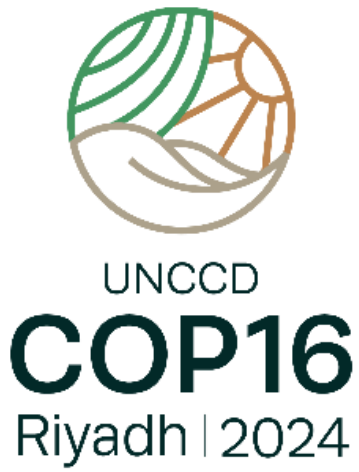




المركز الوطني لتنمية  
الغطاء النباتي ومكافحة التصحر  
National Center for Vegetation Cover  
Development & Combating Desertification



United Nations  
Convention to Combat  
Desertification

# ***From Scientific Knowledge to Action: Tools and Frameworks for Scaling Sustainable Land Management Solutions***

Mounir Louhaichi

**10<sup>th</sup> December, 13:15-14:45**  
**WOCAT Pavilion**



INITIATIVE ON

Livestock and Climate



# Outline

- SRM toolkit
- Decision support tool
- Case study
- Key messages



# Sustainable Rangeland Management (SRM) toolkit



Sustainable Rangeland Management  
Toolkit for Resilient Pastoral Systems



In collaboration with the International Union for Conservation of Nature (IUCN) published SRM Toolkit (version 1)

