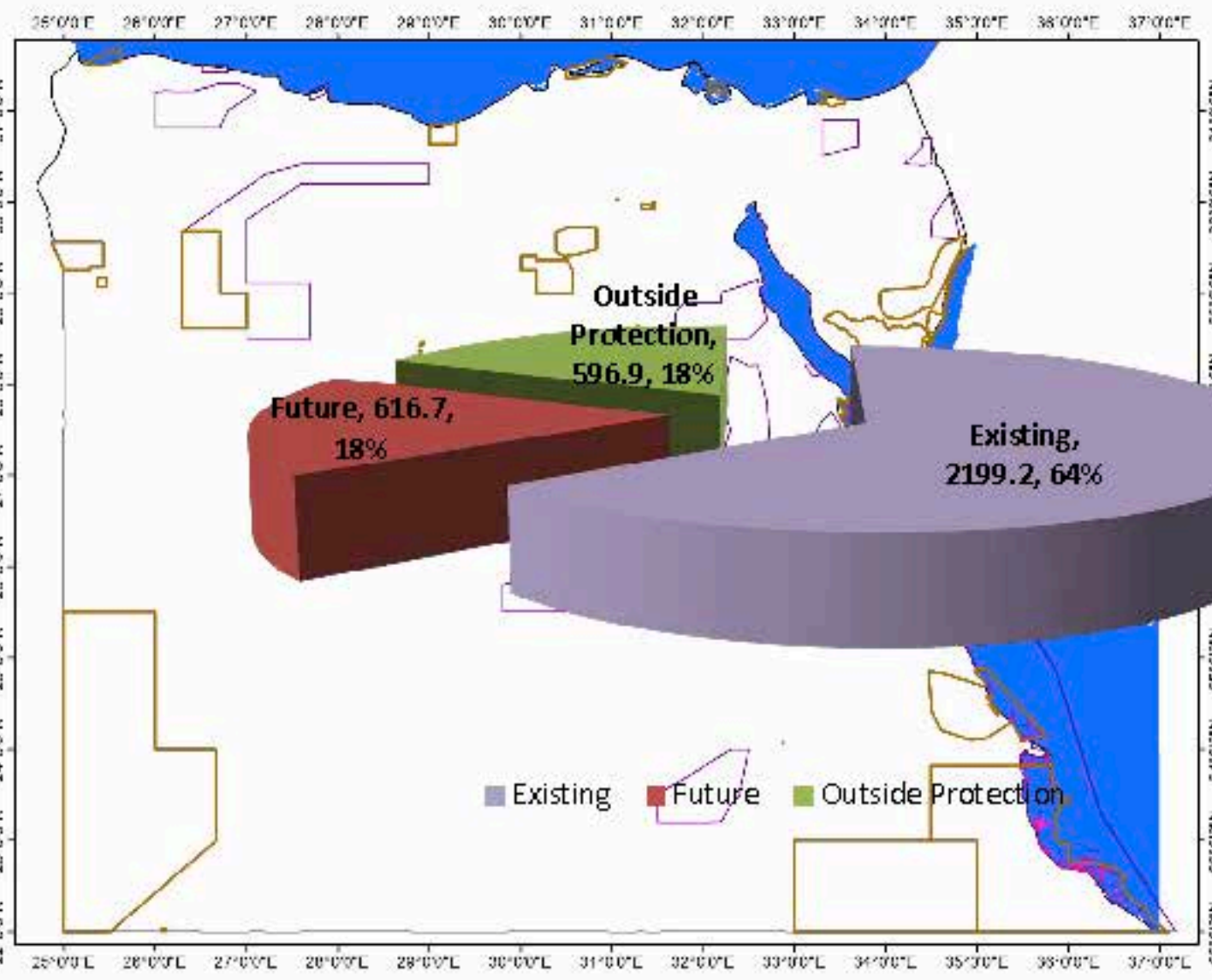
Scale: 1:50,000
 Datum: WGS 1984
 Authority: Indian Geomatics Engineering College
 Date: 2023
 Project: Coastal Zone Management
 Scale: 1:50,000
 Date: 2023
 Project: Coastal Zone Management



Coastal Zone Management Agency
 National Institute of Oceanography
 Marine Geospatial Information System (MGIS)

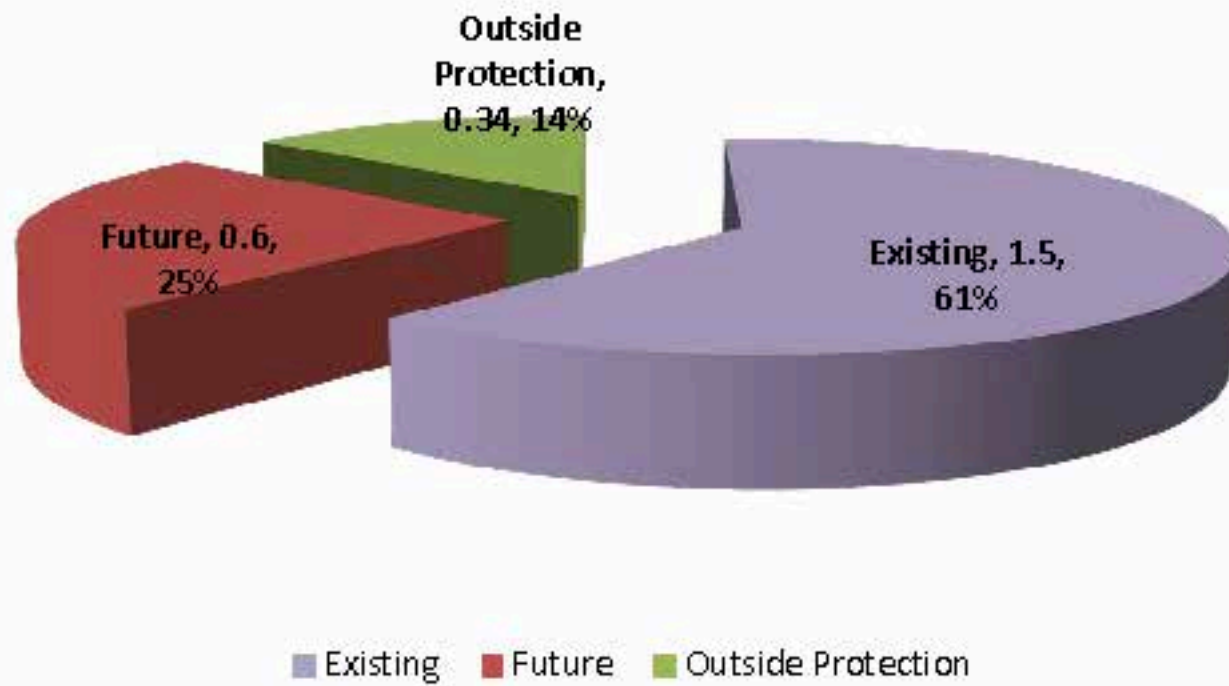


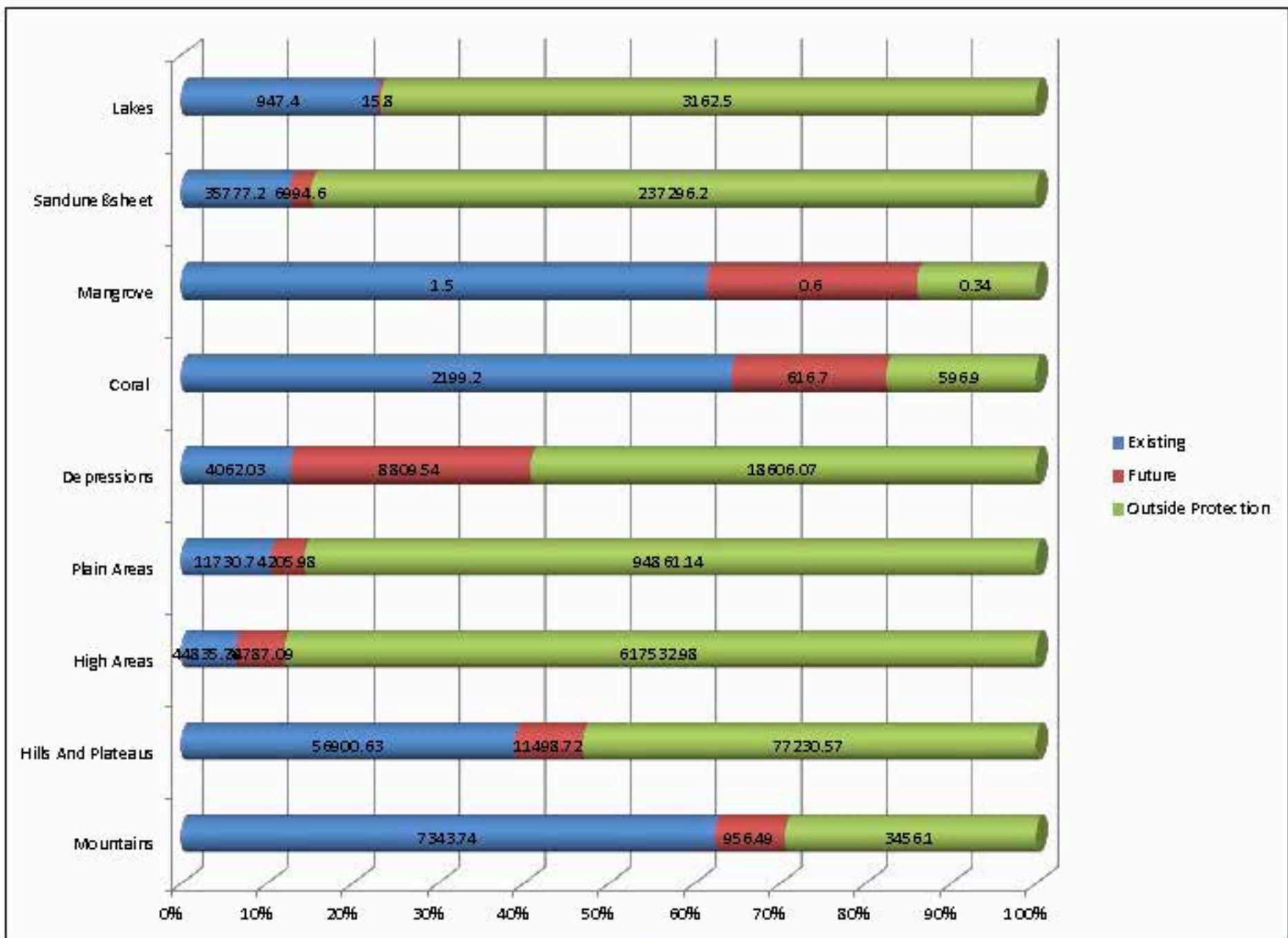
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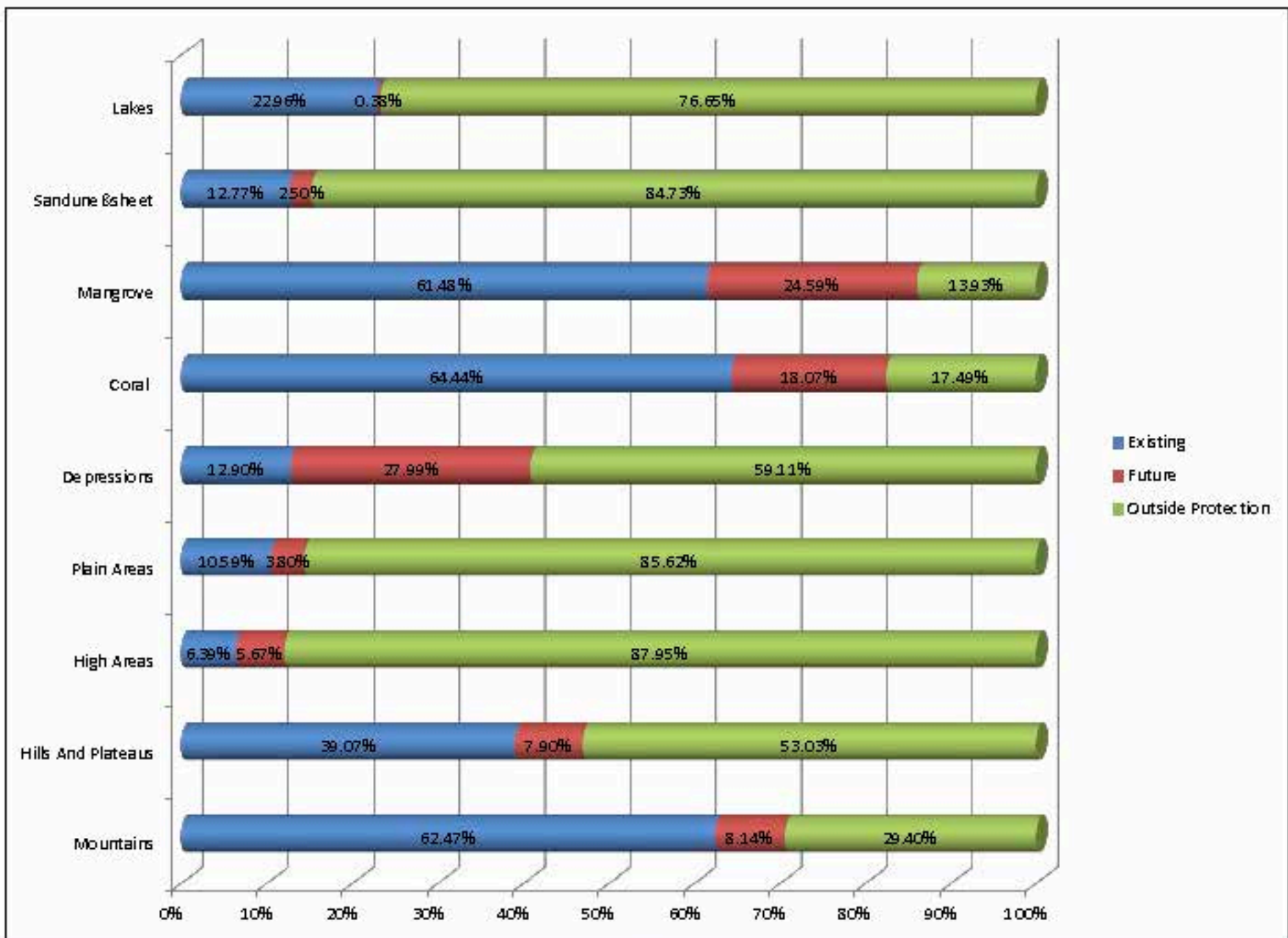


