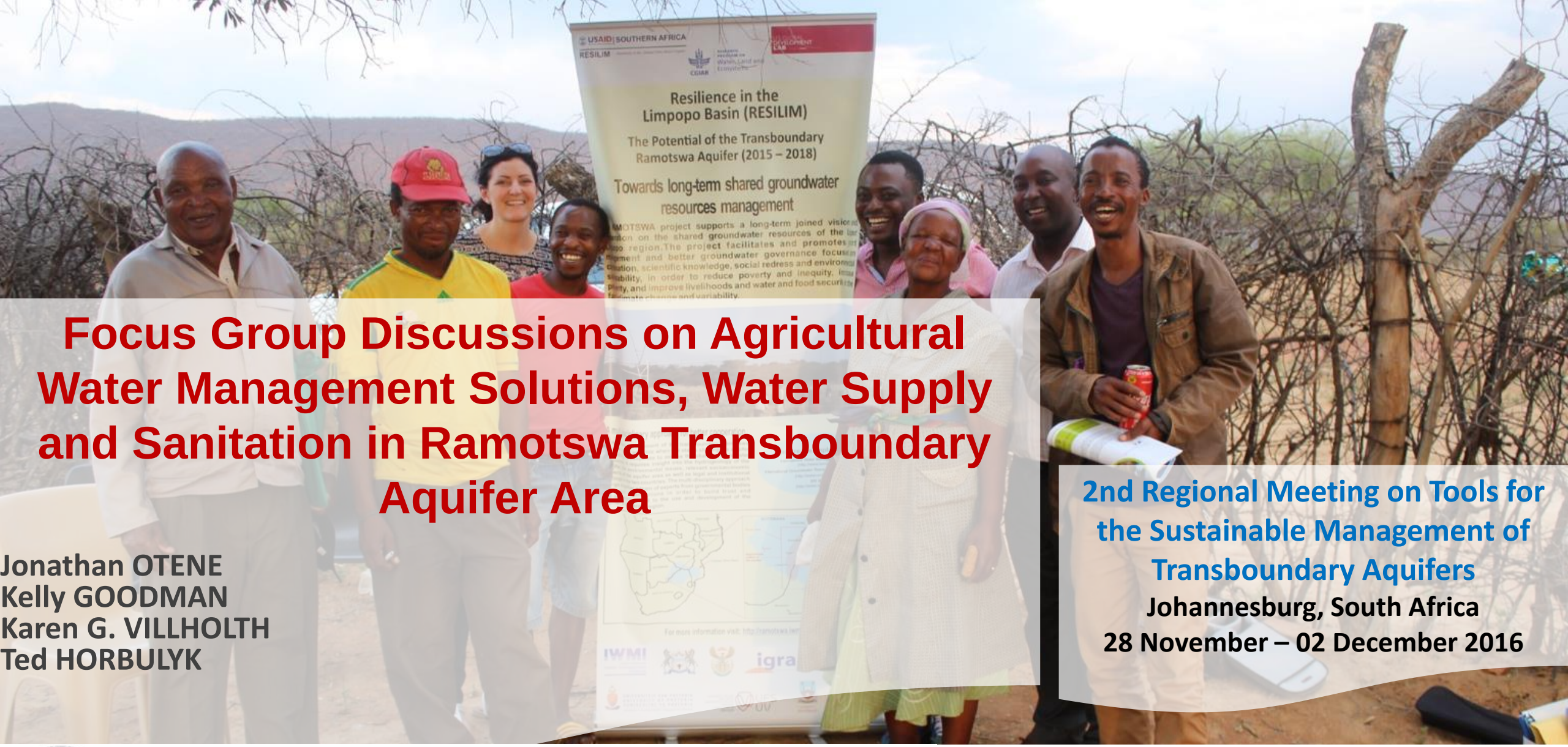

Focus Group Discussions on Agricultural Water Management Solutions, Water Supply and Sanitation in Ramotswa Transboundary Aquifer Area

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2nd Regional Meeting on Tools for the Sustainable Management of Transboundary Aquifers
Johannesburg, South Africa
28 November – 02 December 2016

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RESILIM : Resilience in the Limpopo River Basin Program

IWMI International Water Management Institute

CGIAR Research Program on Water, Land and Ecosystems

Presentation outline

- Introduction
- Methodology
- Agricultural water management solutions and production systems in Ramotswa Transboundary Aquifer Area (RTBAA)
- Water supply and sanitation systems in RTBAA
- Summary of findings
- Way forward