- Describe best SRM practices
- Present case studies

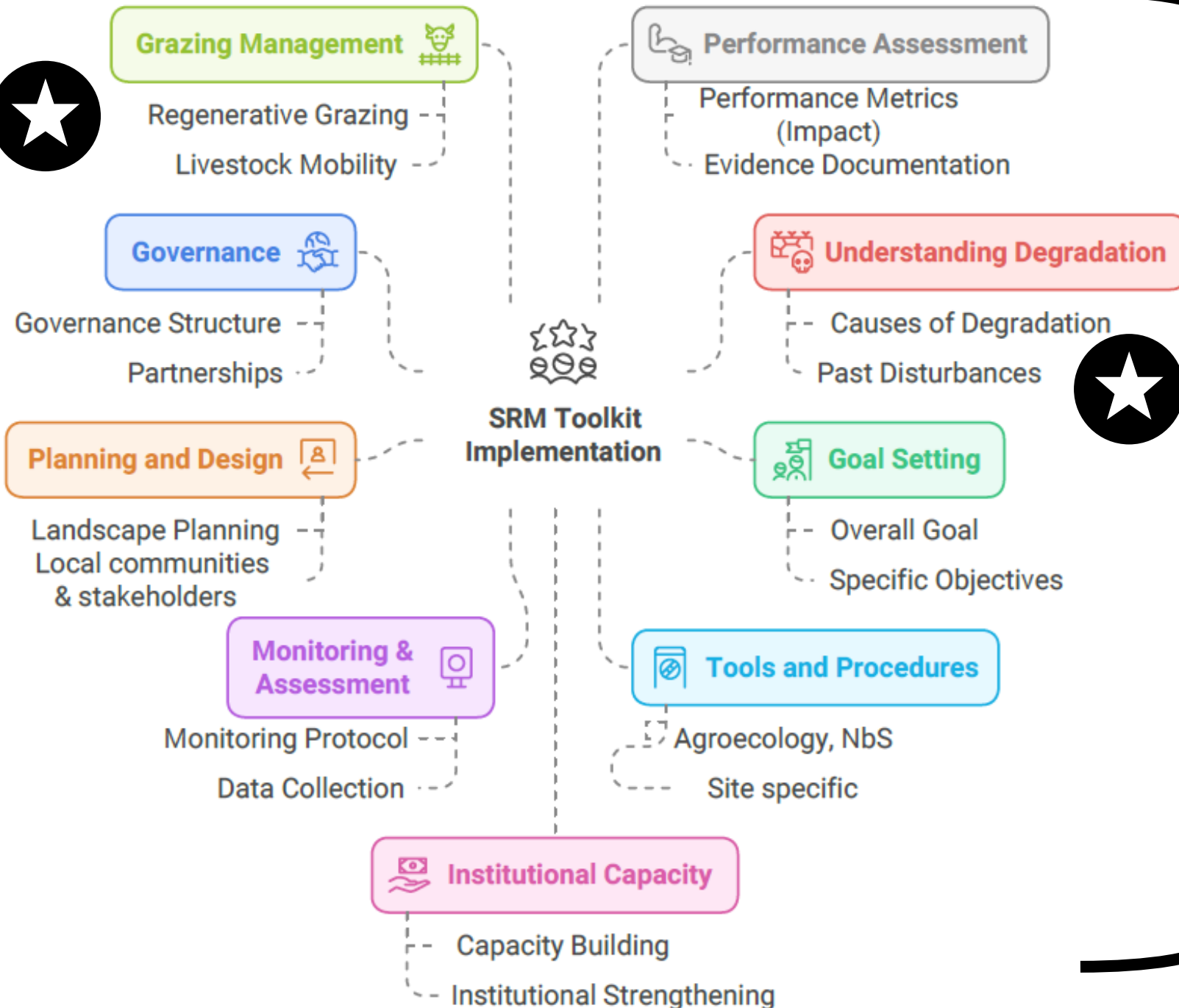


INTERNATIONAL UNION  
FOR CONSERVATION OF NATURE  
WORLD HEADQUARTERS  
Rue Muesmeyer 26  
1196 Gland, Switzerland  
mail@iucn.org  
Tel +41 22 969 0000  
Fax +41 22 969 0002  
www.iucn.org



<https://hdl.handle.net/10568/125414>

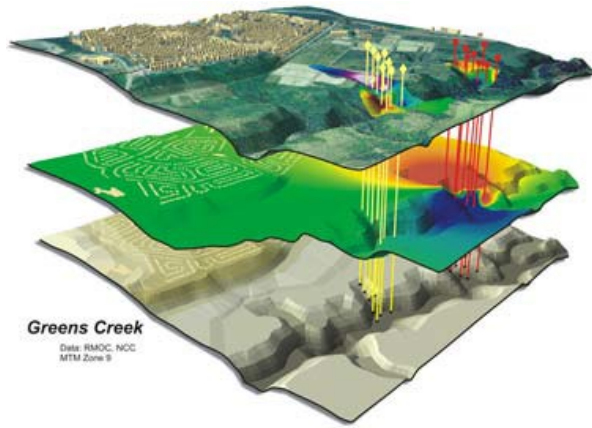
# Sustainable Land Management & Restoration