Representativeness Maps

Mangrove Habitat Representativeness (km²)









Section 5

Protection levels of habitats in Egypt

	South Africa	USA	Description
Well Protected	If an ecosystem type has more than 100% of its biodiversity target met in either a formal A or B protected area	Land managed to maintain biodiversity	An area of land having permanent protection from conservation of natural land cover and a mandated management plan in operation to maintain a natural state within which disturbance events may not be allowed to proceed without interference and/or be mimicked through management.
Moderately Protected,	When less than 100% of the biodiversity target is met in formal A or B protected areas	Land managed multiple-use including conservation	An area having permanent protection from conservation of natural land cover for the majority of the area (more than 75%), but subjected to extractive uses of either a broad low-intensity type (e.g. logging) or localized intense type (e.g. mining), protection of nationally listed endangered and threatened species throughout the area may be conferred.
Poorly Protected,	If less than 50% of the biodiversity target is met,	Lands with no permanent protection from conservation but may be managed for conservation	An area with no known public or private mandates or legally recognized easements or deed restrictions held by the managing entity to prevent conversion of natural habitats to anthropogenic habitat type. Conversion to unnatural land cover throughout is generally allowed and management intent is unknown.
Not Protected	If less than 5% it is Hardly Protected.		



Protection Level Maps

Maps
Protection Level

Mountains

Hills & Plateaus

High Areas

Plain Areas

Depression

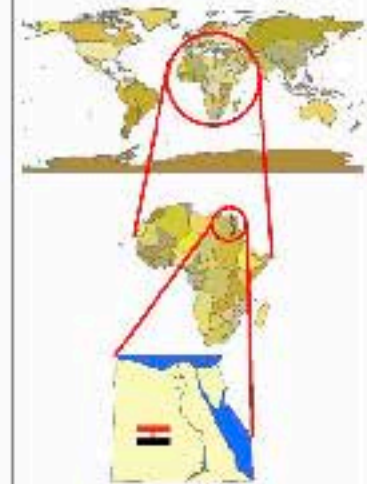
Sand Dunes

Inland Water

Corals

Mangrove

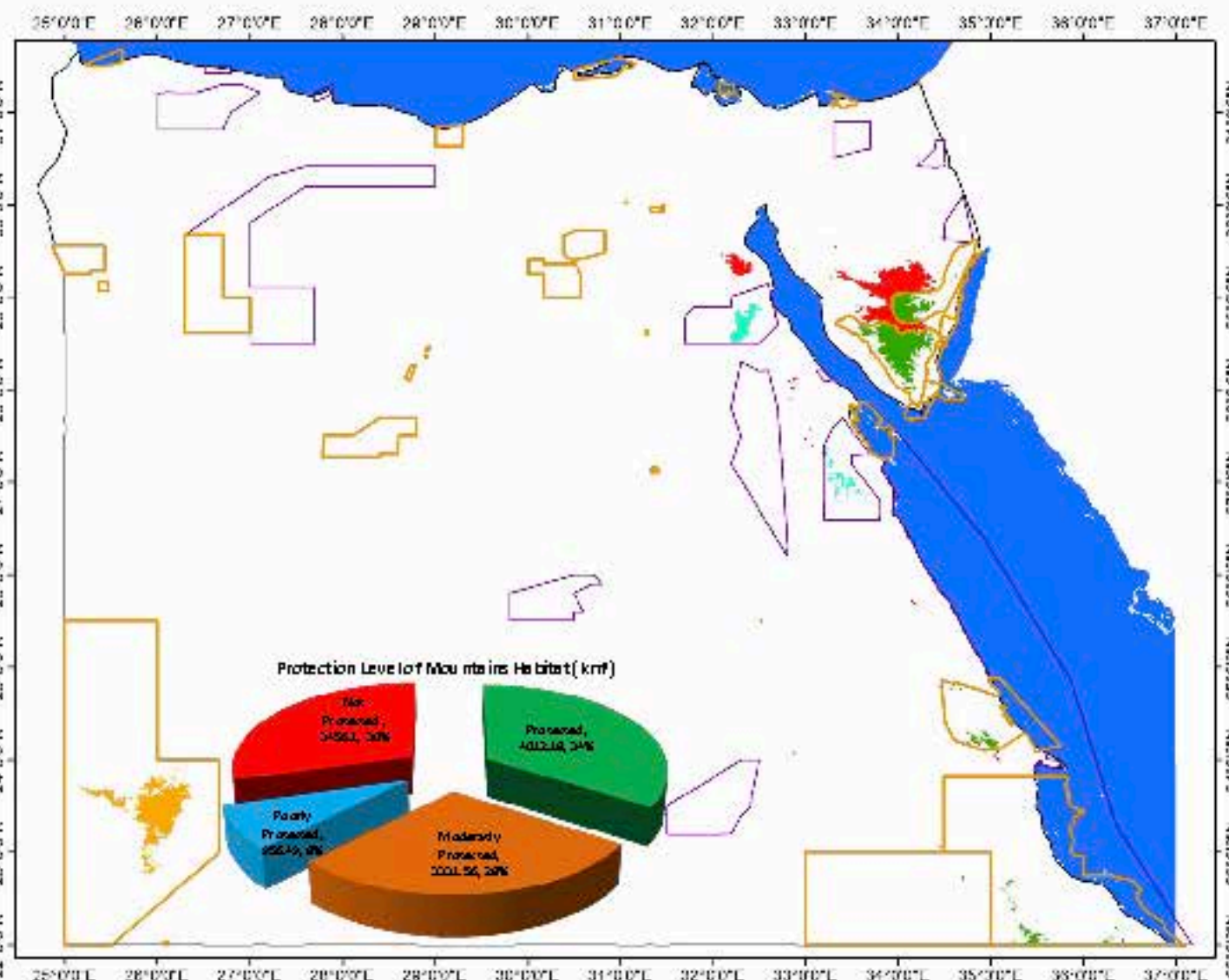
Mountains



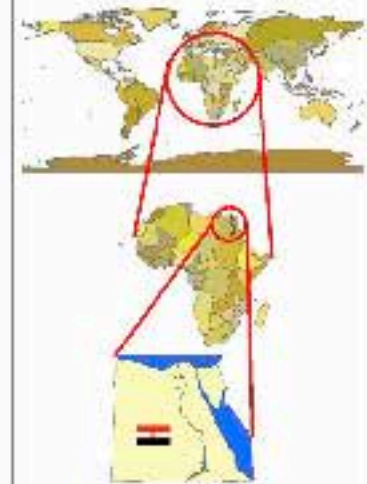
Geomatics Department, Addis Ababa
 National Institute of Surveying and Mapping
 National Institute of Surveying and Mapping (NISMA)



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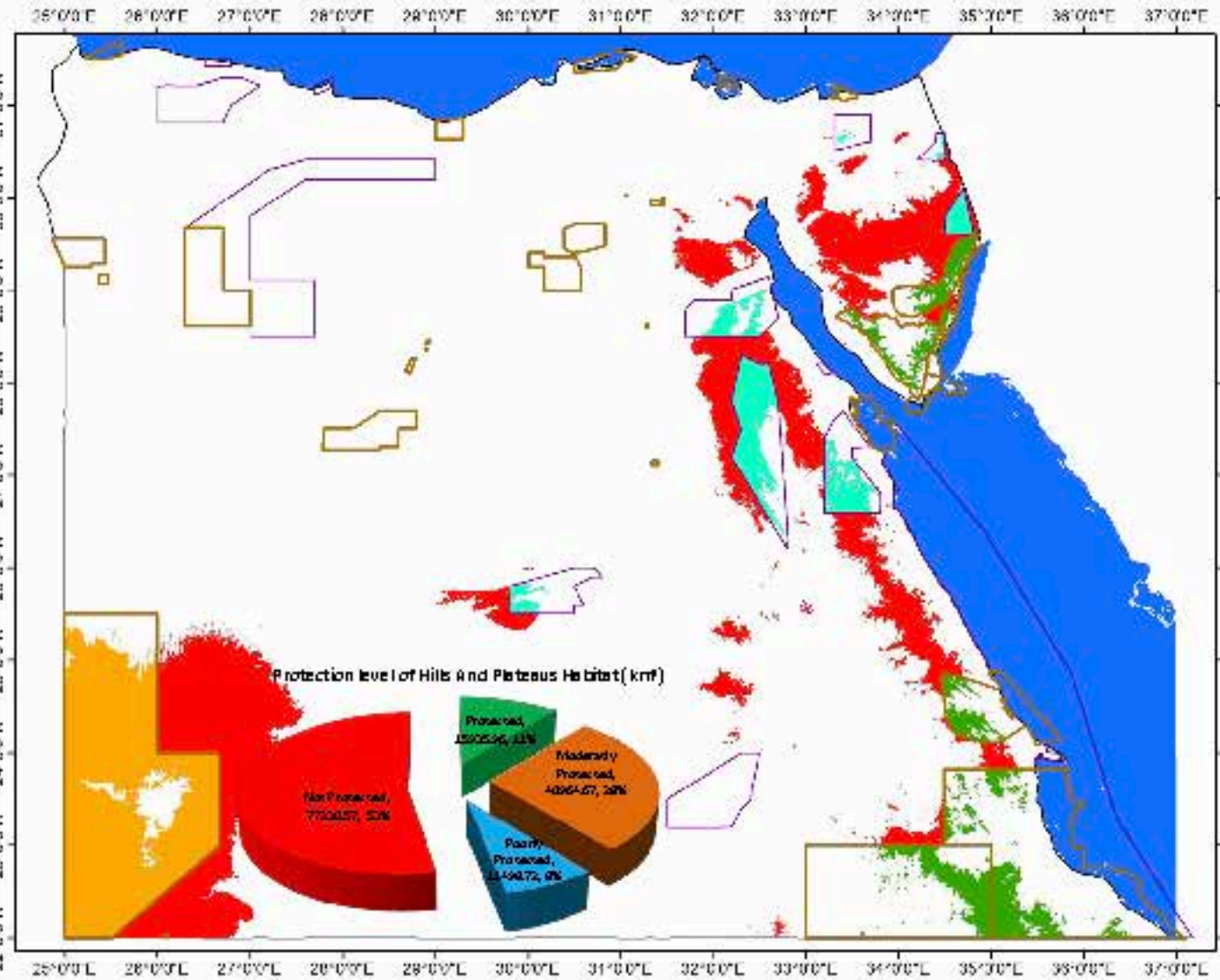
Hills & Plateaus



Geomatics Engineering Agency
 National Institute of Technology Karnataka (NITK)

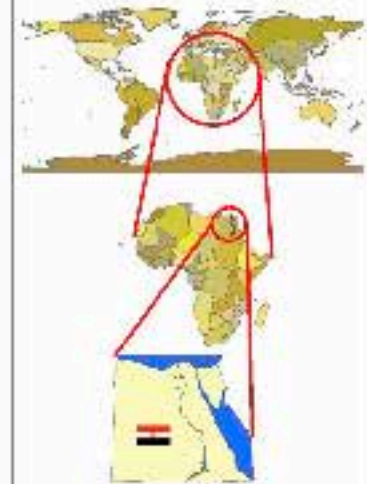


This work was prepared under the supervision of the Director, National Institute of Technology Karnataka, and the project was funded by the Government of Karnataka. The work was carried out under the leadership of the project leader, Dr. [Name], and the assistance of the project team members. The work was completed in the month of [Month], 2018.



