Standardised Database on Sustainable Land Management (SLM) Practices in the Governorates of Zaghouan and Medenine (Tunisia)

Final Workshop "Sustainable Land Management to Achieve Land Degradation Neutrality: Options-by-Context Approach and Tools"

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Badabate Diwediga (iMMAP)

Quang Bao Le (ICARDA)

Taouffik Hermassi (INRGREF)

Mohamed Ouessar (IRA Medenine)

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PRESENTATION OUTLINE

1. Context

2. Database generation
   - Mapping approach (Data sources & tools)
   - Process of metadata generation
   - Database and harmonisation

3. Results
   - Preliminar database
   - Harmonised and synthetised database
   - Data submission to GeOC platform

4. Conclusions, Limitations & Perspectives

5. Acknowledgements

CONTEXT

- Achieving SDG, especially the Target SDG 15.3 (Land Degradation Neutral-world by 2030), requires efforts for investing in Sustainable Land Management (SLM) at different scales,

- Important is the need for spatially-explicit data on SLM efforts at national, regional, and local scales, developed based on standardised approaches and tools, and continuously consolidated in global monitoring systems

- One of these innovative system-based tools contributing to the global efforts towards the SDG achievement is the Global Geo-informatics Options by Context (GeOC)

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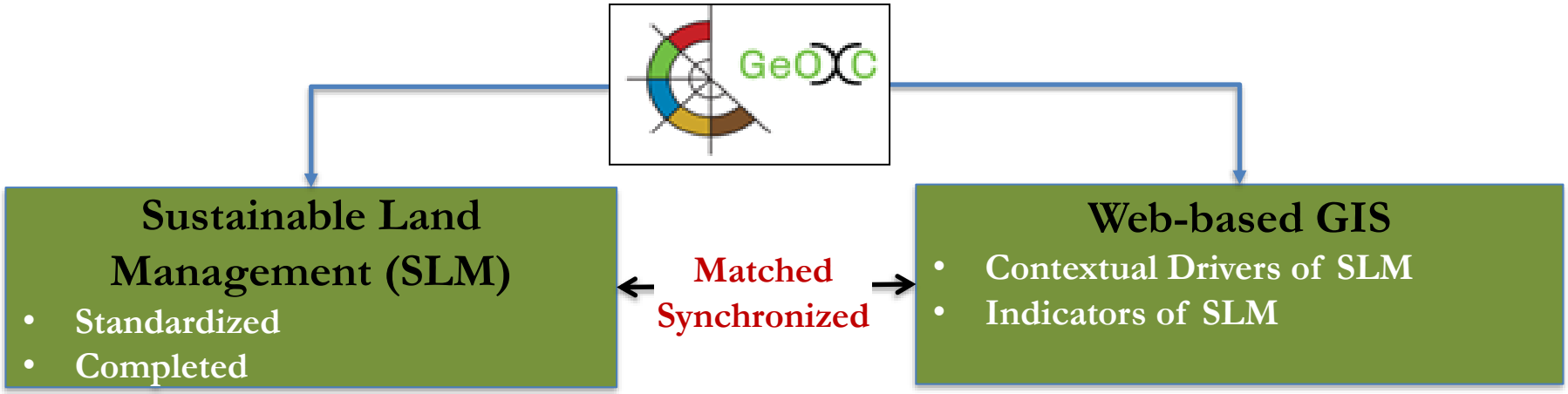
CONTEXT

- Global Geo-informatics Option by Context (GeOC), a tool for visualisation and contextualised analysis of SLM options at global level, has two main components:



- These 2 components are **spatially-explicit data-driven, and** mutually integrated that satisfy the user needs regarding SLM options and better investment in sustainability;

- In this sense, spatial information on existing and tested SLM options in Tunisia were generated for not only the need of monitoring & assessment of SLM practices but also for demonstrating the relevance of the GeOC tool

- **Pilot sites: Zaghouan Governorate (**Sub-humid to Semi-arid environments; Centre-north) and **Medenine Governorate (**Semi-arid to arid environments; South-East)

