The micro - gardens in Djibouti's Républic or agricultural pratice in a context of scarcity of land and water using domestic wasterwater

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Context

⇒ Arid Country with rainfall of 150 mm per year with drought in repetition
⇒ 69 600 ha of arable land representing 3 % of the territory to feed about 900 000 inhabitants
⇒ Chronic food insecurity and malnutrition, severe malnutrition for children especially

Intervention area

⇒ Region of Dikhil (As-Eyla and Sissalou)
⇒ Region of Tadjourah (Adaïlou, Dafénaïtou, Guirori, Randa)
⇒ Region of Obock (Orobor, Assassan, Oulma)

⇒ Funding : European Union
⇒ Start date implementation of micro gardens: October 2015

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Poject's name	Country	City	Start Date-End Date	Water Sources	Uses
Project to support non-state actors in Djibouti in the development of sustainable economic activities for food security and integrating the conservation of natural resources	Djibouti	⇒ Region of Dikhil (As-Eyla et Sissalou) ⇒ Region of Tadjourah (Adaïlou, Dafénaïtou, Guirori, Rand ⇒ Obock (Orob Assassan, Oulma)	2015-2018	Domestic wastewater	Agriculture

Sources

Origin	domestic
Water reused (m^3/Y)	_1m3/year/square meter____

Uses

Crops	Vegetables
Irrigated Area (Ha)	200 micro gardens of 5 square meter
Cost of the Cubic meter (€/m^3)	0 €

Water Reuse Chain

Treatment	No
Disinfection	No
Storage Capacity (m^3)	Basin and can of 25 liters
Irrigation	Manual watering

Strategic focus : Horticulture production associated with household waste management and wastewater

Goals

⇒Contribute to improve food and nutrition security and poverty reduction in rural areas for the benefit of the most vunerable households

Projects outcomes

⇒200 households
⇒200 micro- gardens of 5 square meter
⇒Annually producing 6t of tomatoes, 22t of lettuces, 8t of cabbage, 7,5t of onions, 5,5t eggplants
⇒Monetary incomes of € 86,580

What are the expected productions per household?

⇒ Micro- gardens of 5 square meter/household
⇒ i) about 200 tomatoes (30 kg) per year;
⇒ ii) 36 lettuces every 60 days;
⇒ iii) 10 cabbage every 90 days;
⇒ iv) 100 onions every 120 days.

Which practices, technologies and institutional framework to create an effective, safe and cost effective water reuse chain?

What paradigm shift with regard to the context?
Micro- garden in household as an alternative!

Hydroponics using little space and supports made of recycled materials for the production of a wide variety of vegetables in concessions, **using grey water**

Success factors

⇒Larges **household size**: 11 people on average
⇒**Large quantity of water** used for washing and hand washing (muslim majority population): **27 liters per day** on average for households
⇒**Modests water needs** of micro-gardens : 3l per day for 1 squater meter
⇒Practices of **domestic livestock** in almost all households
⇒**Valorisation** of household waste and animal feces in the constitution of **production substrates**

Any device for collecting grey water?

⇒Creating washing areas and ablution appointed within households by households themselves

⇒Creating a grey water collection basin
⇒Storage in the basin or directly in 20 liters cans

Whats potencials risks the grey water uses?

⇒ Limited health risk due to the low fecal contact
⇒ Assimilation and utilization by plants of ions contained in these waters (phosphates, calcium, magnesium)

In what way is the method sustainable and vulgarisable ?

⇒ **Few constraints for watering because of availability of irrigation water (27l per day per household used for washing hands)**

⇒ **Available substrates and enriched with animals feces**

⇒ **Use utensils and recovery material used for the production**

THANK YOU FOR YOUR ATTENTION