Protection Level Maps

High Area



- Protected
- Moderately Protected
- Poorly Protected
- Not Protected

High Area (27° 44'N 104° 15'E)
 Scale: 1:500,000
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 Date: [Date]
 Project: [Project Name]
 Funding: [Funding Source]
 Contact: [Contact Info]

Department of Wildlife and Conservation
 National Zoological Conservation and Education Project (NZCEP)

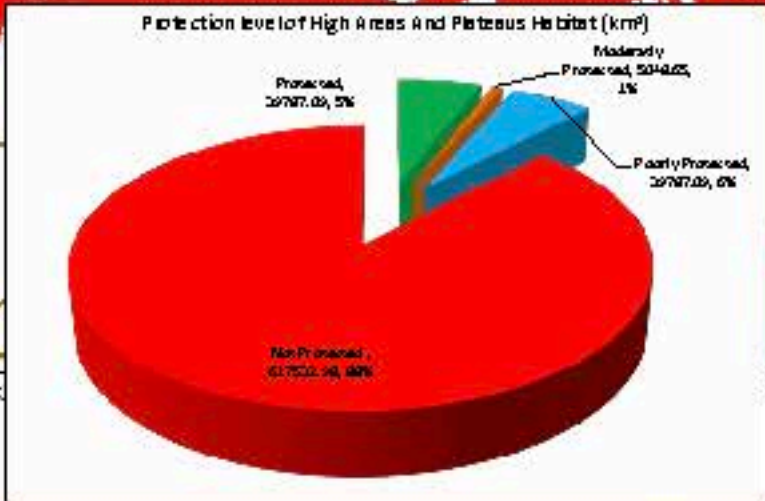
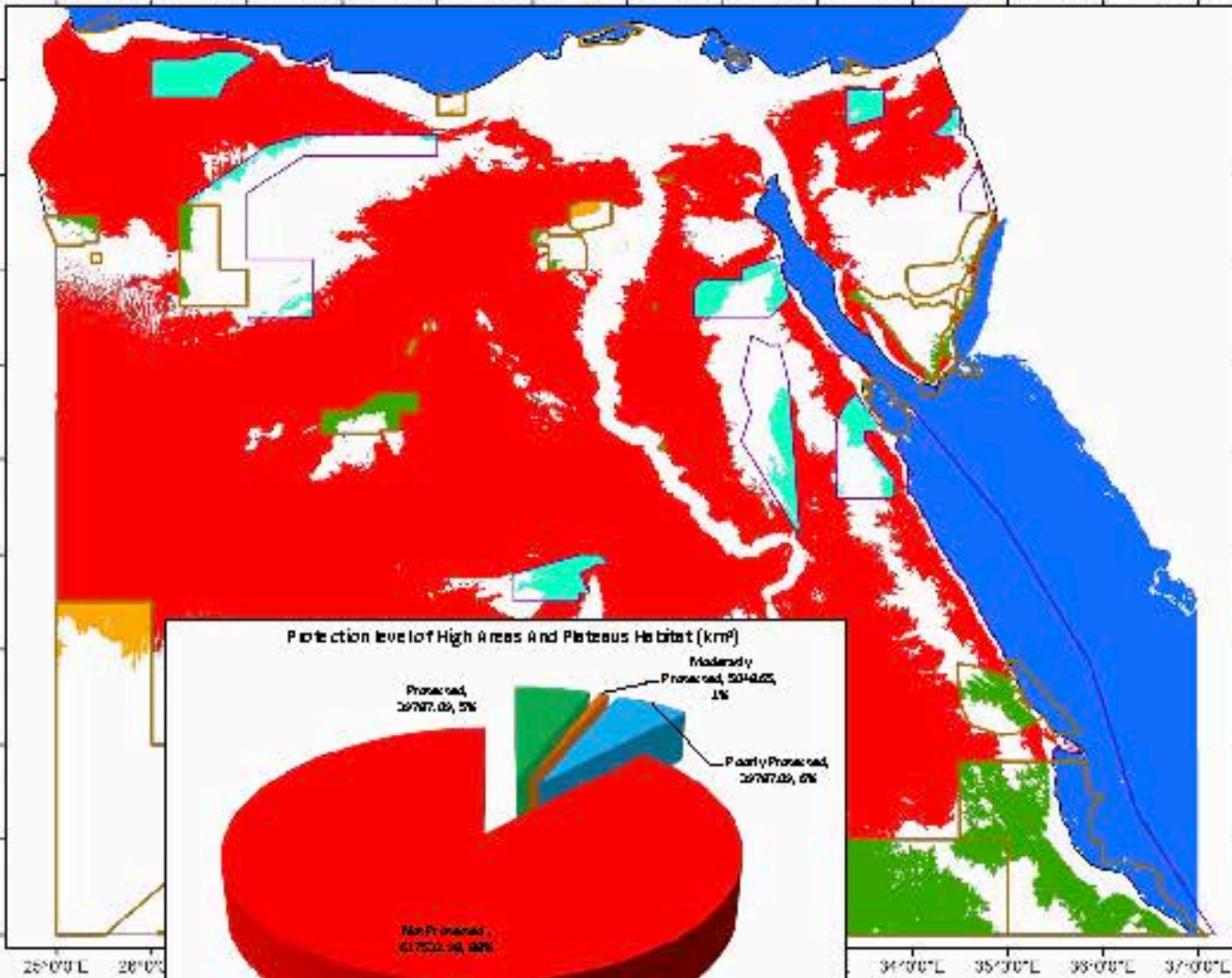


This map was prepared and printed under the supervision of the Director, National Zoological Conservation and Education Project (NZCEP), Government of India. The map is a part of the project on the conservation of the [Species Name] in the [Region Name]. The map is a part of the project on the conservation of the [Species Name] in the [Region Name]. The map is a part of the project on the conservation of the [Species Name] in the [Region Name].

26°00'E 26°30'E 27°00'E 27°30'E 28°00'E 28°30'E 29°00'E 29°30'E 30°00'E 30°30'E 31°00'E 31°30'E 32°00'E 32°30'E 33°00'E 33°30'E 34°00'E 34°30'E 35°00'E 35°30'E 36°00'E 37°00'E

22°00'N 23°00'N 24°00'N 25°00'N 26°00'N 27°00'N 28°00'N 29°00'N 30°00'N 31°00'N

22°00'N 23°00'N 24°00'N 25°00'N 26°00'N 27°00'N 28°00'N 29°00'N 30°00'N 31°00'N



Protection Level Maps

Plain Area



- Protected
- Moderately Protected
- Poorly Protected
- Not Protected

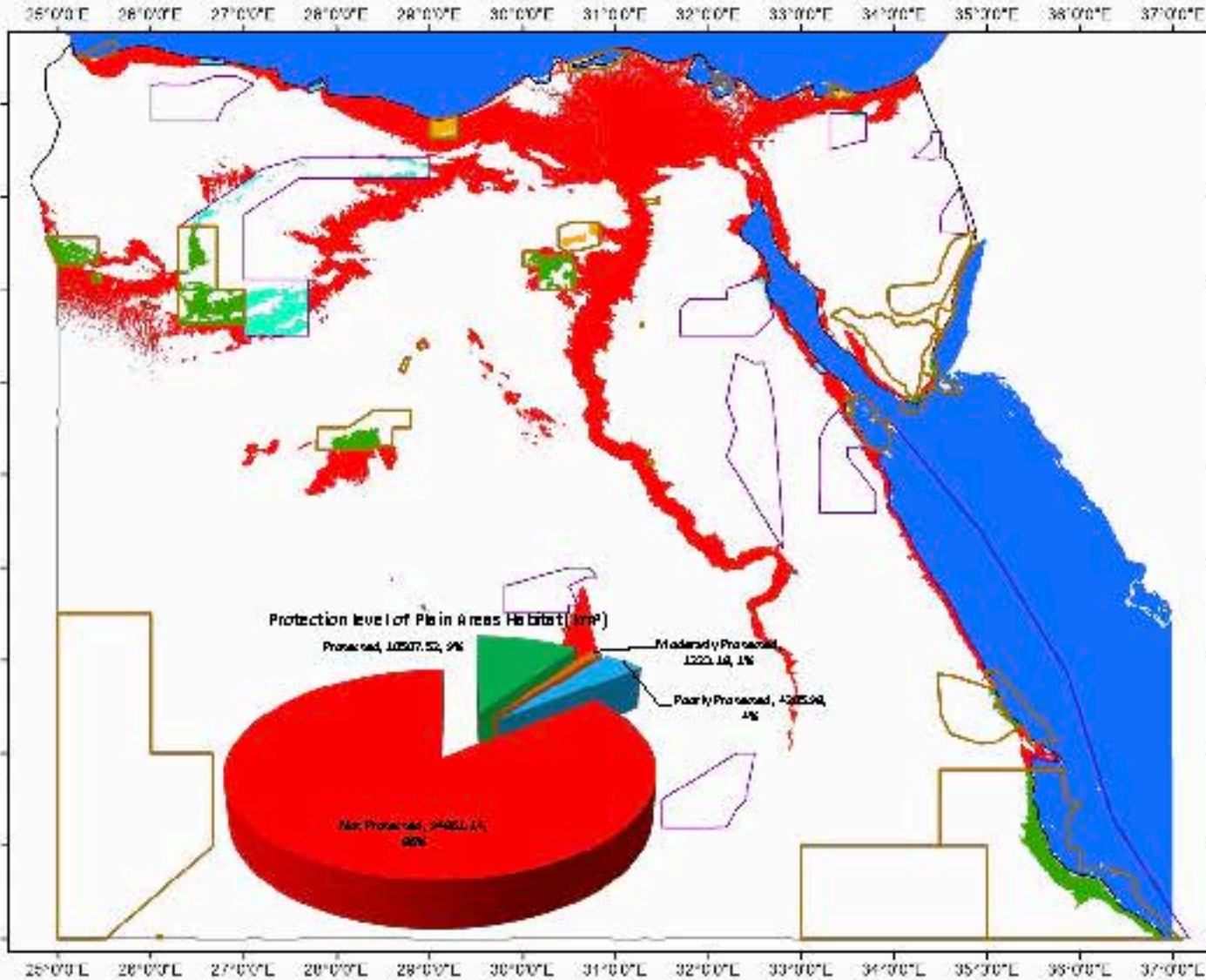
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 Authority: UTM
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 Units: Meter
 Contour Interval: 50m
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 Datum: Everest
 Units: Meter

Geomatics Department, Addis Ababa
 Addis Ababa University
 National Geomatics Engineering College, Addis Ababa, Ethiopia (2024)



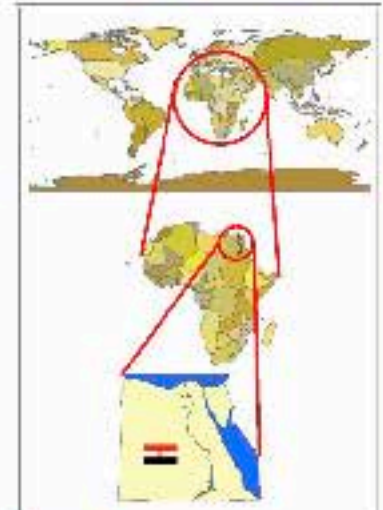
This work was prepared and published under the supervision of the National Geomatics Engineering College, Addis Ababa University. The work was carried out by the National Geomatics Engineering College, Addis Ababa University. The work was carried out by the National Geomatics Engineering College, Addis Ababa University. The work was carried out by the National Geomatics Engineering College, Addis Ababa University.

