

INDIGENOUS WATER RESOURCES MANAGEMENT UNDER A CHANGING CLIMATE: experiences from community in West Africa



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OUTLINE

1. Setting the background
2. Problem: the reasons of concern
3. Actions and impacts
4. Lessons learnt and perspectives



SETTING THE BACKGROUND

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SETTING THE BACKGROUND: WRM, a key issue in adaptation

- Water resource management, a critical component to achieve adaptation to CC (IPCC, 2007);
- Climate change is increasing challenges of water resource management as water is a vehicle to climate change impacts, especially at community level (World bank, 2010).



SETTING THE BACKGROUND: Limits of conventional science

- Despite various efforts, many public policies in water resource management based on « top-down model » and using scientific findings, failed.
- Although science has made progress, in agriculture one in three people are already facing water shortages (IPCC, 2007).
- Despite these constraints, the grassroots did not remain passive.



Setting the background: Rediscovering indigenous knowledge

- Based on their knowledge and know-how they are experimenting various practices to overcome water resources scarcity in a context where value of indigenous knowledge is increasingly recognized in development and adaptation to climate change.



Setting the background: Questioning indigenous knowledge

- However, while value of IK is recognized, some experts are doubting about its role in development domain, and in adaptation as well.
- To what extent indigenous knowledge can help meet challenge of water resources scarcity under a changing climate?



LANDOU CASE STUDY

(Senegal)

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THE REASONS OF CONCERN

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Landou village: The reasons of concerns

- Landou village is 60 km far from Dakar, and located on the foothills of Ndiass, plateau rising to over 120 m..
- Succession of cuirassed plateaus and sand-clay valleys in a steep slope.



Landou village: The reasons of concerns

- **Decrease of the average annual rainfall from 600 mm to 429.2 mm.**
- **Ecosystem degradation by human activities.**
- **A rapid water runoff that led to a significant deficit of surface and ground water resources**



Landou village: The reasons of concerns

- Agriculture and horticulture and other economic activities are affected.
- A drastic drop in family income and a significant increase in rural exodus
- In Landou village, there are about 118 women on a score of men



ACTIONS AND IMPACTS

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Landou village: Actions

- Stone bunds → slow speed of surface runoff creating a diffuse surface flow and facilitate the recharging of the water table



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Landou village: Actions

- The open trenches → slow the speed of the water foster infiltration of water for water table recharging when there is not enough stone
- → to collect water for horticulture and fruit arboriculture



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Landou village: Actions

- Zai consists to dig a hole at the foot of the tree or a little behind (*hole upstream and a small elevation dirt downstream*) depending on the topography to collect water runoff.
- It promotes continuous growth, reduces heat and keeps the cool under the tree



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Landou village: Impacts

- Re-supply of the water table.
- Crop diversification
- Introduction of improved varieties adapted to the context of the environment



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Landou village: Impacts

- **Regreening**



Stone line in 2007



The same stone line in 2009

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Landou village: Impacts

- Progressive filling of a ravine in the upstream of a semi-circular trench



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LESSONS LEARNT AND PERSPECTIVES

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Landou village: Lessons learnt

- Indigenous technologies can contribute to adaptation to CC:
 - *Improve water resources availability and accessibility*
 - *Strengthen rural livelihood and restore ecosystems*
- Community participation, especially that of women is crucial in achieving successful local management of water resource
- These are technologies available to vulnerable communities as the economic cost is low
- These are sustainable as the material used is sourced locally



Landou village: Lessons learnt

- Endogenous practices are often specific context
- The challenge of replication in a different socio economic and ecological context
- Can address specific problem and need while water scarcity has various dimensions



Landou village: Perspectives

- Coupling scientific and indigenous knowledge to benefit from the added value of each of these two forms of knowledge to meet community needs whose satisfaction can not be guaranteed by only the actions of local.
- Linking water resources management to energy technologies should be a way to explore further in order to improve water management regarding CC impacts on water resources





THANK YOU FOR YOUR ATTENTION



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