

## Agroecology in Tunisia: Real Challenges, Dynamics of Questioning and Controversial Transition Pr. Fraj Chemak



E Technical, organizational and policy levers and obstacles in promoting agroecology in the Mediterranean area

**EXPERIENCE-SHARING EVENT ON:** 











# Introduction





# Tunisia

Area: 16,5 Millions Ha

Coast Length: 1300 Km

Population: 12 Millions (71% Urbain)

➢GDP: 130 Billion TND/46 Billion USD

➢GDP/capita: 3800 USD

Unemployment: 15.1% (2023)









- ✓ 80 % Under Aride & Desertic climate
- ✓ Soil losses: 15000 20000 Ha per year

✓ Small surface area & land fragmentation



# Introduction





Resources	Mobilisable	Mobilized
Surface Water (2.7)	2.5	2.3 <mark>(92%)</mark>
GroundWater (2.1)	2.1	1.9 <mark>(90%)</mark>

### **Limit Supply**

+ Over use of Groundwater



# Introduction











# Tunisia Challenges

### Environment

#### □ Overuse and degradation of the resources Cost more than 2% GDP





Water: 0.62% GDP

Soil & Forest: 0.52% GDP

Air: 0.58% GDP



# Introduction







# Introduction



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CO-CREATION OF KNOWLEDGE

# Tunisia Challenges

### Sustainable Development

#### 2019 SDG Index

	Alegria	Egypte	France	Greece	Libanon	Morocco	Tunisia
Rank/162	53	92	4	50	94	72	63
Score	71.1	66.2	81.5	71.4	65.7	69.1	70

Source : Sachs et al. 2019

#### How to acheive the SDGs?





SYNERGIES

ECONOMIC

DIVERSIFICATION





#### In Tunisia, Agroecology is an anciant practice

1. Farming System: Oasis system



#### 2. Indigenous resources & Biodiversity : Plant and animal



**Banque de Gène** 

#### + 40000 species & variety stored





#### In Tunisia, Agroecology is an anciant practice

3. Water and Soil conservation: Tabias, Cuvettes, Jessours



Cuvette

Cordons

**Jessours** 





#### Agroecology Initiatives and Innovation

Lestrelin and Jaouadi, 2023. Inventory of agroecology-related initiatives in Tunisia (1999-2022). Working paper, CGIAR, https://cgspace.cgiar.org/server/api/core/bitstreams/dade65ef-4cb0-4a6c-ae4c-0dc99cfe60f6/content

### ≥26 Initiatives selected

- 19 initiatives: Projects or programs implemented by regional or national agencies (agricultural services predominantly) with foreign financial and technical assistance
- 5 initiatives: Civil society NGOs
- 1 initiative: Community-based entreprise (EcoHazoua project)





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### Primary intervention domains

1. Innovations for farmers (11)

- 2. Sensitization and capacity building (8)
- 3. Value Chains development (3)
- 4. Multi-stakeholders platforms (3)
- 5. Financial support and services (1)







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### > Dynamic of intervention domains







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### **AE Aspects in Research Projects**

	Title	Funder	Period	Partners
1	Traits and technologies to boost North African protein self- sufficiency" (Beans4N.Africa)	BBSRC- GCRF/UK	2018-2020	Univ. Reading (UK) INRAT (Tunisia) ARC (Egypte)
2	Strengthening Rainfed Agriculture Through hydraulic work (PAPS-Water Valuation)	CEE	2015-2018	INRGREF (Tunisia), INRAT, IRA
3	Community control of emerging Leishmaniasis in the context of climate change in Tunisia	IDRC	2013-2016	ONMNE (Tunisia), INAT, INRAT





### **AE Aspects in Research Projects**

	Project	Region	Survey
1	Traits and technologies to boost North African protein self- sufficiency" (Beans4N.Africa)	Bizerte, Jandouba, Béja	230 farmers
2	Strengthening rainfed agriculture through hydraulic work (PAPS-Water Valuation)	Bizerte, Kairouan, Mednine	186 farmers
3	Community control of emerging Leishmaniasis in the context of climate change in Tunisia	Sidi Bouzid	130 farmers







## **AE Aspects in Research Projects**

### **1. BEANS4N.AFRICA**

Multidisciplinary project combining fababean genetics and breeding with a socio-economic study of barriers to adoption







#### Survey : 230 farmers

Adopter	Non adopter
174	56





## **AE Aspects in Research Projects**

#### **1. BEANS4N.AFRICA**



#### > Fababeans are an important crop, culturally and in terms of agronomic practices







## **AE Aspects in Research Projects**

### **1. BEANS4N.AFRICA**

> Farmers face many constraints for increasing fababean area

1 Cood coursing	Autoproduction	Neighbours	Market	Seed provider	Exchange
1. Seed sourcing	62%	17%	10%	6%	2%
Non certified seeds?	Risk c	of broomrape a	attack		
					-
					The second second second
20-04/2019					





## **AE Aspects in Research Projects**

#### 3. Access to information

1. BEANS4M	V.AFRICA					
				Technical	Inputs	Market
			Own experience	57%		
2. Inputs financing		Other farmers	22%	18%	28%	
Self financing	Inputs provider	Bank Loan	<b>Big Farmers</b>	4%		
82%	16%	2%	Administ/Extension	30%	19%	
			Input Providers		45%	3%
			Souk/traders			<b>63%</b>
			Media	3%		
Crop rotation	Crop rotation practice? Infrastructure & services enhancement ?					





## **AE Aspects in Research Projects**

### **2. PAPS-Water Valuation**

Capitalizing and disseminating scientific and technical knowledges relating to rainwater harvesting and valuation through Hydraulic Works (Hill lakes, Cuvette, Jessours)

\* Identifying the constraints of installation and exploitation

\* Involving farmers in adapting suitable works for WSC





## **AE Aspects in Research Projects**

### **2. PAPS-Water Valuation**

#### Bizerte: Hill Lakes

#### Positive Context

- ✓ Local Synergy /Enhancement of agricultural landscape
  - ✓ Dynamic of local economy

#### Perspectives?

- ✓ Water Management Conflicts
  - ✓ Lake siltation





### **AE Aspects in Research Projects**

#### **2. PAPS-Water Valuation**



#### Mednine: Jessour







## **AE Aspects in Research Projects**

- **2. PAPS-Water Valuation**
- Positive context
  - ✓ Importance of Know-how / WSC techniques
    - ✓ Farmers' commitment
      - ✓ Positive impacts (Soil, plantation, production, income )

- Perspectives?
  - ✓ Works degradation /maintenance costs

✓ Strong Erosion/Climate Change

**Valuation & Enhancement?** 



Viabilité, Durabilité?







## **AE Aspects in Research Projects**

### **3. Communauty Control of LCZ Disease**





Farmers' Survey

Focus group

### Three Scenarios



Flood irrigation system

- **1.** Improving WUE using economic irrigation system (NF)
- 2. Reducing the extension of irrigated area out of the perimeter (NA)





## **AE Aspects in Research Projects**

### **3. Communauty Control of LCZ Disease**

- **3.** Improving farmers' income and well being (**OK**)
  - ✓ Facilitating Inputs access
  - ✓ Outputs Valuation

**Olive oil Value Chain?** 

- Preserving Human Health
- Improving WRM

**AE faisability & Practices?** 



### Accompagniement?







#### **Beyond the Agroecology innovations and practices**

- Several important constraints brak: Land structure, Market access, communication, information flow, collective action, accompagniement....
- **\*** Successful implementation of AE initiatives is the responsability of all stakeholders







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