Source: (downloaded from Google Earth, 2024)



Protection Level Maps

Depression

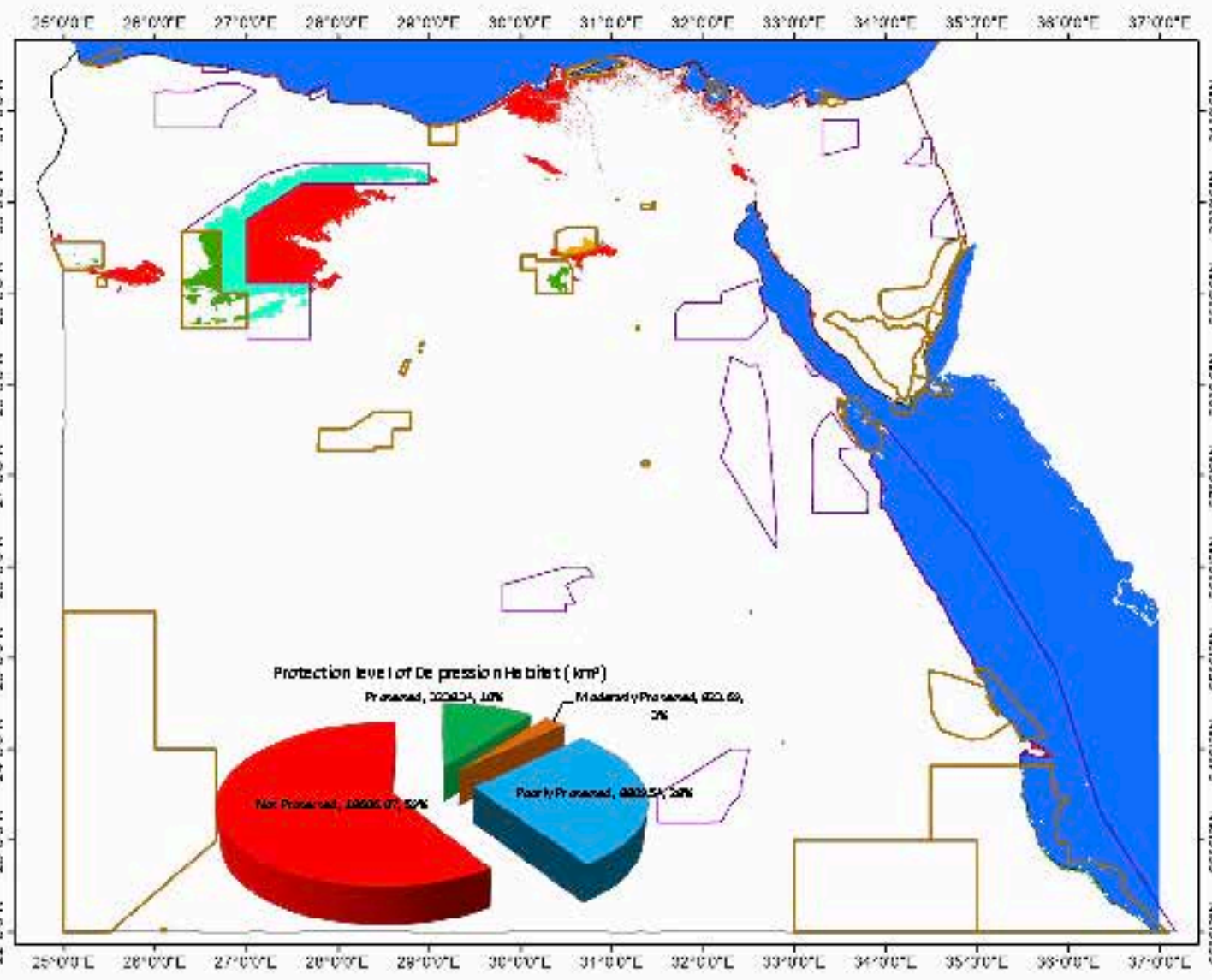


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Units: Meter
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Easting: 280000
Northing: 2800000
Zone: 32N
Units: Meter

Geomatics Engineering Agency
National Geomatics Engineering Research Institute (NGERI)



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Sand Dunes



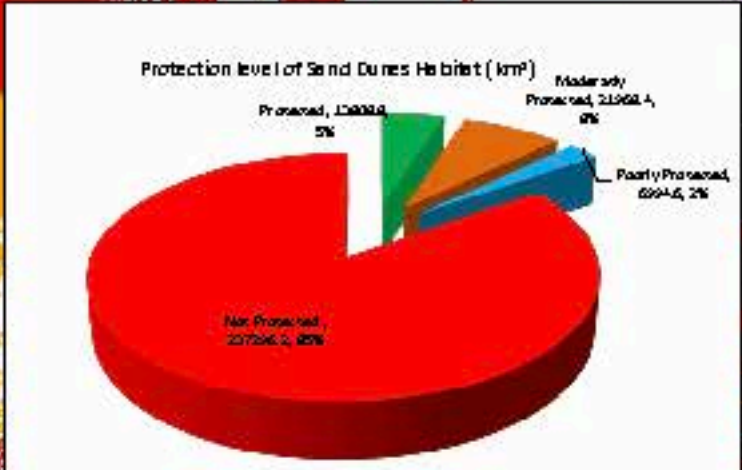
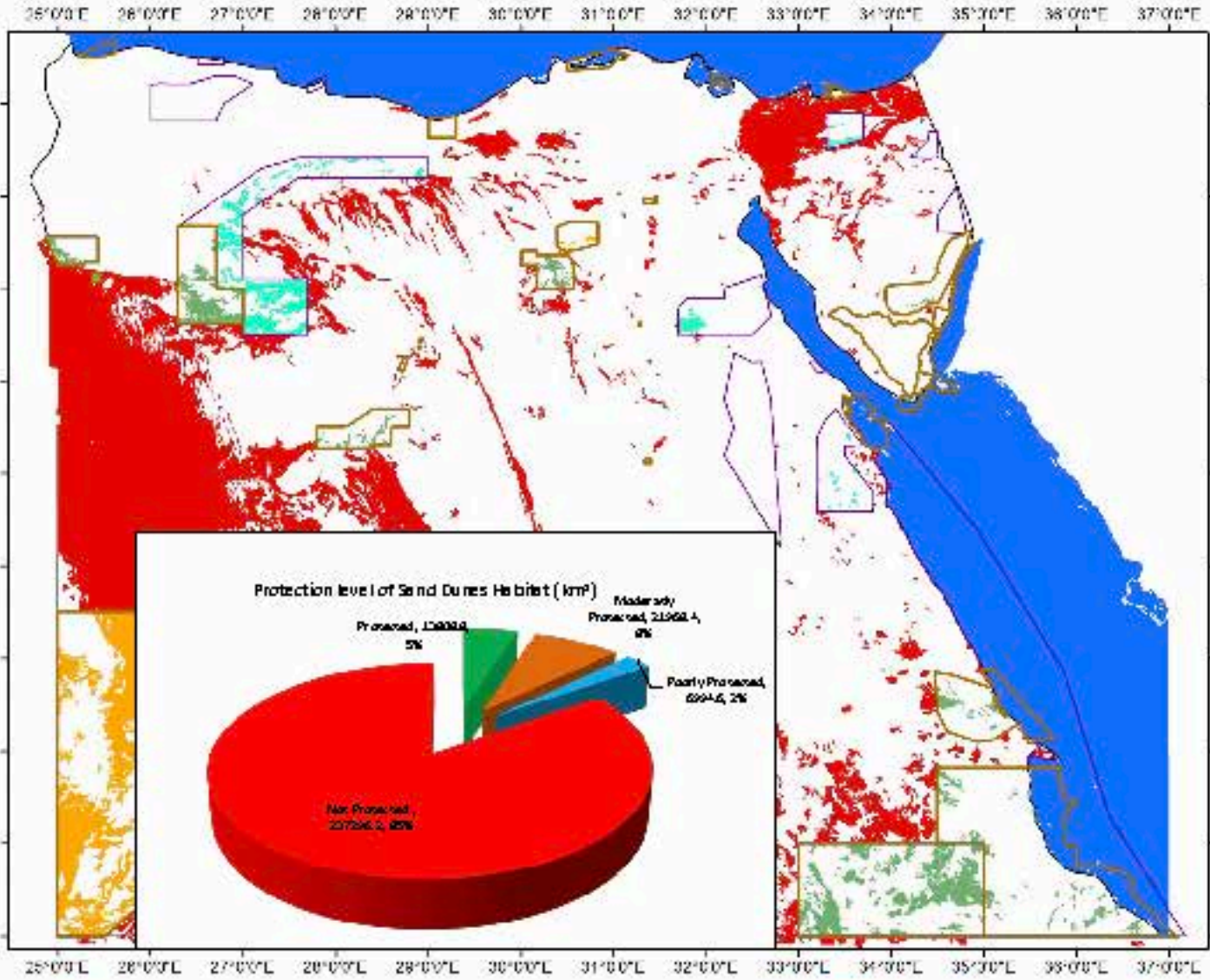
- Protected
- Moderately Protected
- Poorly Protected
- Not Protected

Scale: 1:50,000
 Date: 2018
 Author: [Name]
 Project: [Name]
 Funding: [Name]
 Date: 2018
 Project: [Name]

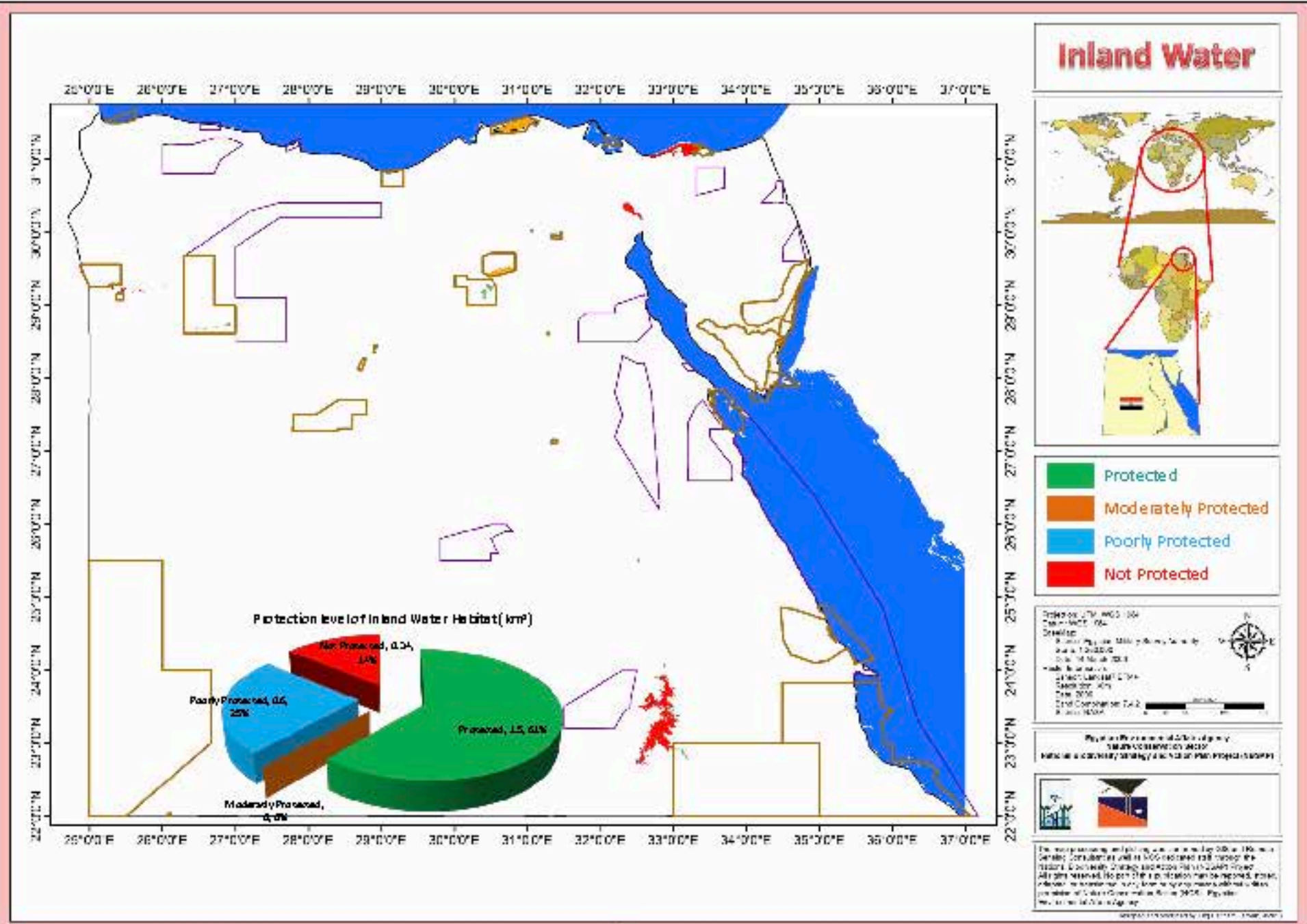
Department of Wildlife and Forests
 Government of Rajasthan
 Wildlife Conservation and Management Division



This map was prepared and published under the supervision of the Director, Wildlife Conservation and Management, Government of Rajasthan. The map is a product of the Wildlife Conservation and Management Division, Government of Rajasthan. The map is a product of the Wildlife Conservation and Management Division, Government of Rajasthan. The map is a product of the Wildlife Conservation and Management Division, Government of Rajasthan.