IMMAP

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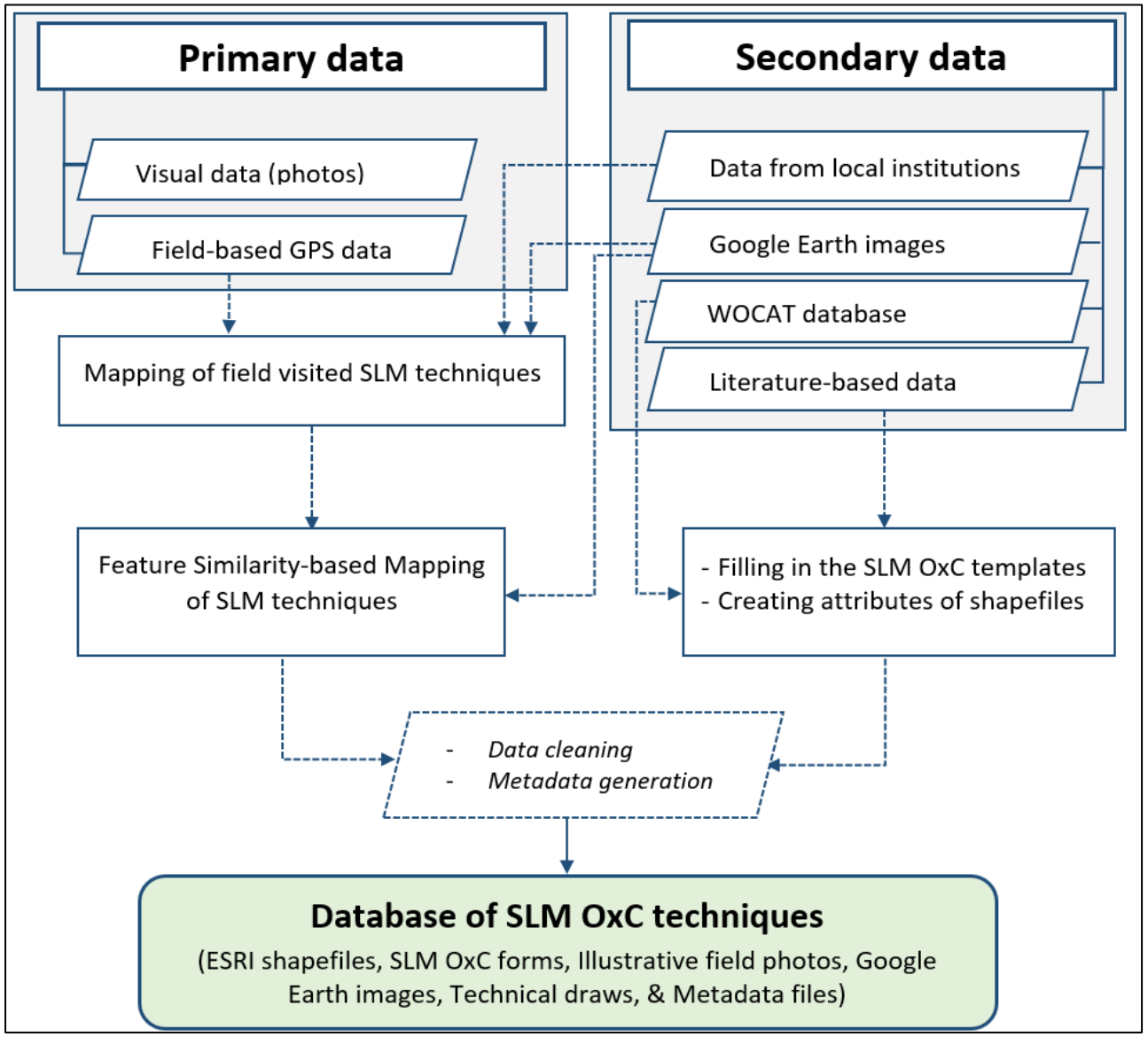
GENERAL METHODOLOGY WORKFLOW (SOURCE: AUTHOR)