**Strengthen institutional capacity & Promote policy reform**

# LIDAR: LIGHT DETECTION AND RANGING

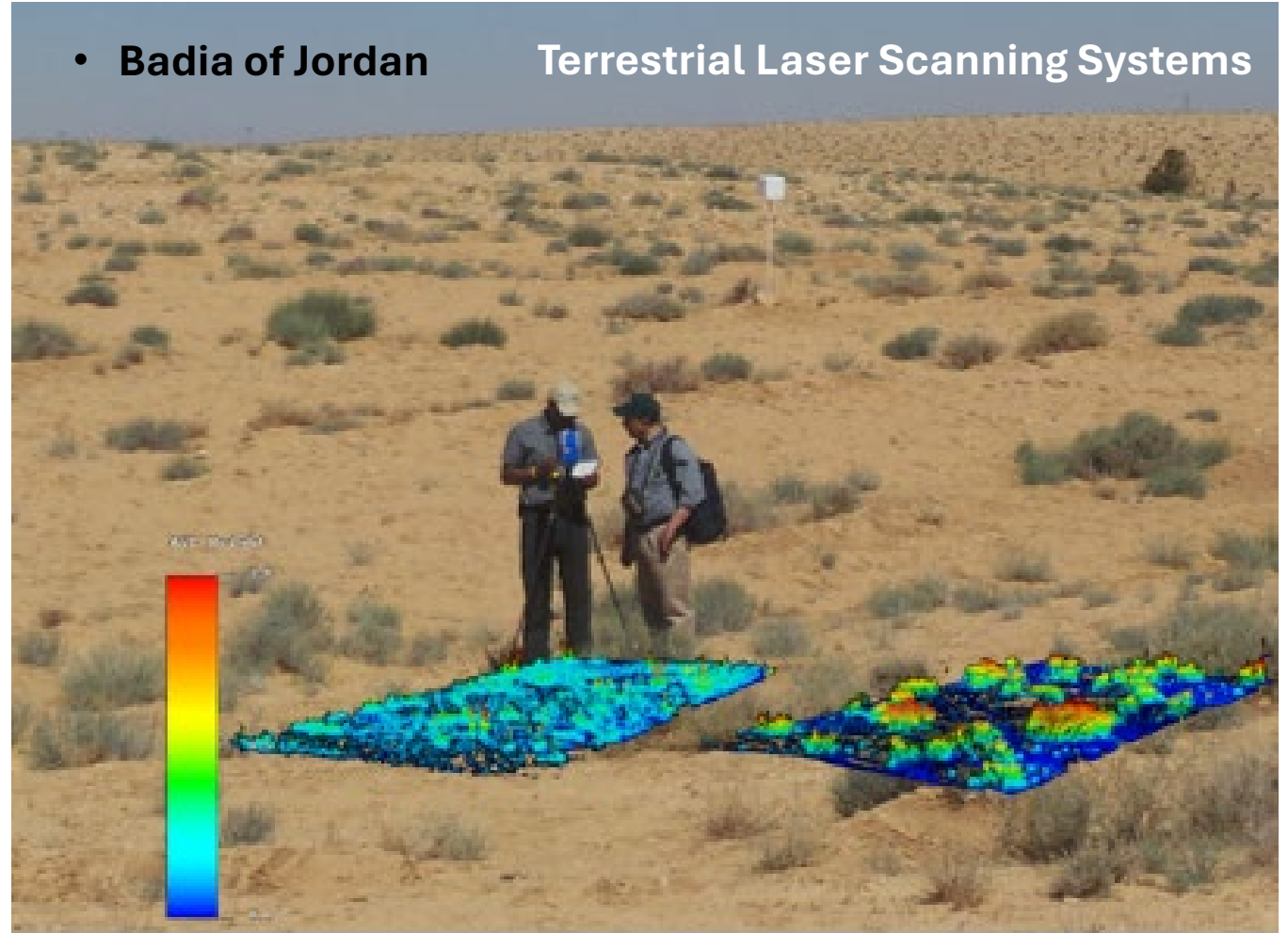
---



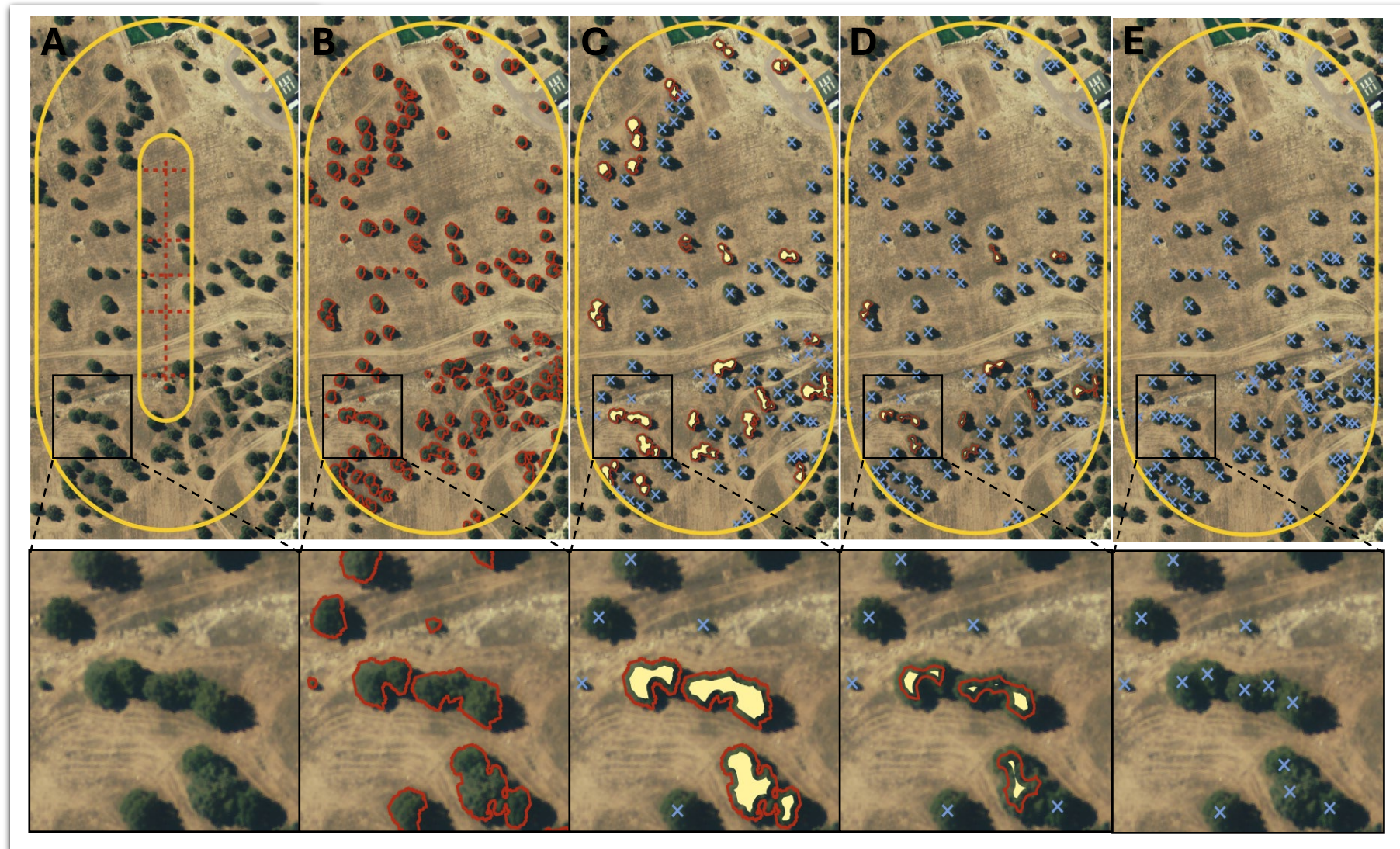
- Ranging accuracies of  $\pm 1$  to 2-mm at scanning ranges from  $< 1$ -m to 300-m at  $> 90\%$  reflectivity,
- Frequency range of 55,000 to nearly 1 million points per second.