Protection Level Maps



Protection Level Maps

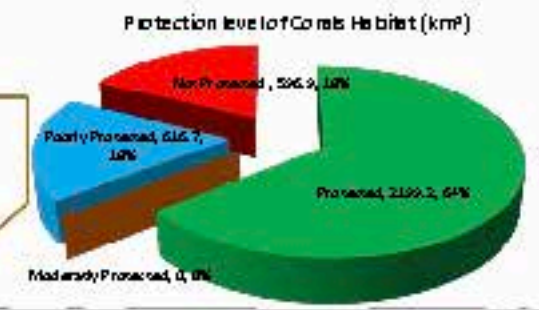
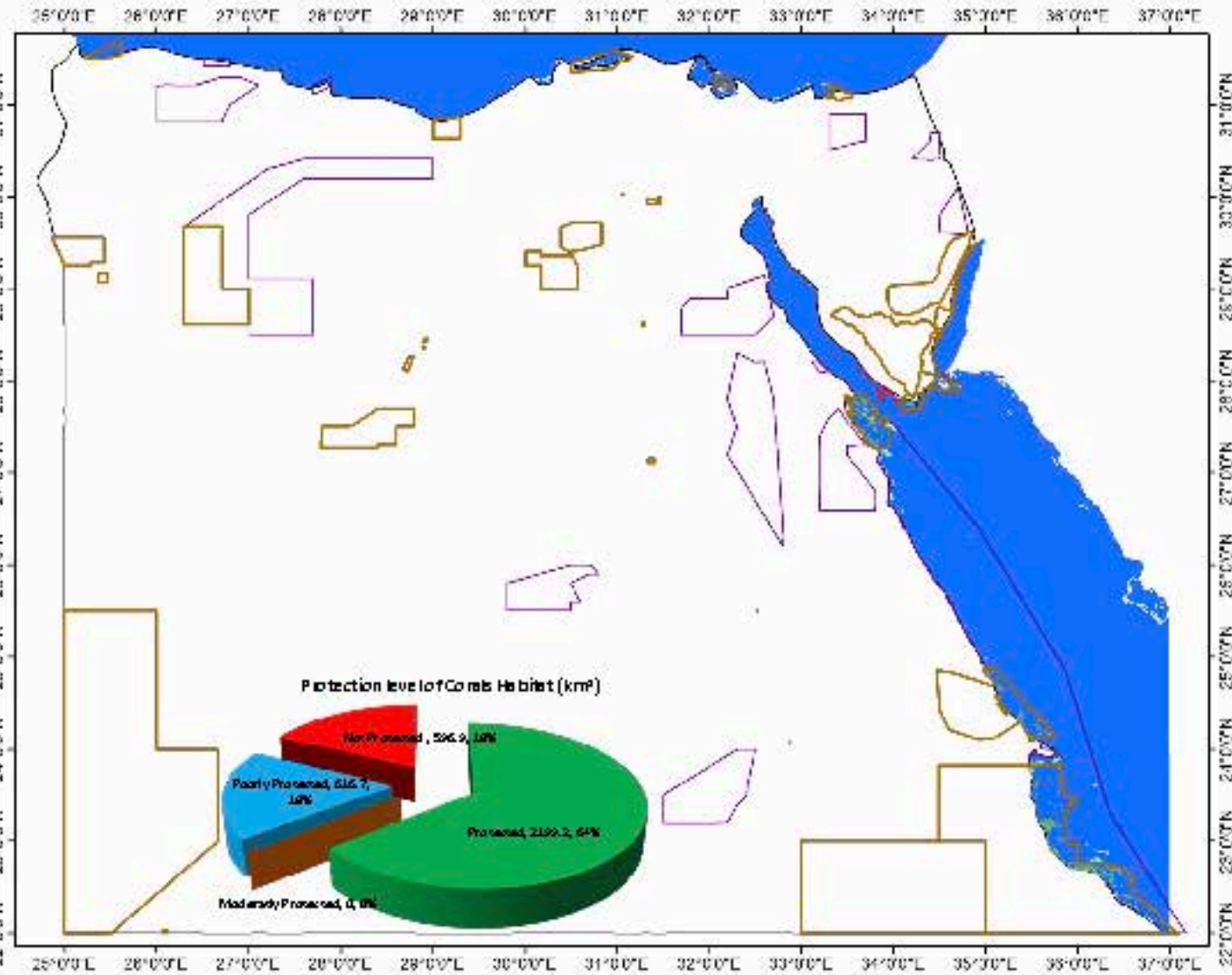
Coral Reefs



Government of Kerala
 Department of Fisheries
 Marine Fisheries Research and Extension Division (MFR&ED)

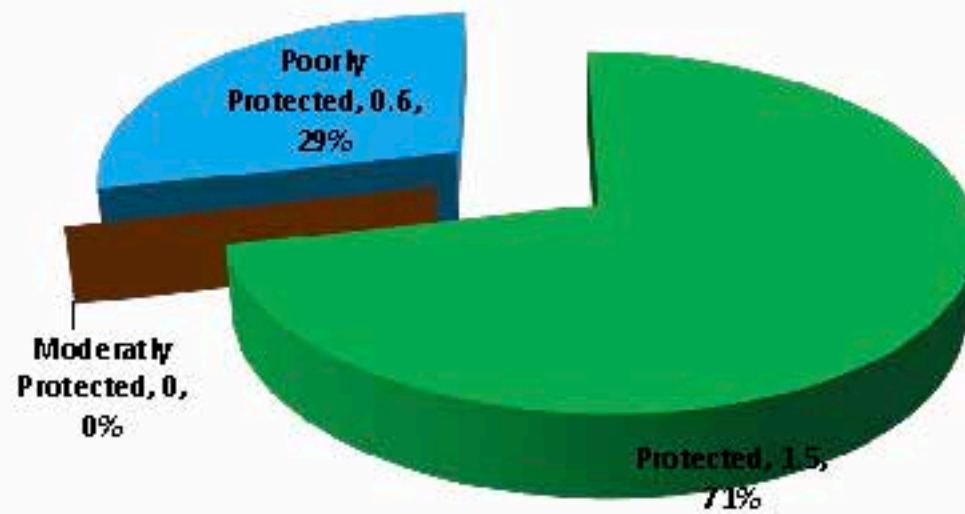


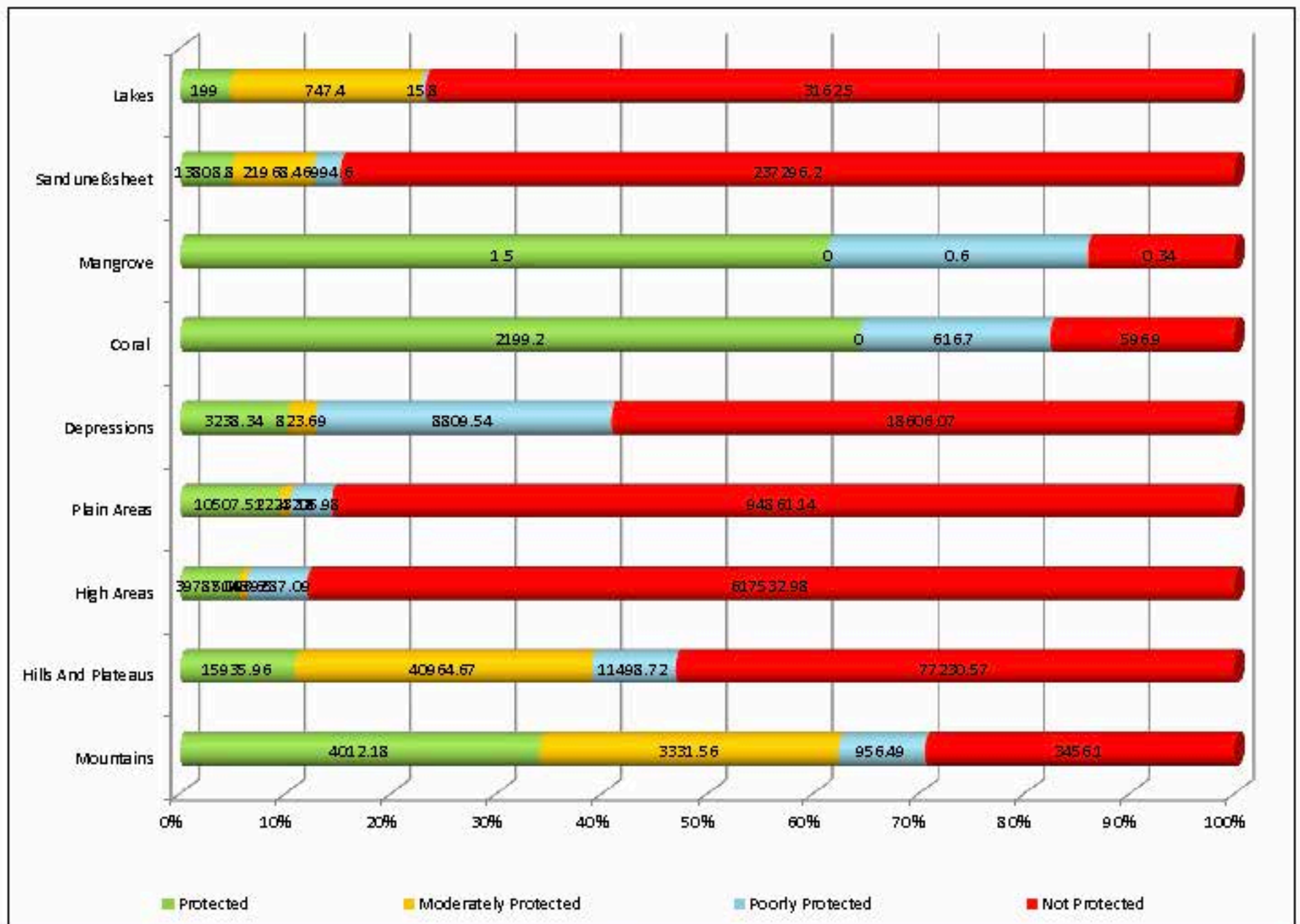
This map was prepared and published under the guidance of the Director, Marine Fisheries Research and Extension Division, MFR&ED, Government of Kerala. The map is a part of the Marine Fisheries Research and Extension Division, MFR&ED, Government of Kerala. The map is a part of the Marine Fisheries Research and Extension Division, MFR&ED, Government of Kerala.



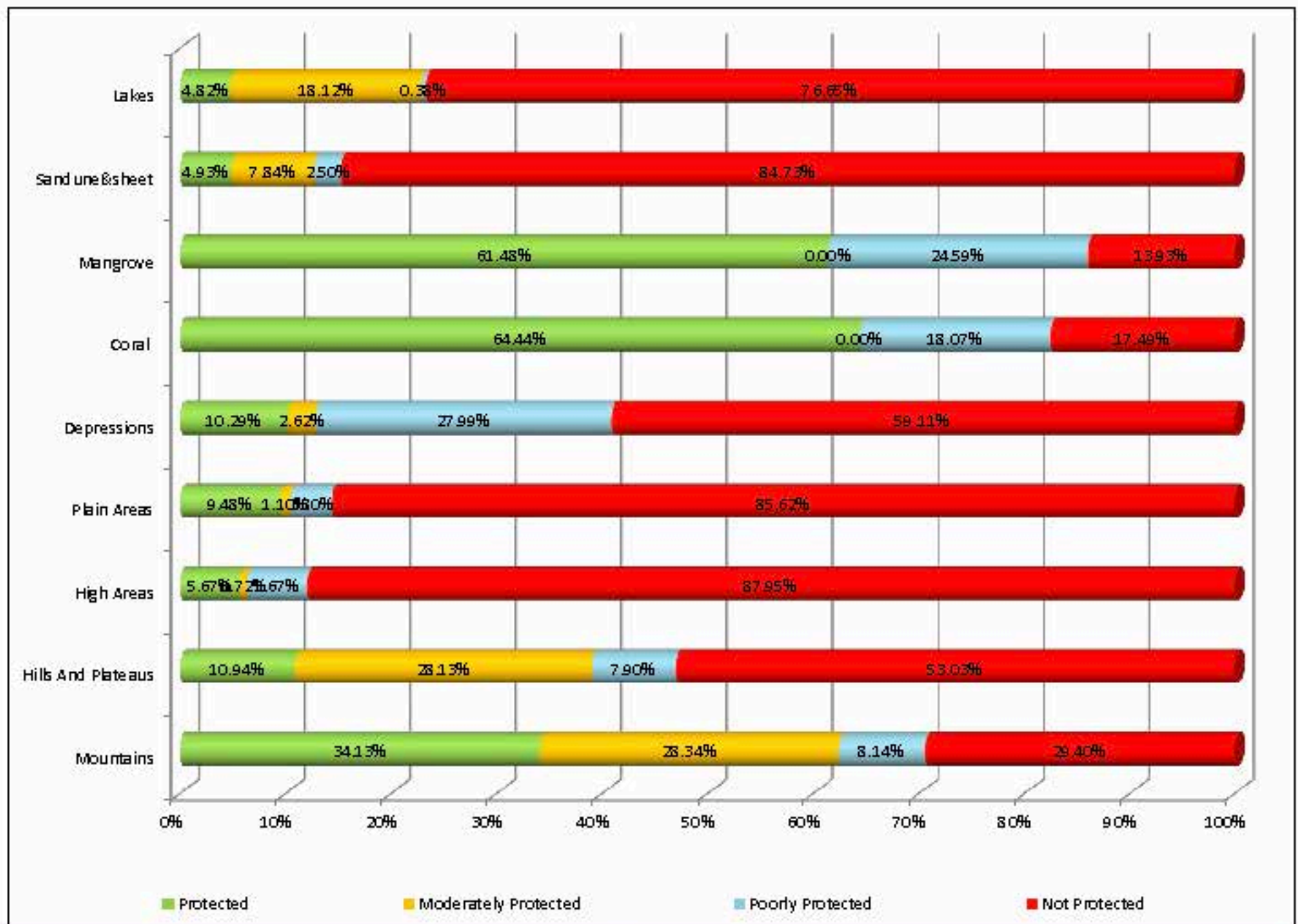
Protection Level Maps

Protection Level of Mangrove Habitat (km²)





Protection Level Maps



Protection Level Maps



Section 6

Habitats trends

(Under development)