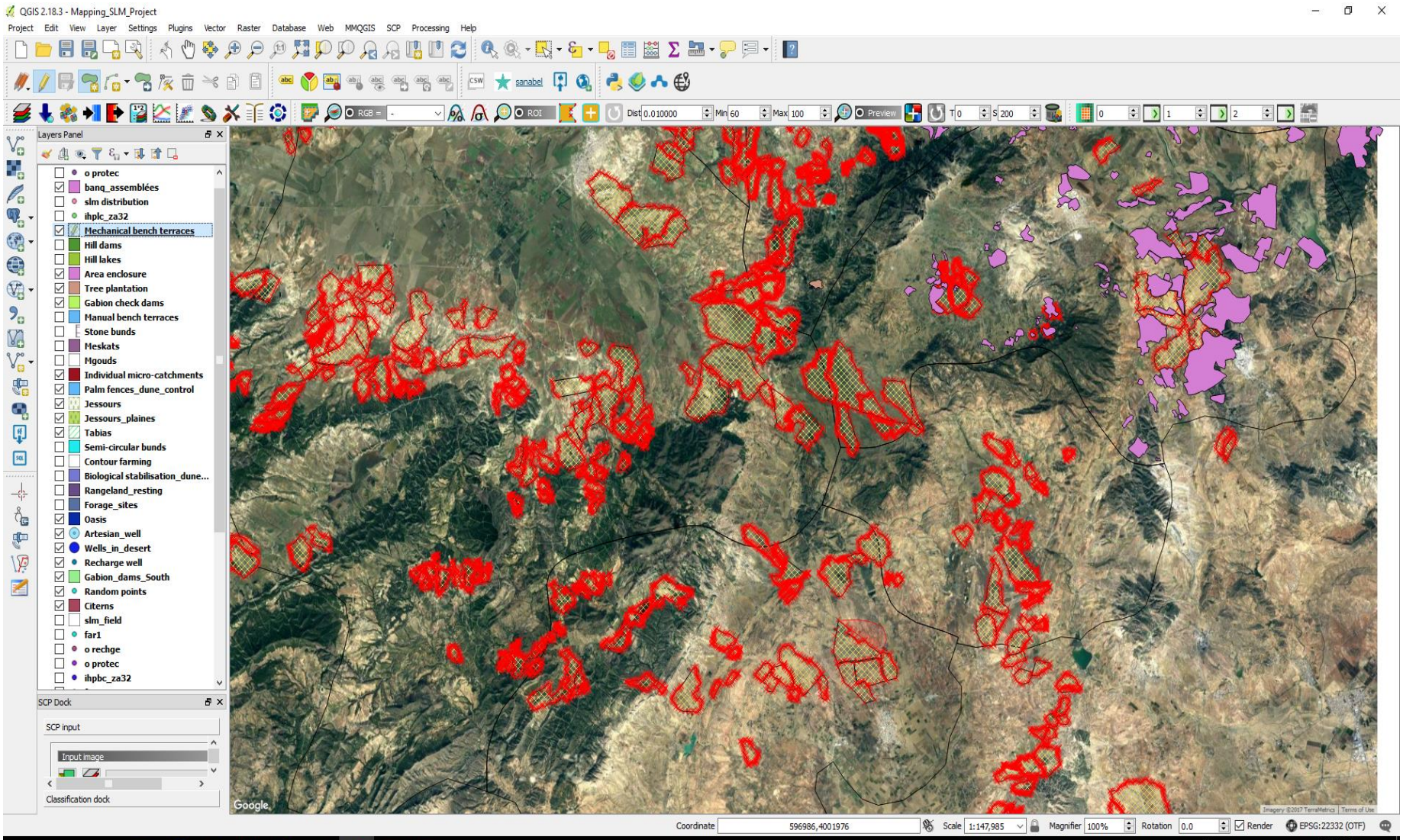


GPS = Global Positioning System
SLM = Sustainable Land Management
SLM OxC = SLM Option by Context
WOCAT = World Overview of Conservation Approaches and Technologies

