Barriers and enablers to the adoption of practices to improve crop production in the semi-arid Omusati Region, Namibia

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Namibia is almost entirely semi-arid or arid. With evaporation rates being higher than precipitation rates, farming conditions are extremely adverse. This is exacerbated by the impacts of climate change, namely increased temperature, decreased rainfall and higher rainfall variability. Despite this, more than half of the population is reliant on rain-fed subsistence agriculture for their source of food. This research focused on three villages, Oshihau, Okathitukeengombe and Omaenene, and used interviews and a systematic literature review to:

1) Understand crop farmers perceptions of climate change vulnerability
2) Identify interventions that cold reduce vulnerability to loss of crop yields
3) Asses the barriers and enablers to adopting new practices in the study villages

1 Perceptions (n=31 participants)

29 participants stated that the quality of their land and yields had decreased over time.

"The weather has changed, it has become hotter and drier."

"It has changed because of rain, sometimes you will plough your field and sow seeds but the rain won't come or when it comes it is just not enough for the crops, and these results in dry land which leads to poor yield."

"The whole field used to give a good crop yield. Now there are lots of spaces where crops do not grow or the yield is very poor."

Many people believed their yields will decrease in the future.

"I think there will be low rainfall in the future and crop yields will be low. If there is low rainfall, hunger will come."

24 people were worried about their future food supply.

"I am very worried, in the past we could predict rainfall, we can't predict it anymore."

"I am not worried because we don't know what God has in store for us. He is the creator, he will provide."

"Maybe I will get enough food for my family but if I don't, the government will assist us."

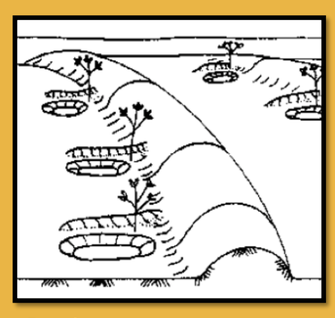
30 participants were were not planning to change their farming practices.

"We will keep farming in the same way because in the Oshiwambo culture we don't like to change tradition."

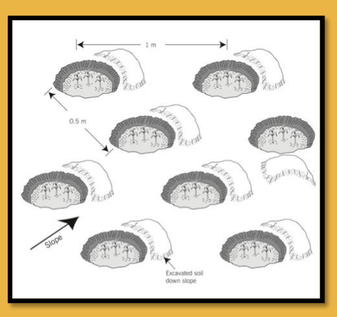
3

2 Relevant interventions to reduce vulnerability to loss of crop yields

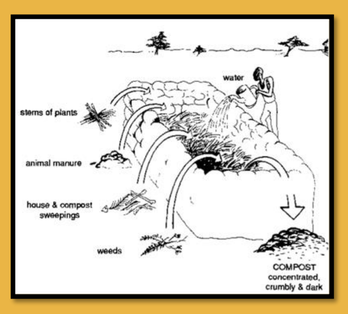
		Equipment	Labour	Water	Soil	Other information
Onesi Context		Spades and hoes Sometimes animal draft is available	Labour is limited	400 mm mean rainfall per annum	Mostly sandy, fragile, porous, low fertility (Interviewees explained that rain washes nutrients out of the soil)	Sorghum, millet and maize are the predominant crops grown. Terrain is mostly flat with some gentle slopes.
Farming practices	**Bunds**	Spade (Animal draft or a wheelbarrow would help to move rocks and sticks)	Fairly labour intense in the first year thereafter-marginal maintenance. No specific skills required.	Slows and catches water to increase infiltration	Prevents erosion of the fragile soil and helps to retain nutrients in the soil	Soil and rocks or sticks to build bunds are easily available Can be used on flat or sloped land Reduces the need for irrigation Reduces the flood potential of catchments downslope
	Pits	Spade or hoe	Labour intense but yields are significantly increased (output exceeds input). Pits can be used for two to three years. No skills required	Water is channelled and concentrated around crops (suitable for areas receiving 300-800 mm annual rainfall)	Enhances infiltration of the porous soil Increases carbon content which enhances water holding and cation exchange capacity Reduces nutrient leaching	Allows resources (manure, mulch, compost) to be concentrated around crops so that nothing is wasted hence improving the soil structure with minimal resources Pits regulate temperature and protect crops from wind Sorghum, millet, maize are appropriate crops for pits
	Compost	Spade or stick to turn pile.	Minimal labour and no specific skills required.	Household wastewater can be used on compost.	Enhances soil fertility (reducing the need for fertilizers) Increases water holding capacity of the soil Increases stability of the soil making it less susceptible to erosion	Can be implemented by a few households as a community compost pile Utilizes agricultural and domestic waste as a free resource



Bunds



Pits



Compost

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