Trends Graphs

Trends Graphs

Examples

Mangrove

Mountains

Hills & Plateaus

High Areas

Plain Areas

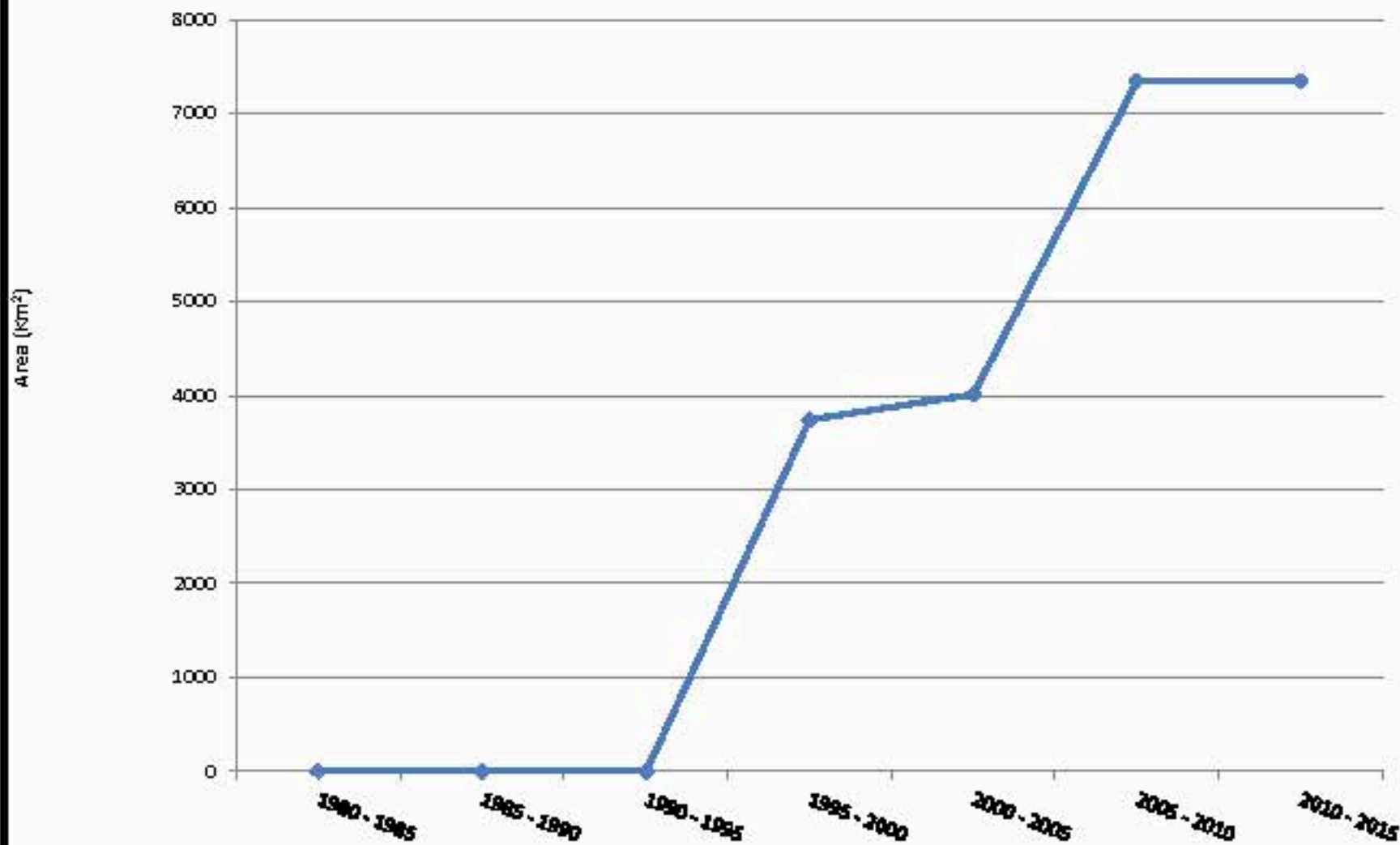
Depression

Sand Dunes

Inland Water

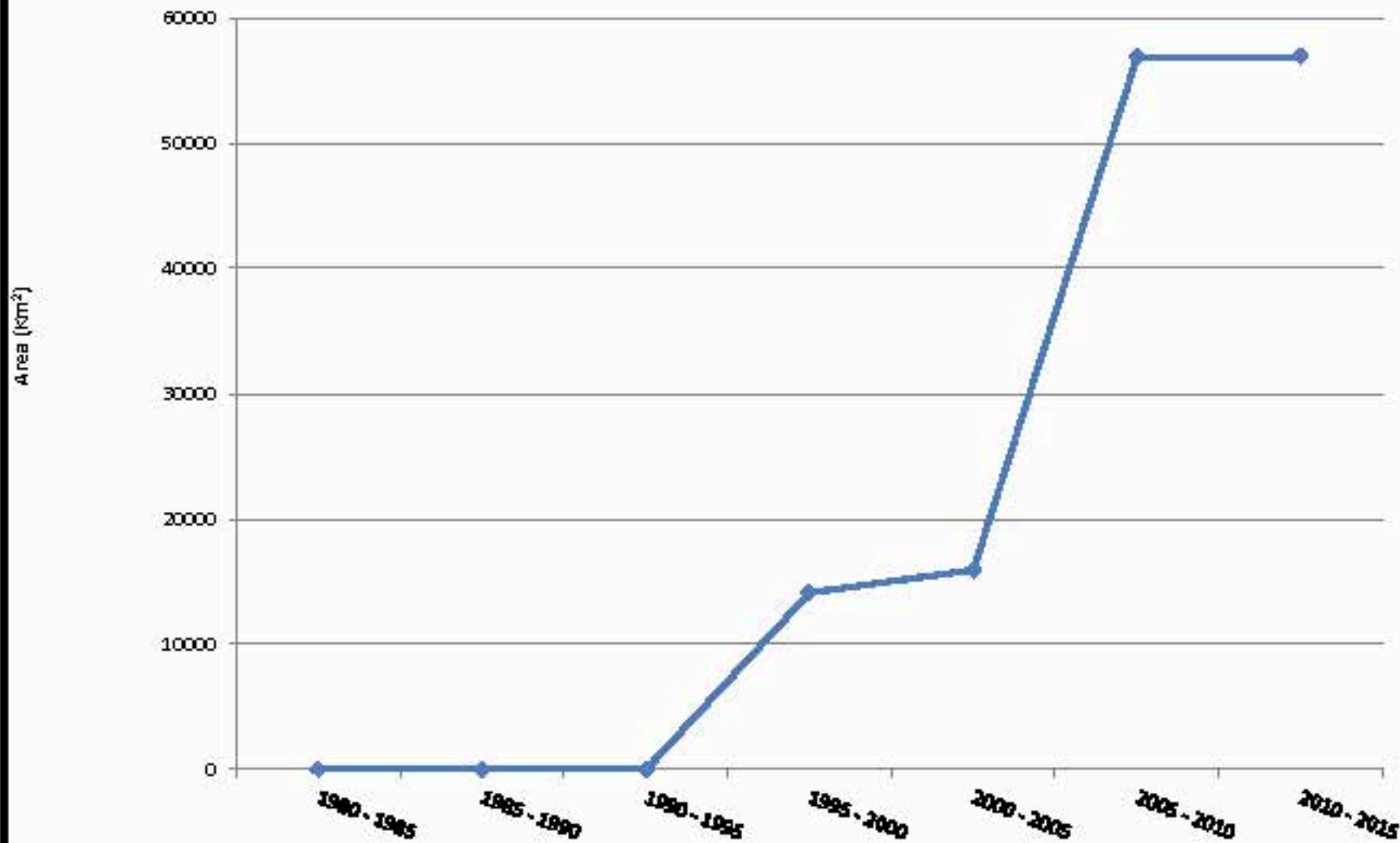
Corals

Trend of Mountains Protection (1980 to 2013)



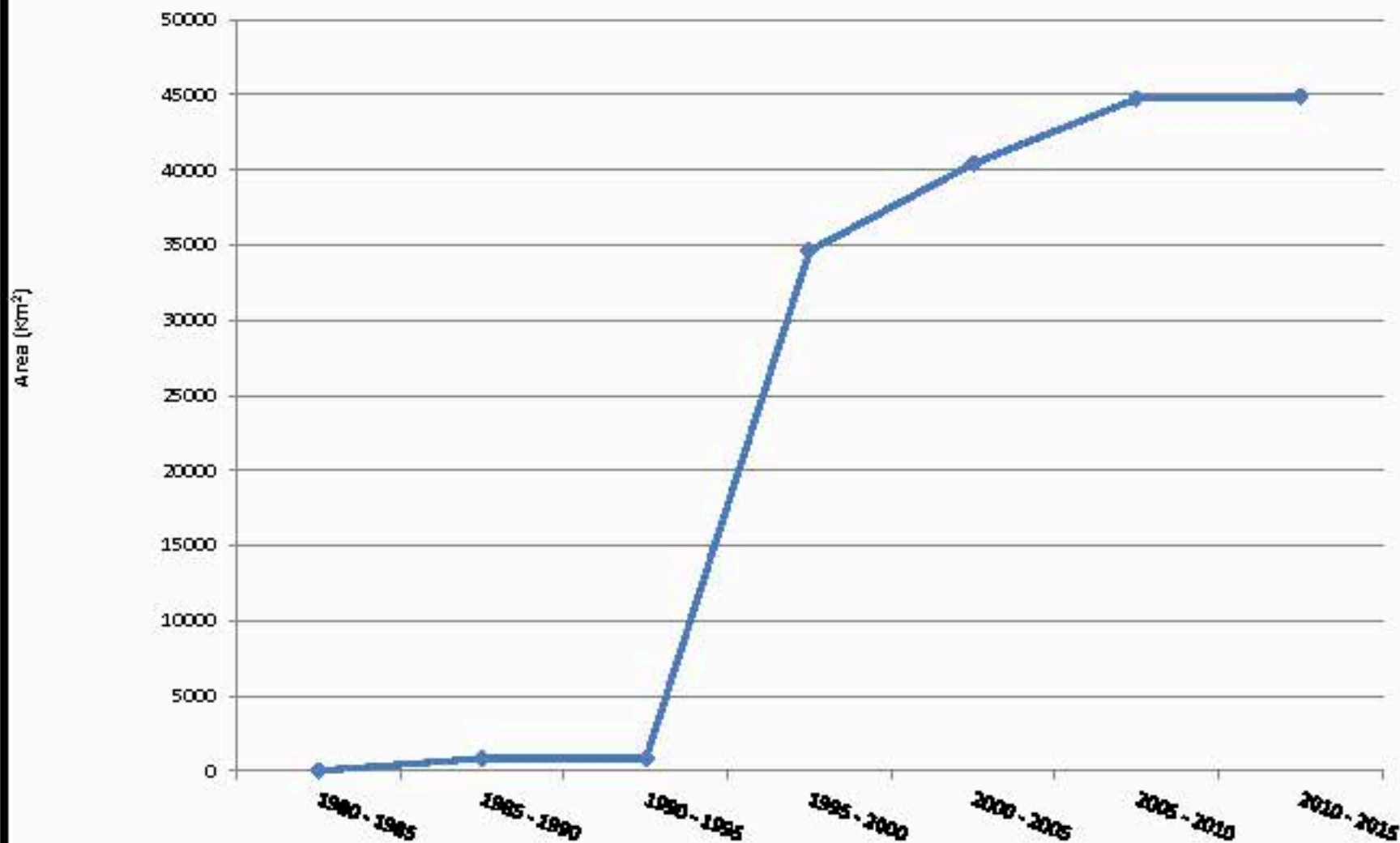
Trends

Trend of Hills and Plateaus Protection (1980 to 2013)