• Badia of Jordan

Terrestrial Laser Scanning Systems



# Woody Plant Assessment at the Landscape Scale

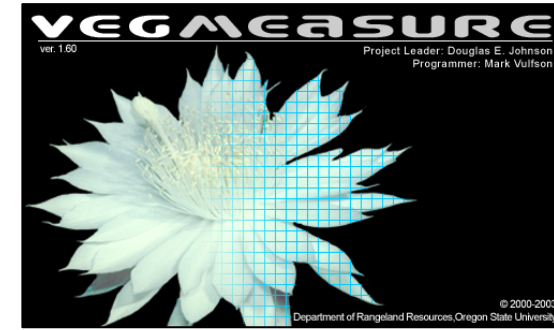


# Estimating vegetation cover (DST)

Reduced run-off

Higher infiltration

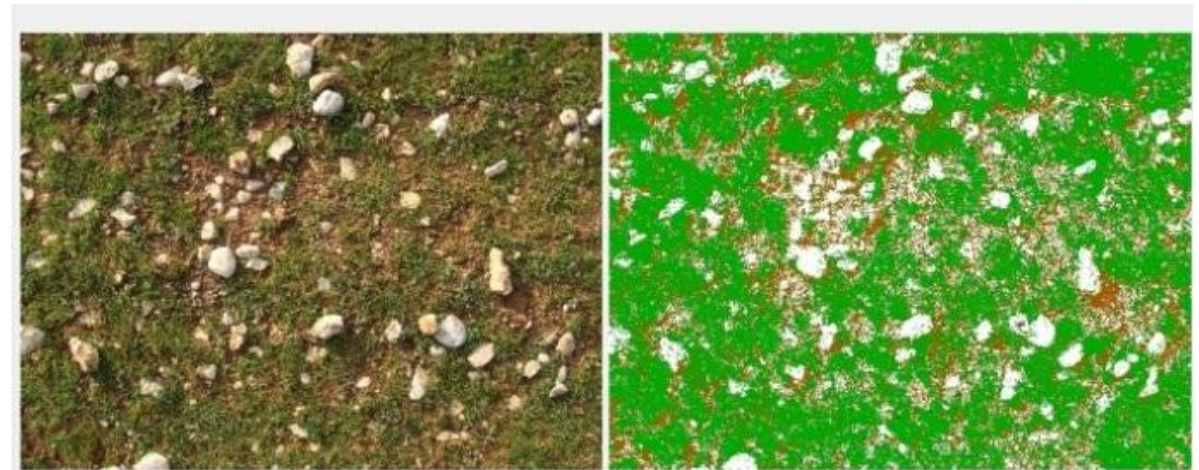
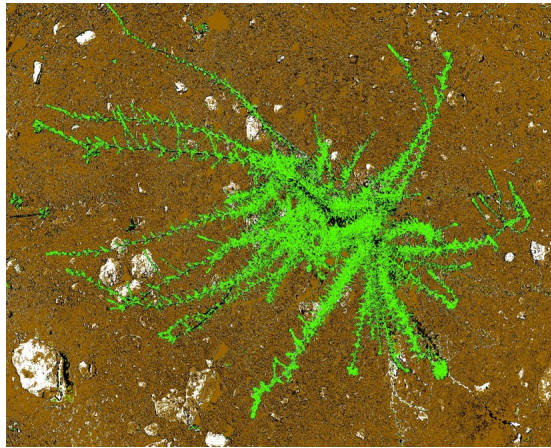
More forage



**Field data collection**



**Image processing and classification**



# Case study: Tunisia



## Sustainable silvopastoral restoration to promote ecosystem services



RESEARCH  
PROGRAM ON  
Livestock

[icarda.org](http://icarda.org)

International Center for Agricultural Research in the Dry Areas



[cgiar.org](http://cgiar.org)