ESRI = Environmental Service Research Institute

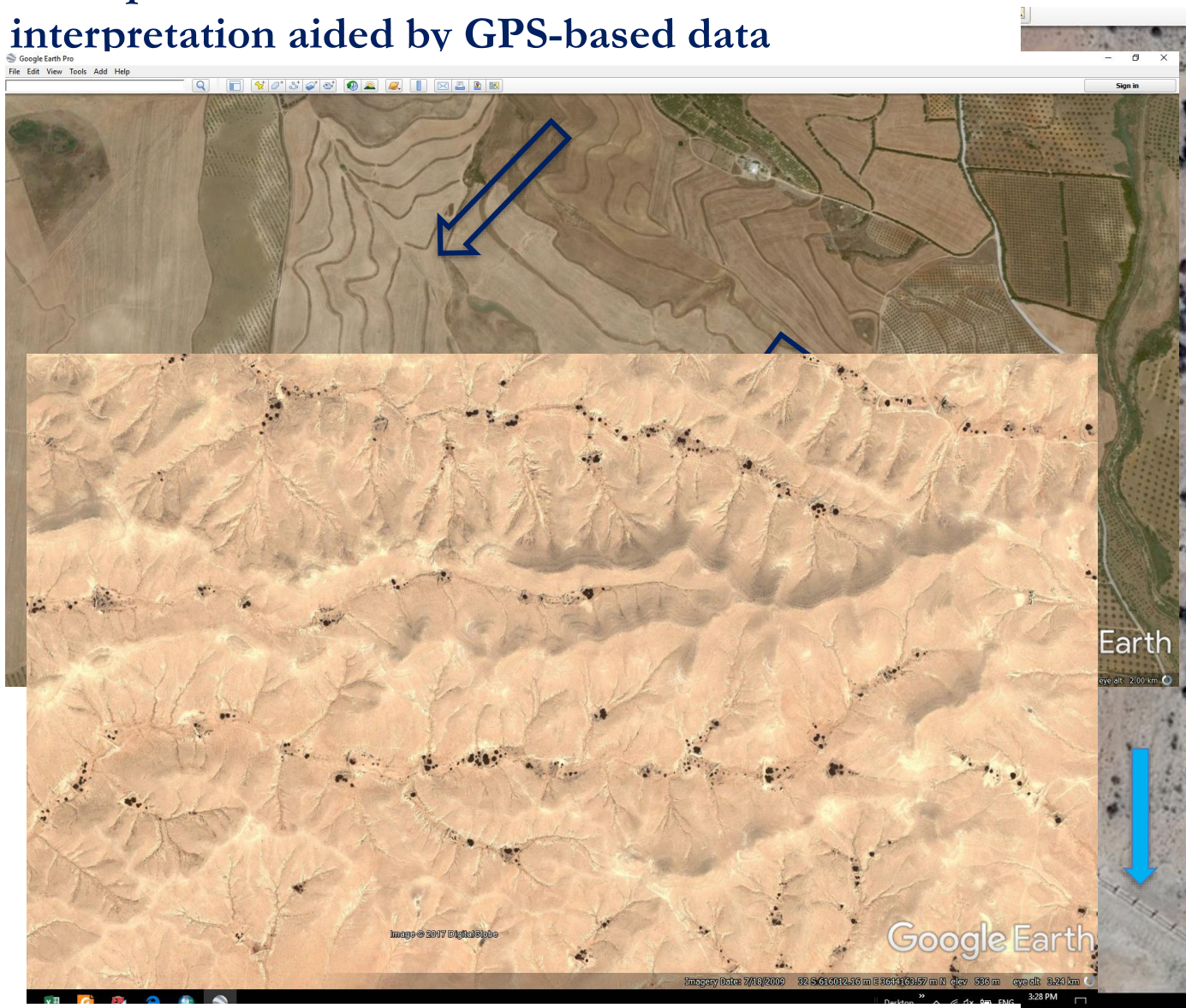
Methodology: Database generation

On-screen digitisation of SLM options



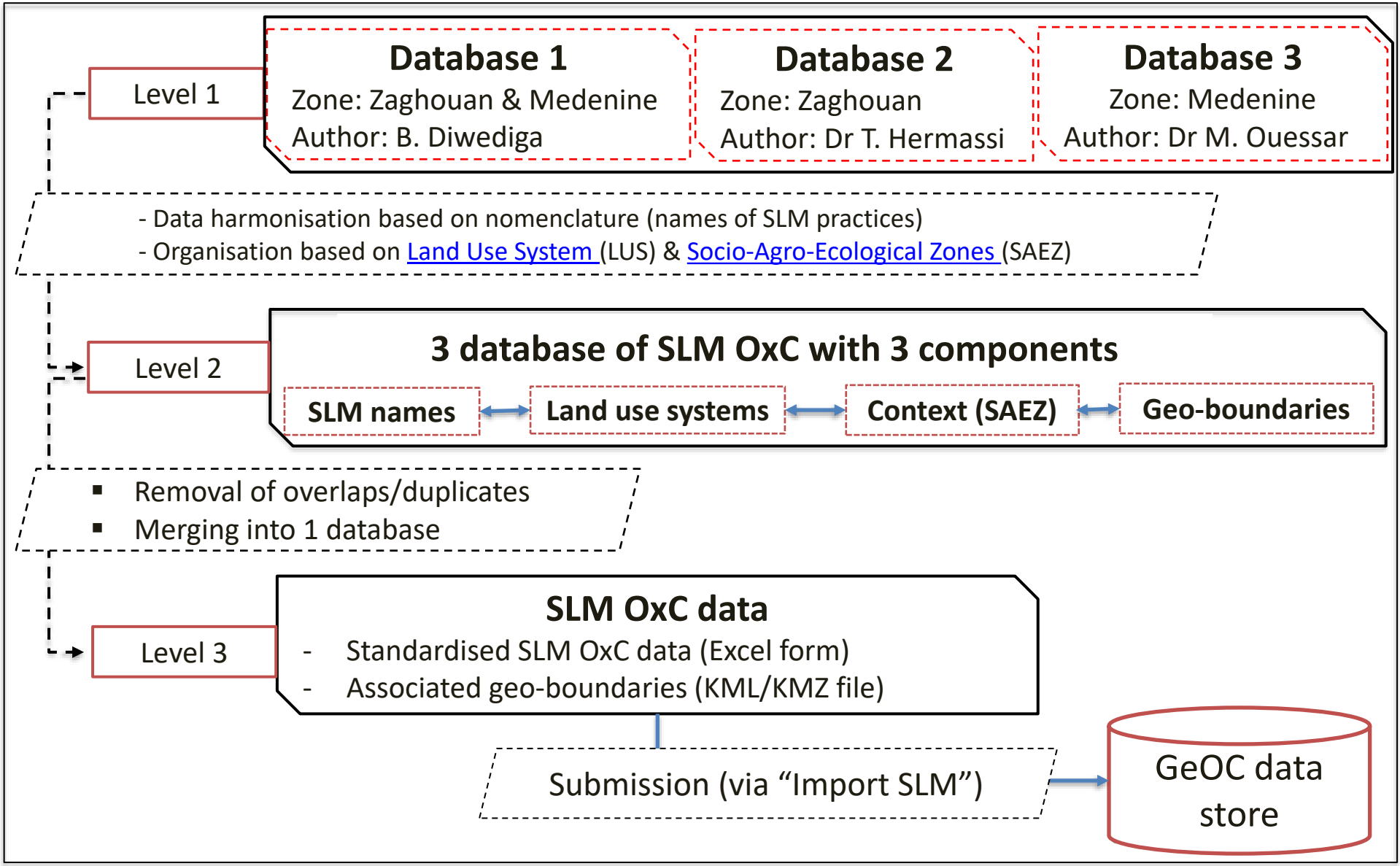
Methodology: Database generation

Example of features identification from on-screen interpretation aided by GPS-based data