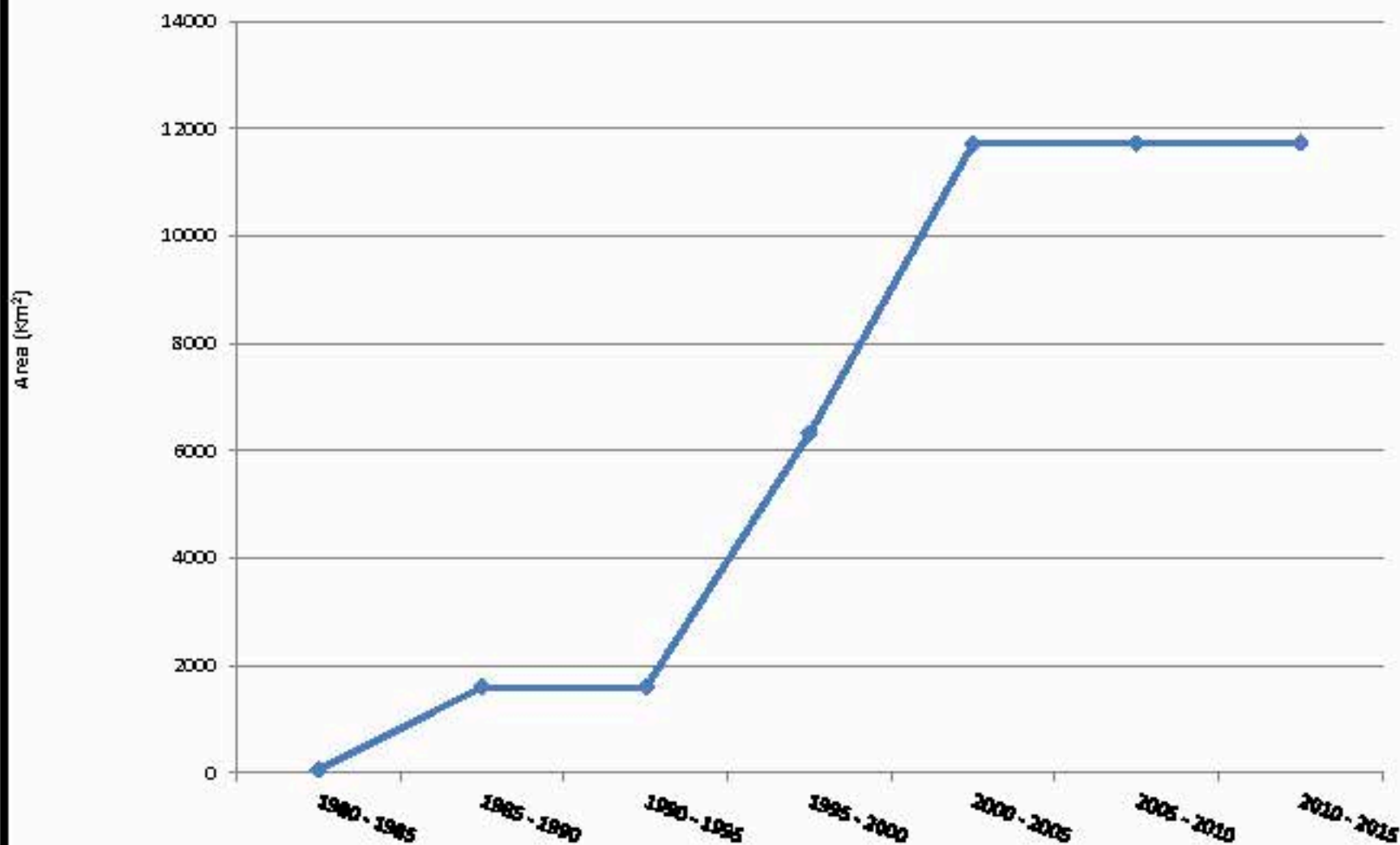


Trends

Trend of High Areas Protection (1980 to 2013)

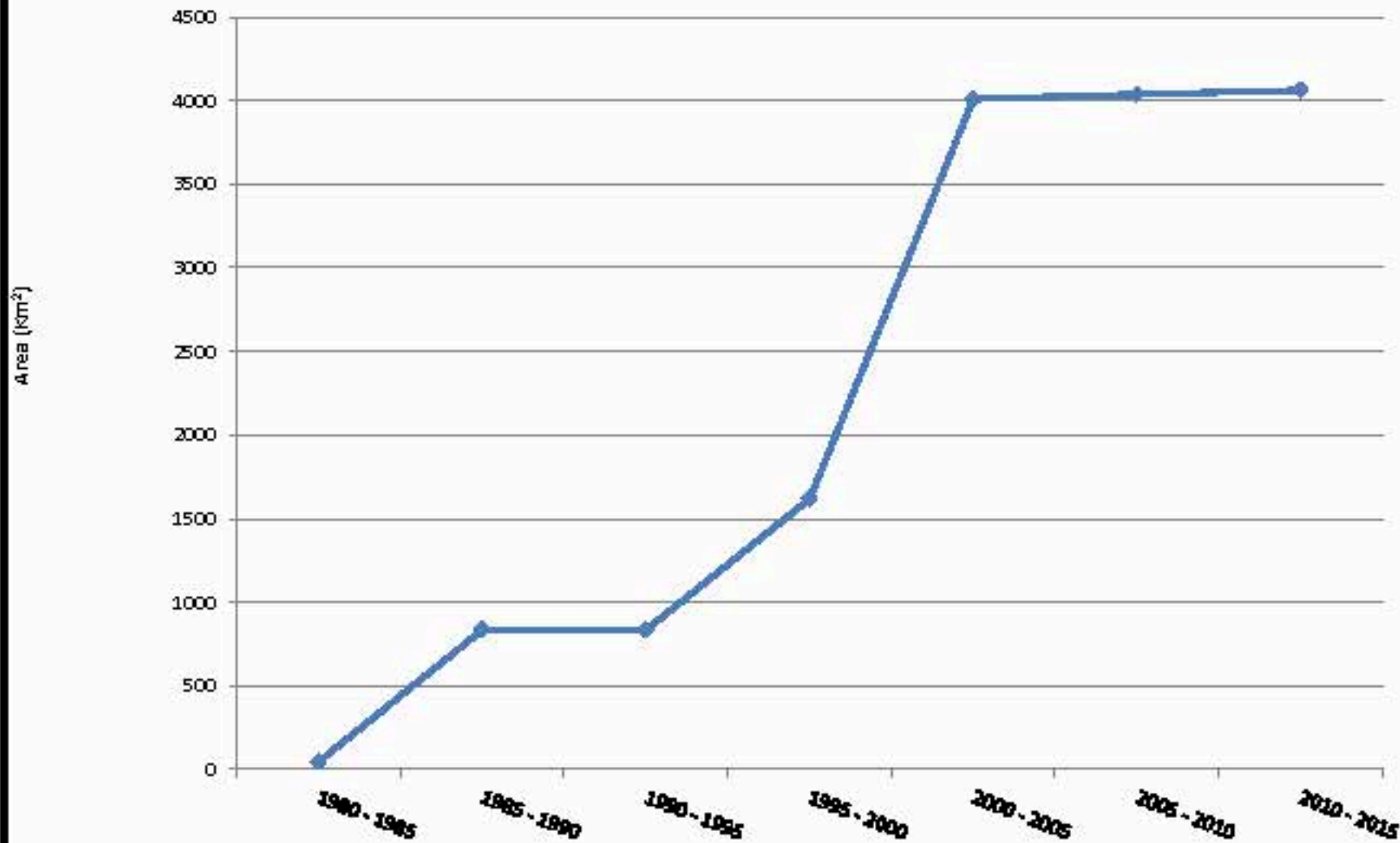


Trend of Plain Areas Protection (1980 to 2013)

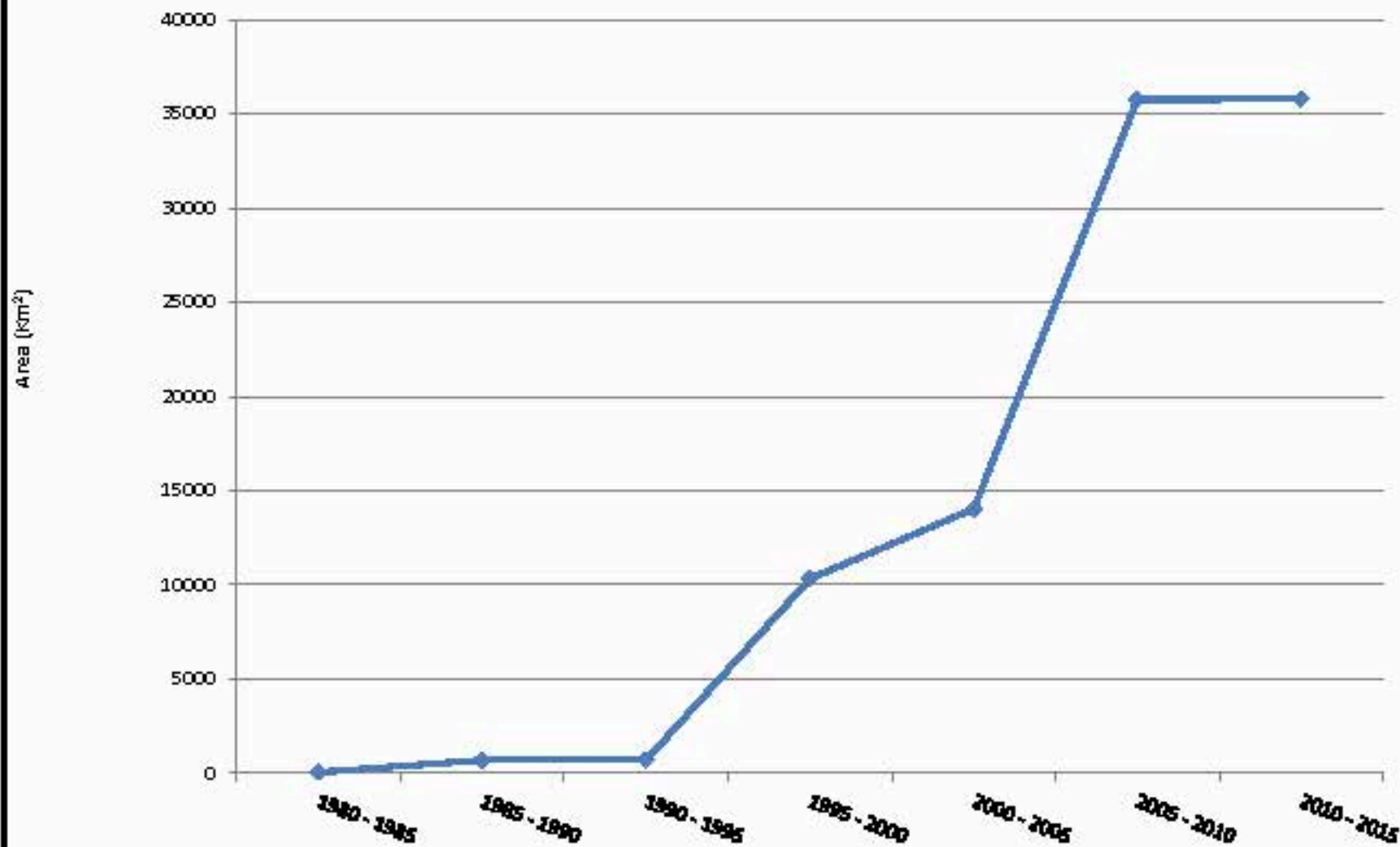


Trends

Trend of Depression Protection (1980 to 2013)

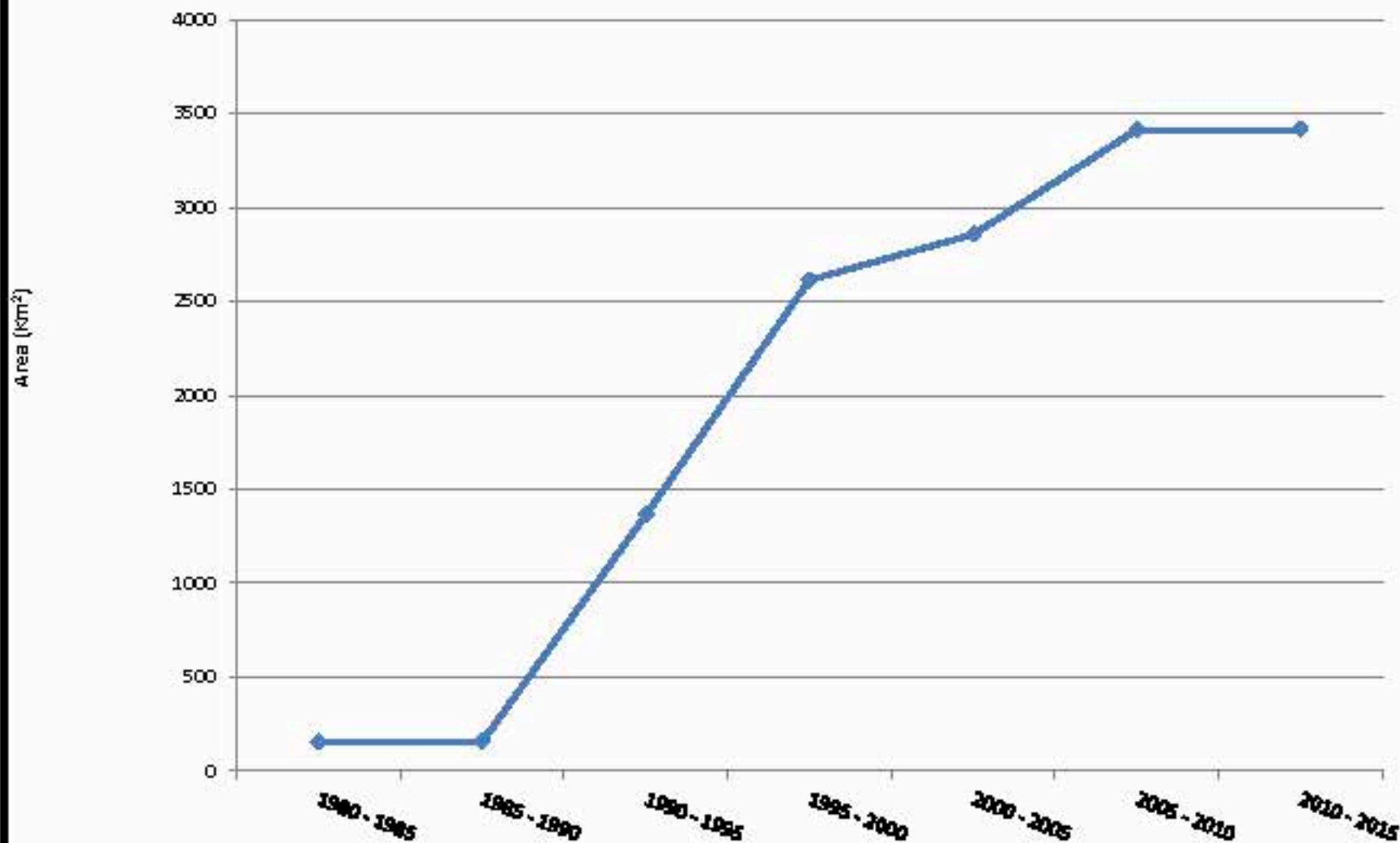


Trend of Sand Dune Protection (1980 to 2013)