A CGIAR Research  
Center

# Site before intervention

---



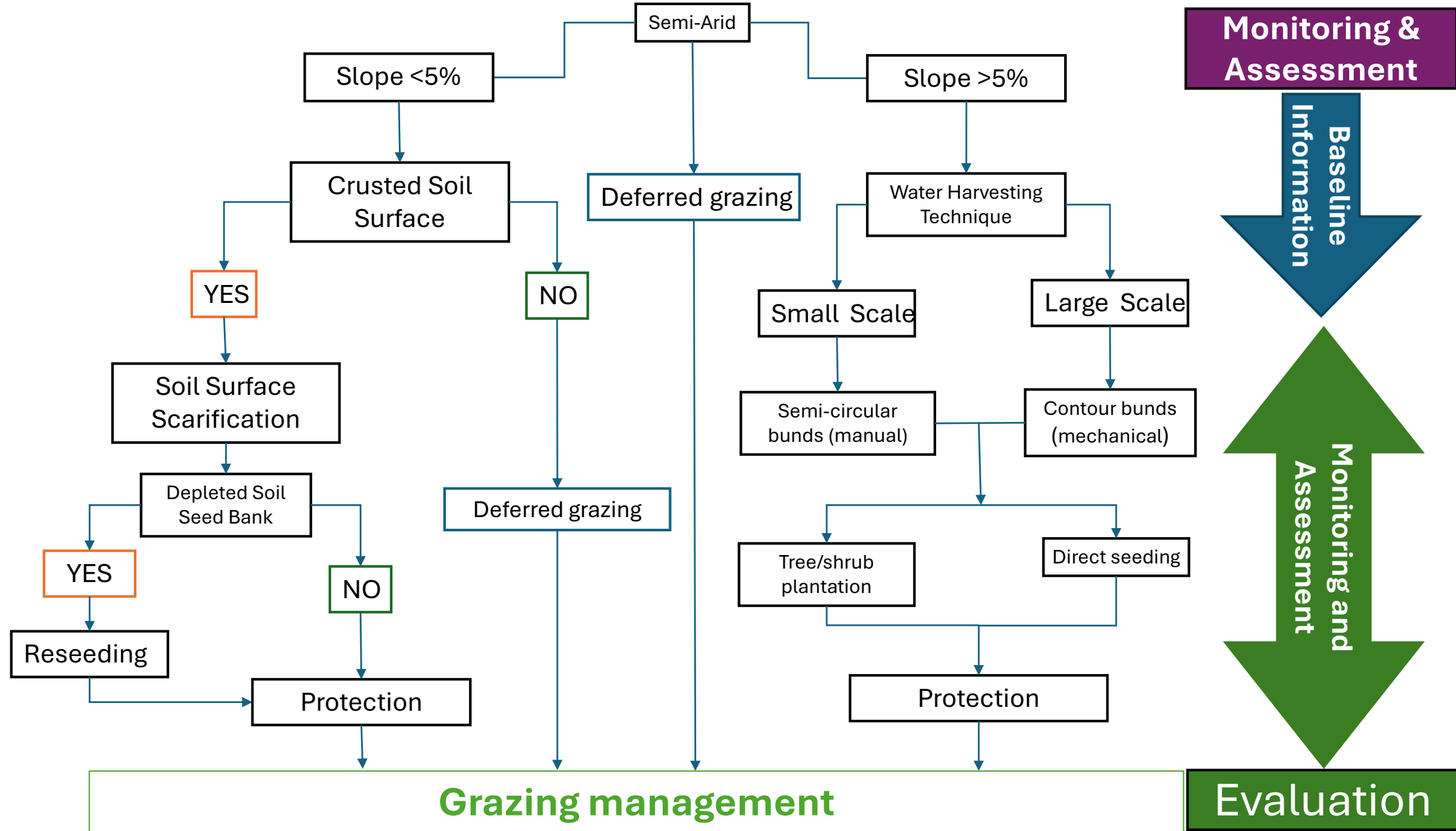
# Site after restoration

---



# Participatory rangeland governance, management & restoration

## Case study: Silvopastoral site in Central Tunisia

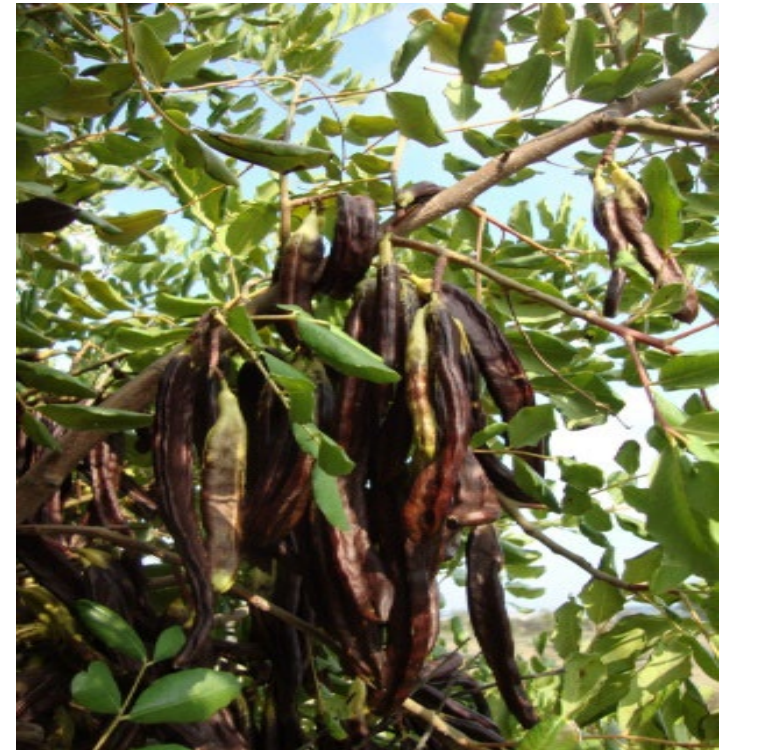


## ***Tree plantation:*** *Ceratonia siliqua* *Carob tree*

---

### **Benefits:**

- Tolerates drought
- Grows on a wide range of soils
- Performs as a multipurpose tree
- Produces nutritious fruits (carob beans/ pods)
- Provides shades for livestock during summer



# Shrub plantation: *Rhus tripartita* (Ucria) Grande

## Benefits

- Drought-tolerant.
- Used in traditional medicine and pharmacology.
- Source of tanning substances.
- Restores degraded arid lands.
- Multipurpose with medicinal and aromatic uses.
- Adapts to high salinity.