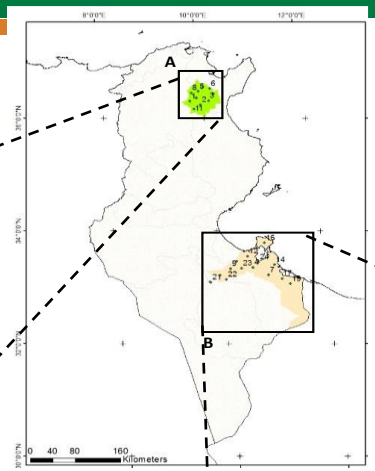
Methodology: Database generation

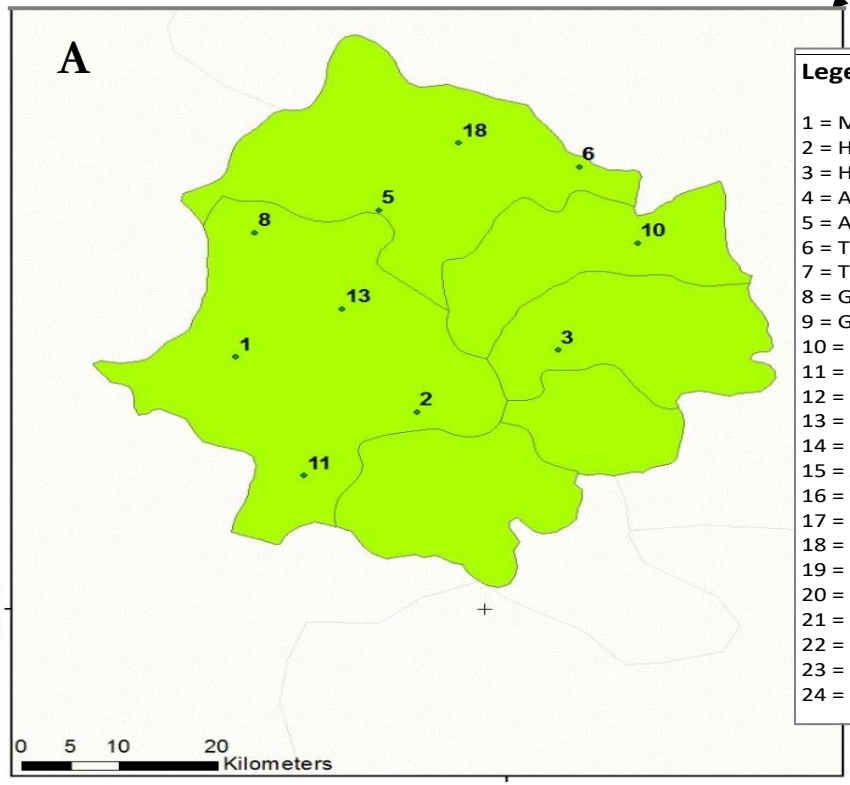
❑ Creation of harmonised database on existing and mapped SLM options in Tunisia



RESULTS

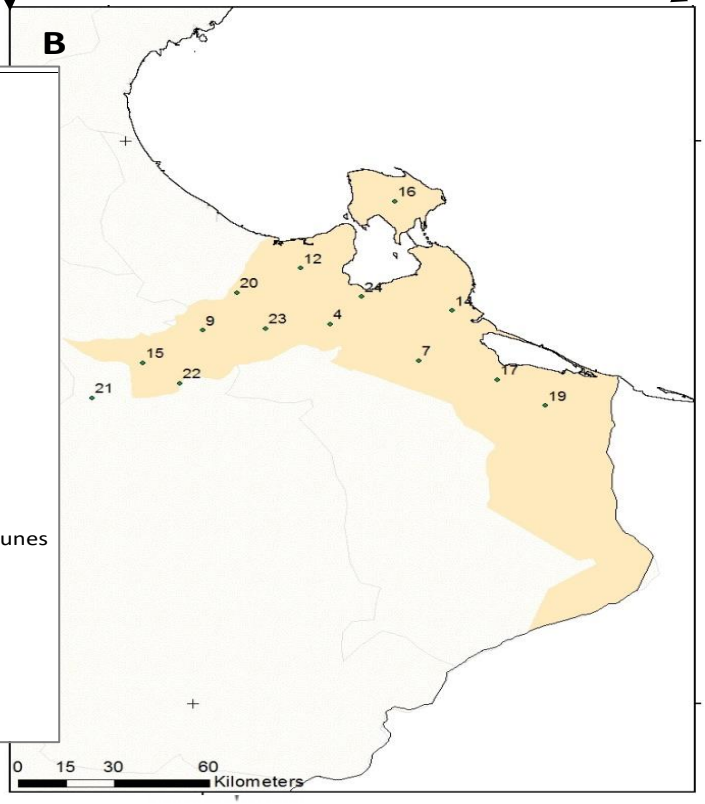
SLM distribution in the pilot sites





Legend

1 = Mechanised bench terraces
2 = Hill dams
3 = Hill lakes
4 = Area enclosure
5 = Area enclosure
6 = Tree plantation
7 = Tree plantation
8 = Gabion check dams
9 = Gabion in the south
10 = Manual bench terraces
11 = Stone bunds
12 = Stone bunds in the South
13 = Individual micro-catchments
14 = Palm leave fences
15 = Jessours
16 = Tabias
17 = Biological stabilistationof sand dunes
18 = Rangeland resting
19 = Rangeland resting
20 = Oasis
21 = Artesian well
22 = Well in desert
23 = Recharge well
24 = Citerns