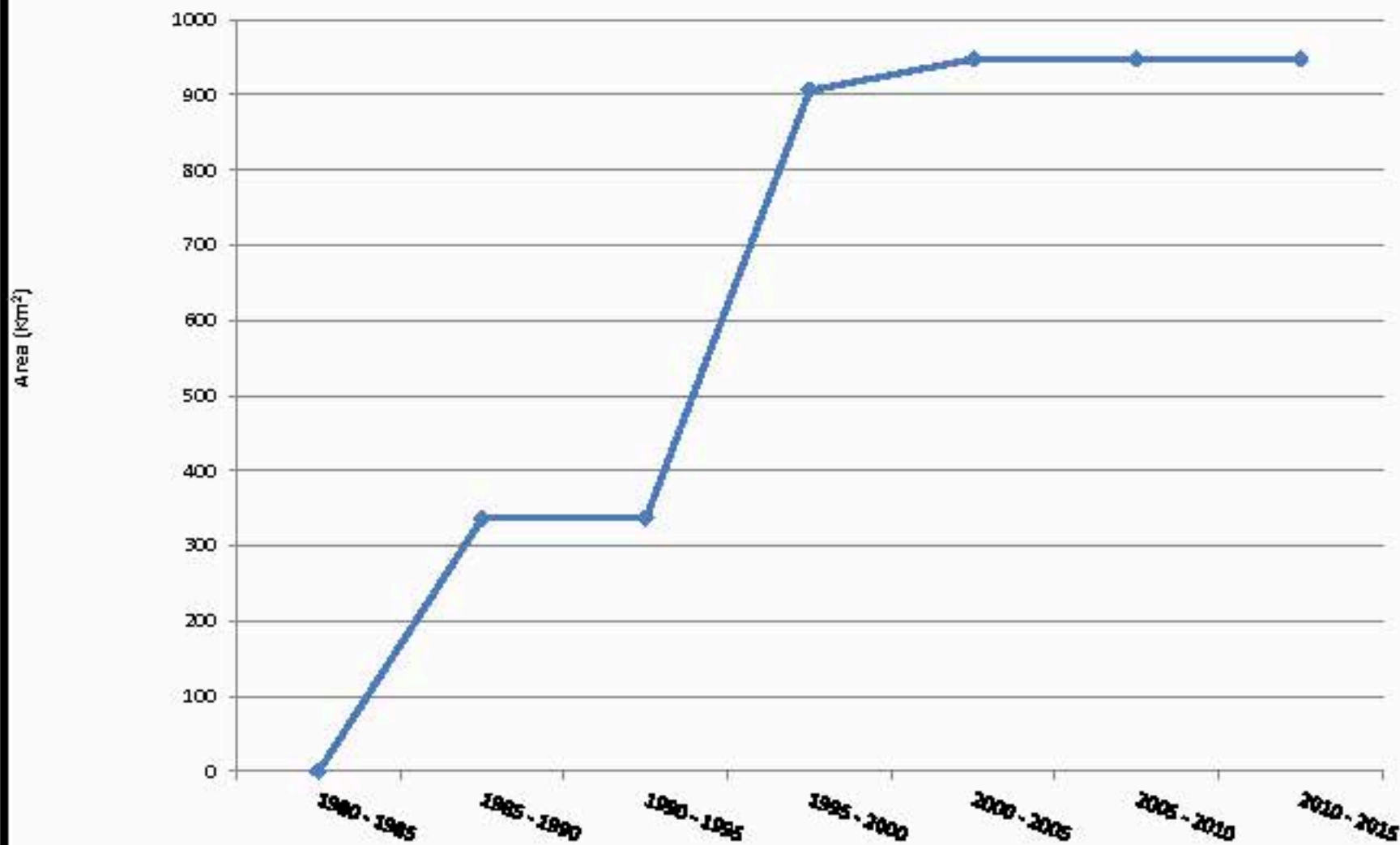


Trends

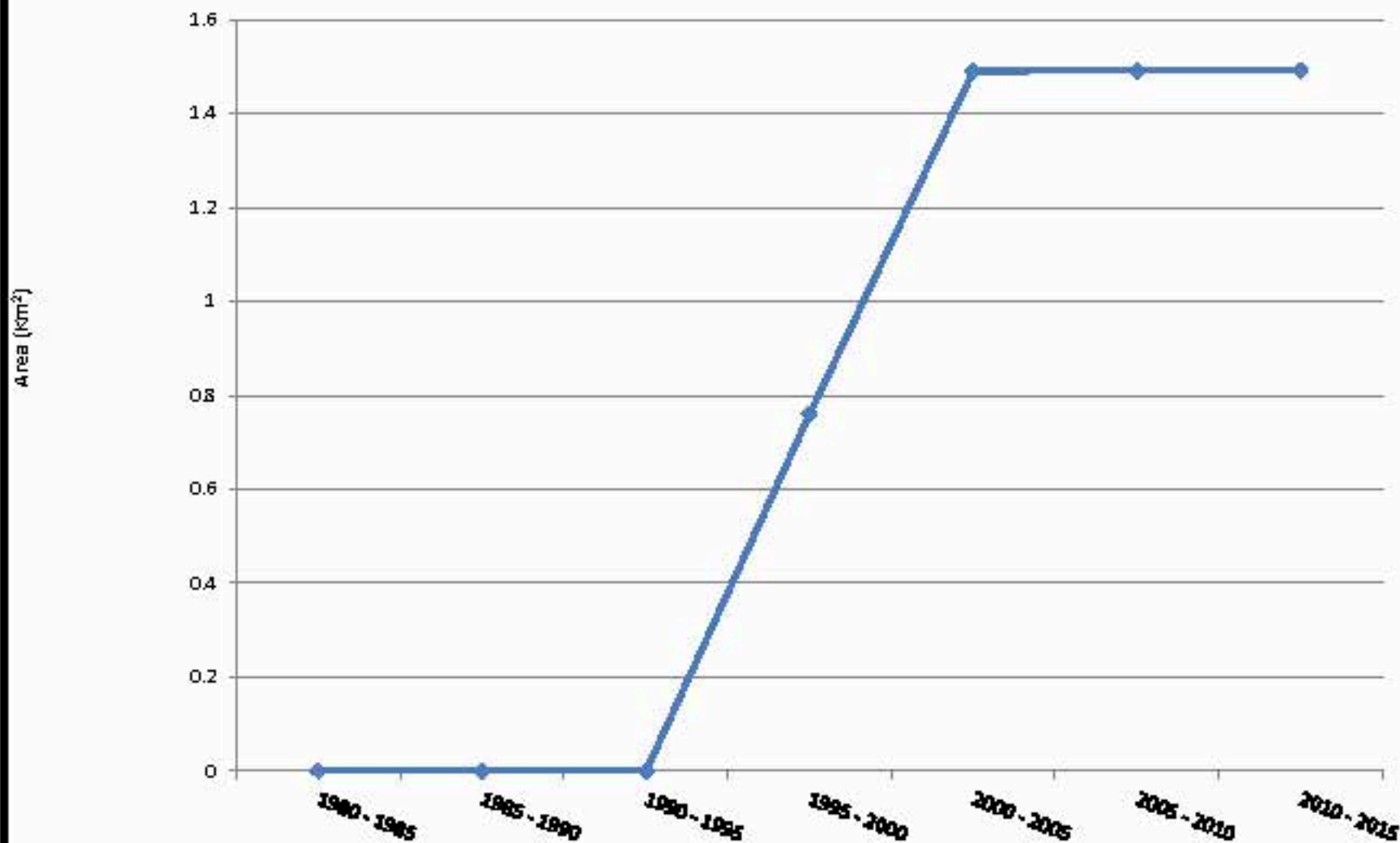
Trends of Coral Reefs Protection (1980 to 2013)



Trends of Inland Water Protection (1980 to 2013)

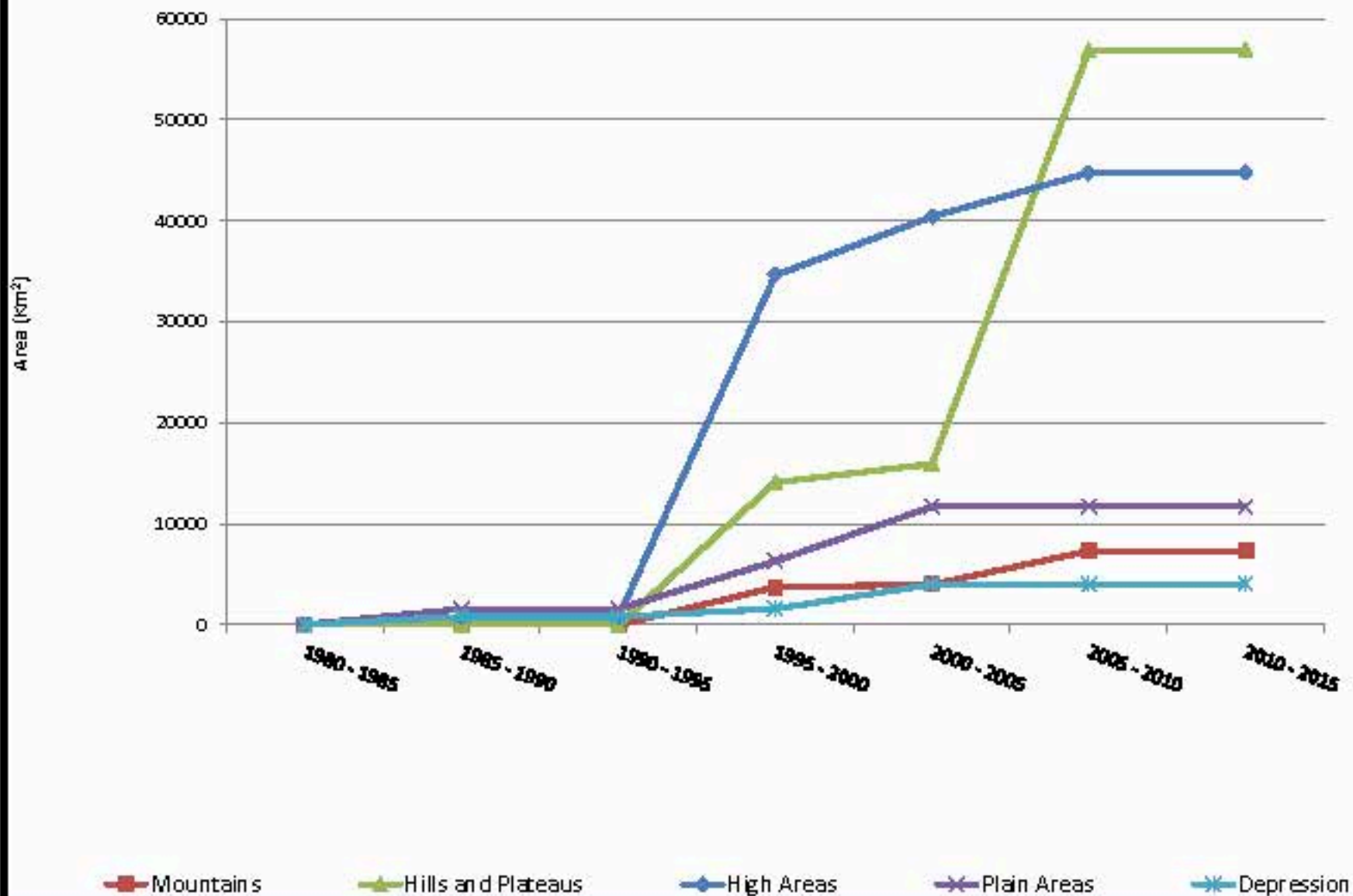


Trends of Mangrove Protection (1980 to 2013)



Trends

Trend of Some Habitat Protection (1980 to 2013)



Trends



Section 7

Red List of ecosystems in Egypt

(Under development)



Criteria from International Organizations

- IUCN Species Red List
- IUCN Ecosystems Red List
- BirdLife International
- IPAs
- Ramsar
- Alliance of Zero Extinction

Thanks