# Reseeding (herbaceous strata): *Hedysarum coronarium* L.

---

## Benefits:

- Biannual forage legume
- Drought resistant
- Improves soil fertility and erosion control
- Highly palatable, nutritious, and productive forage
- High-protein forage crop
- Melliferous plant (honey production)



# Regenerative Grazing

- The condition of rangelands is based on herbivory, frequent animal movements and rotational grazing.
- The absence or disruption of animal mobility, whether due to sedentarization or the obstruction of transhumance and migratory routes, has historically led to the degradation of rangelands.
- Herd mobility/presence is essential for maintaining the health of pastoral ecosystems in drylands
- Overgrazing and undergrazing should be avoided, as they can lead to land degradation, shrub encroachment, invasive species and loss of biodiversity.



# Benefits of regenerative grazing

(Short-duration high intensity)

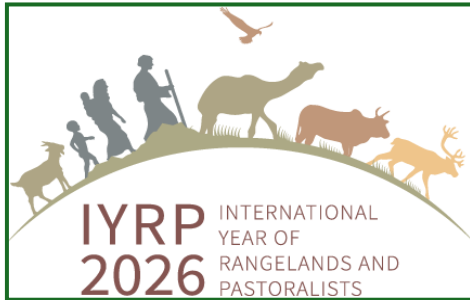
---

- Knock down the oxidized plant material
- Avoid selection by animals
- Impact of the animal hoof action on the soil surface:
  - Break the Soil Crust
  - Improve rainwater infiltration
  - Facilitate seed germination/emergence (soil seed bank)