RESULTS

Check dam gabion, Zaghouan

Check dam, Medenine

Manual terraces, Zaghouan

Mechanical terraces, Zaghouan

Stone bunds, Zaghouan

Stone bunds, Medenine

Hill dam, Zaghouan

Recharge well, Medenine

Jessours, Medenine

RESULTS

SLM database in figures:

Sites	Zaghouan		Medenine		Total database	
	SLM types	SLM OxC	SLM types	SLM OxC	SLM types	SLM OxC
Database 1	8	16	14	24	19	40
Database 2	11	15	****	****	11	15
Database 3	****	****	13	14	13	14
Total database	11	22	18	29	29	**51**

Results

Database per SLM types: Site of Medenine

Order ID	Techniques	SAEZ	ALUS
1. Techniques targeting water and soil conservation			
1	Jessour	SAEZ8, SAEZ9	ALUS2
2	Tabia	SAEZ9	ALUS2, ALUS5
		SAEZ8	ALUS2, ALUS5
3	Runoff water collection(Flood spreading)	SAEZ9	ALUS1
4	Contour ridges	SAEZ9	ALUS7
5	Check dam for recharge	SAEZ8, SAEZ9	ALUS1
2. Techniques for controlling sand dune mobility			
6	Linear palm leaves fences	SAEZ9	ALUS1, ALUS2
		SAEZ8	ALUS2, ALUS3
7	Checkboard fences	SAEZ9	ALUS2
8	Biological fixation of sand dunes	SAEZ9	ALUS6

RESULTS

Database per SLM types: Site of Medenine (Cont'd)

3. Techniques for rangelands management and improvement			
9	Rangeland fallow cropping	SAEZ9	ALUS5
4. Agronomic techniques and practices			
10	Deficit irrigation with salted water	SAEZ9	ALUS1
11	Buried diffusor	SAEZ9	ALUS1
5. Techniques targeting specifically water harvesting			
12	Cisterns	SAEZ9	ALUS4
		SAEZ8	ALUS4
13	Recharge well	SAEZ9	ALUS1
14	Artesian well	SAEZ8	ALUS4
15	Wells in the desert	SAEZ8	ALUS5
16	Oasis	SAEZ8, SAEZ9	ALUS3
6. Tree-based techniques			
17	Reforestation	SAEZ9	ALUS7
18	Tree plantation	SAEZ8	ALUS7
19	Area enclosure	SAEZ9	ALUS7

Results

Database per SLM types: Site of Zaghouan

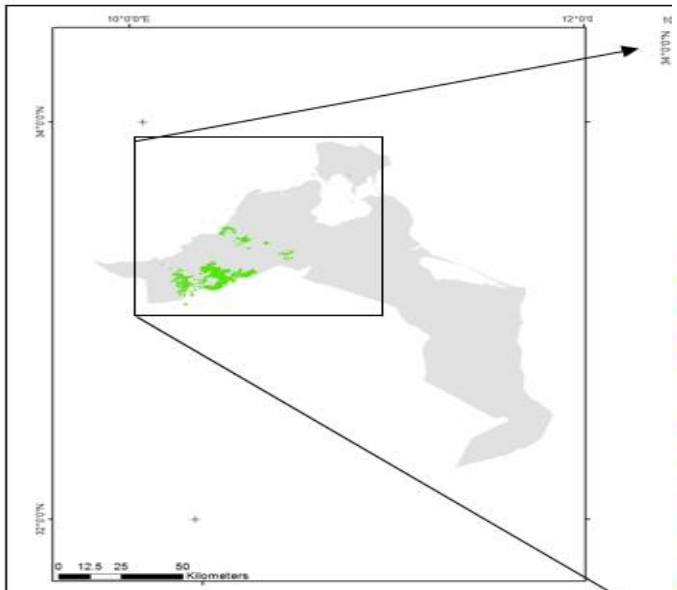
Order ID	Techniques	SAEZ	ALUS
1. Techniques targeting water and soil conservation			
1	Mechanical bench terraces	SAEZ2	ALUS1, ALUS2, ALUS3
		SAEZ3	ALUS1, ALUS2
2	Manual bench terraces	SAEZ2	ALUS2
3	Semi-circular bunds	SAEZ2	ALUS2
4	Stone bund terraces	SAEZ2	ALUS2, ALUS3
5	Gully restoration	SAEZ2	ALUS7
6	Gabion threshold	SAEZ2	ALUS2, ALUS7
		SAEZ3	ALUS2

RESULTS

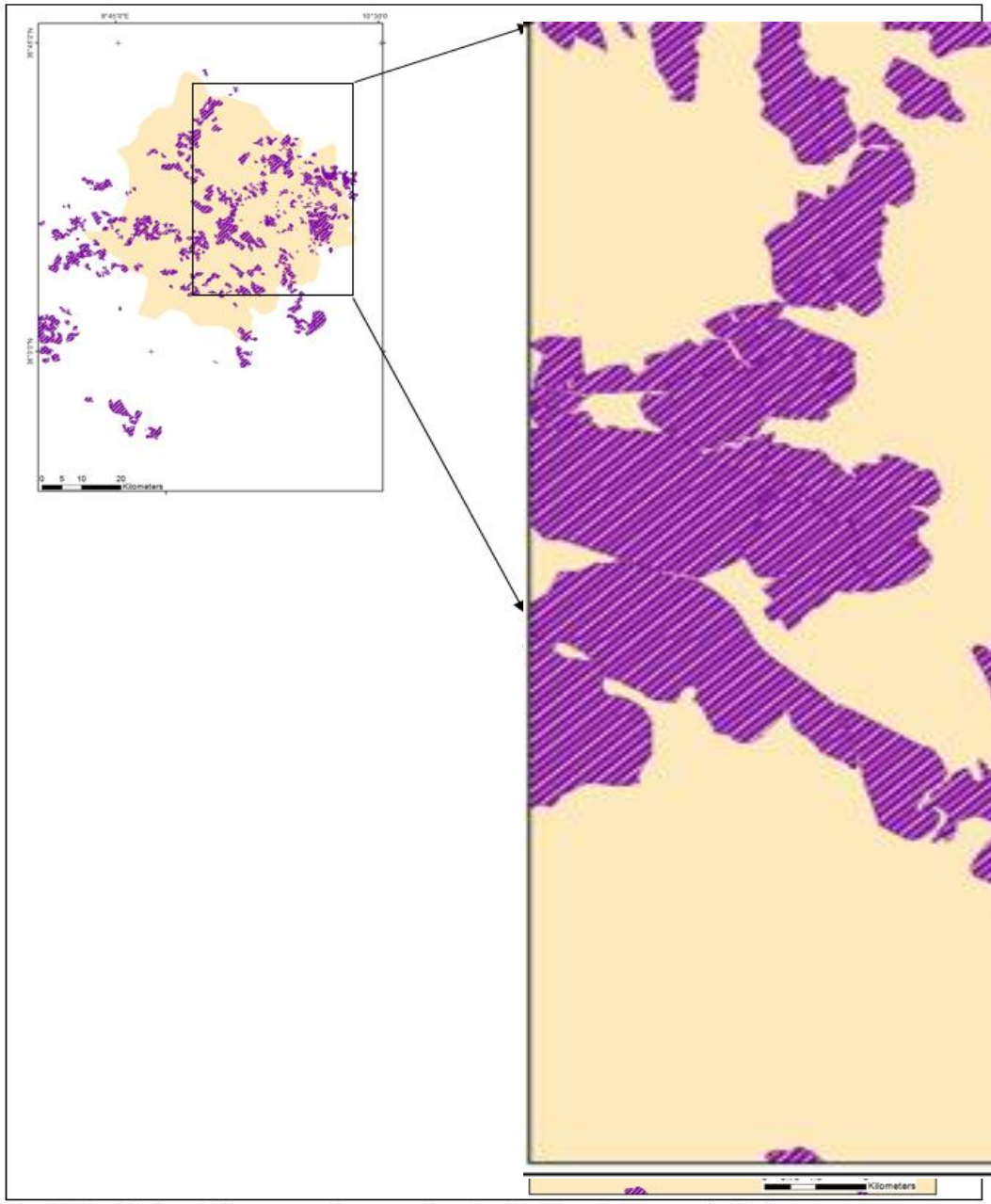
Database per SLM types: Site of Zaghouan (cont'd)

Order ID	Techniques	SAEZ	ALUS
2. Techniques for rangelands management and improvement			
7	Planting of forage trees	SAEZ2	ALUS3
8	Replanting of local forage species	SAEZ2	ALUS3
3. Techniques targeting water harvesting			
9	Hill lakes	SAEZ2	ALUS1
		SAEZ3	ALUS1
		SAEZ5	ALUS1
10	Hill dams	SAEZ2	ALUS1
		SAEZ3	ALUS1
4. Tree-based techniques			
11	Reforestation/tree plantation	SAEZ2	ALUS7
		SAEZ3	ALUS7

OVERVIEW OF SPATIAL PATTERNS OF JESSOURS



Overview of spatial patterns of "mechanical terraces"