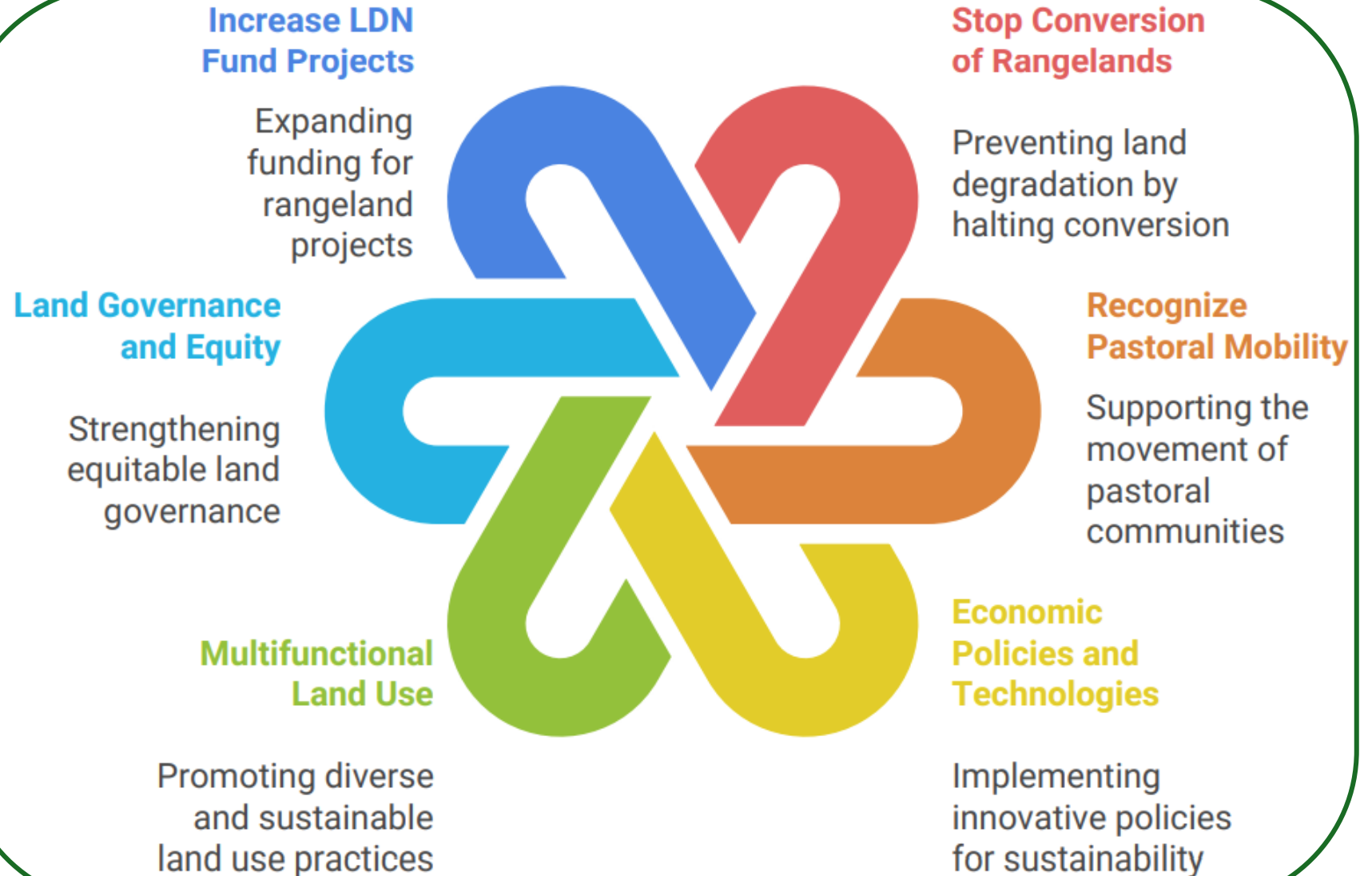


# Global Actions for Sustainable Rangelands & Pastoralism to Achieve Land Degradation Neutrality

**A POLICY BRIEF, WITH  
RECOMMENDATIONS  
FOR THE  
UNCCD CONFERENCE  
OF THE PARTIES**



**Prepared by the  
IYRP Working Group  
Land Degradation  
Neutrality**



## **Recommendations (planning phase)**

- Understanding socio-cultural, land tenure, rights to access.
- Identifying targeted groups (homogenous, less conflict) to start with.
- Setting restoration priorities and targets.
- What type of interventions, where, how and for what use?

# Recommendations (implementation phase)

- There is a need for **change in behavior** through education, training, awareness campaign, etc.
  - Better integration (working together) using a system approach
  - Long term-protection or exclusion of livestock can be detrimental
  - Livestock is part of the solution (grazing is a tool)
- Huge **heterogeneity** (site specific)
- Remove the source of degradation/conflict
- Address abiotic issues as a priority before initiating biotic activities to ensure a stable foundation for sustainable interventions.
  - Restore the physical environment
  - Restore the biota
- There is always **need for ground truthing** and data collection using conventional methods to:
  - Training sites (supervised classification)
  - Calibrate and validate output
  - Accuracy assessment

# What is needed for scaling SLM solutions

- **Multi-stakeholder engagement** and institutional collaborations that leverage resources and knowledge (agree on a common goal).
- **Set up a solid governance and empower the community** to own the process (governance)
- Favorable and supportive **national and local policy** processes
- Integrate **local knowledge, practices, science-based solutions (modern technologies)** into the implementation scheme
- The more **time is invested in the planning phase** – more chance for success of the programme.

**Be patient – restoration takes time**



**United Nations**  
Convention to Combat  
Desertification



UNCCD  
**COP16**  
Riyadh | 2024

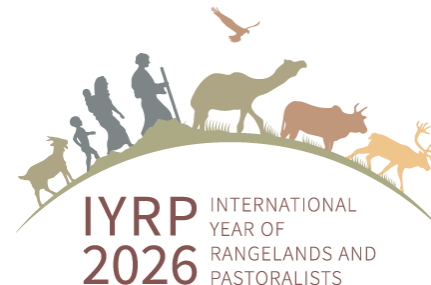
***Thank you for your attention***



المركز الوطني لتنمية  
الغطاء النباتي ومكافحة التصحر  
National Center for Vegetation Cover  
Development & Combating Desertification

**WOCAT**

**Mounir Louhaichi**  
[m.louhaichi@cgiar.org](mailto:m.louhaichi@cgiar.org)



INITIATIVE ON  
**Livestock and Climate**