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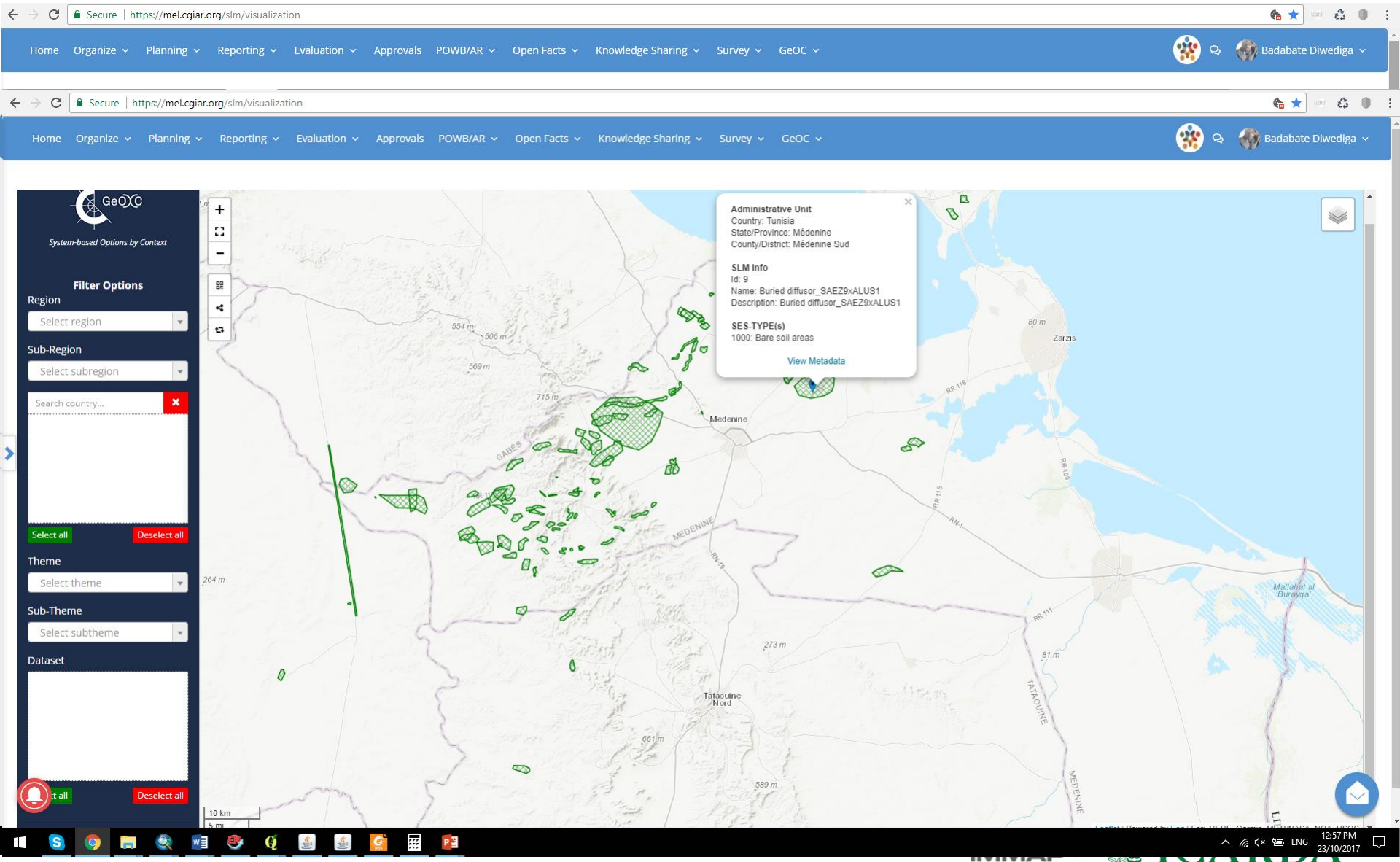
Overview of "the SLM data visualized in the GEOC WebGIS"



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4. Conclusions & Perspectives

- There is a high diversity of of SLM practices and options by context in the two pilot sites, even though the study was not exhaustive in identifying and mapping all the SLM practices

- 29 SLM practices are identified and mapped for the two sites:
  - 11 SLM in Zaghouan
  - 18 SLM in Medenine

- 51 SLM OxC are produced for the two pilot sites:
  - 22 SLM OxC in Zaghouan
  - 29 SLM OxC in Medenine

- 05 SAEZ and 07 ALUS were SLM OxC are produced :
  - 03 SAEZ and 04 ALUS in Zaghouan
  - 02 SAEZ for 07 ALUS in Medenine

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4. Conclusions & Perspectives

In perspectives,

- extend the mapping of the SLM to other governorates of Tunisia in order to embrace the huge diversity of SLM and contexts, relevant for unlocking synergies towards national efforts against land degradation

- In collaboration with all stakeholders and partners, encourage the production and documentation of SLM OC data using the standardised GeOC tool for better impacts assessment and scaling up initiatives.

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Global
Geo-informatics
Options by Contexts

GeOC™

A tool for better investment decisions in agriculture and rural development

CGIAR RESEARCH PROGRAM ON Dryland Systems

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Thank You!