Introduction

❖ **The objectives of the Focus Group Discussions (FGDs) are to :**

1. **Identify current agricultural production systems, water supply and sanitation practices in RTBAA**
2. **Identify barriers to provision of adequate water and constraints to improved sanitation in the RTBAA**
3. **Identify major constraints to productivity of farmers involved in small-scale irrigation in the RTBAA**

Methodology

- ❖ Study area (results from RTBAA South Africa)
- ❖ Data collection

1. Pre-test of discussion questions
2. Population sample

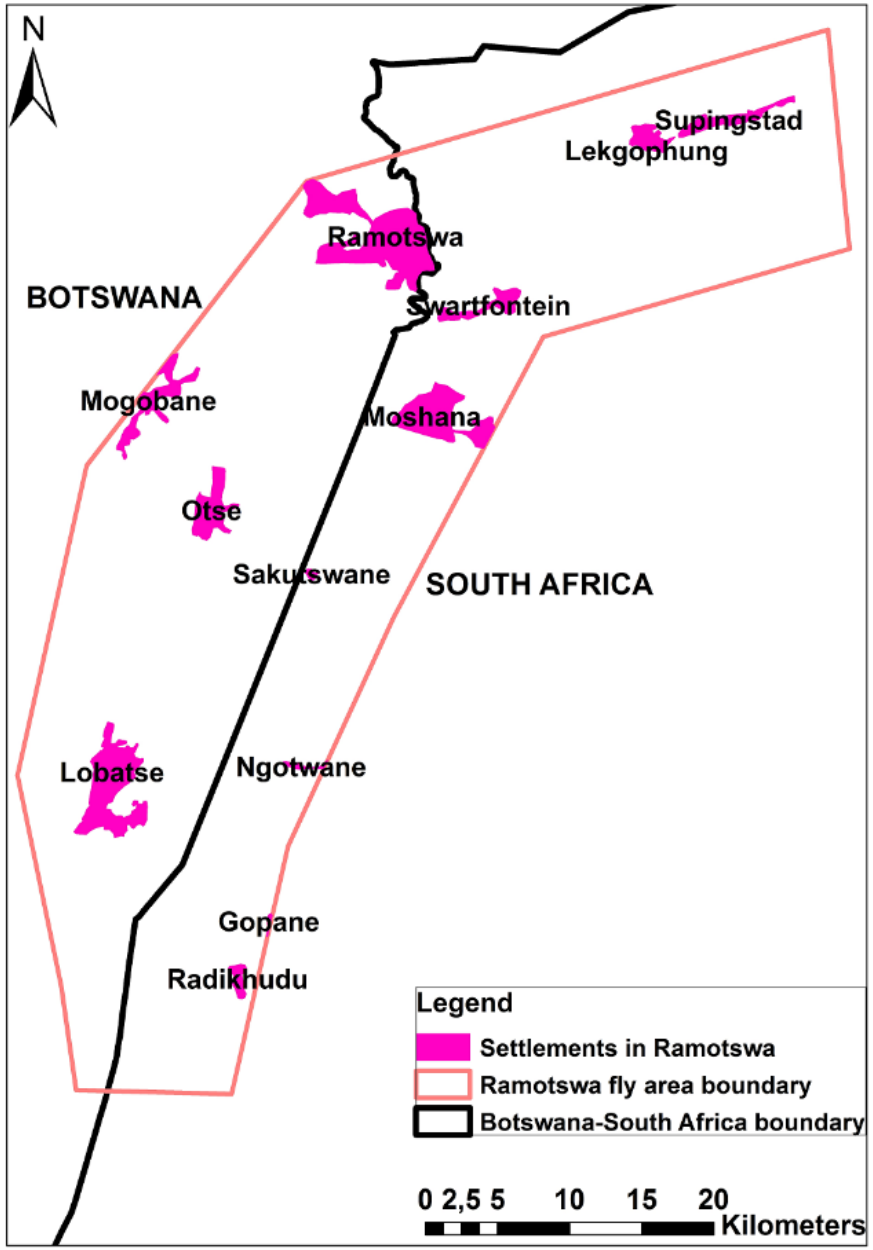

Figure 1: Map of settlements RTBAA

Figure 2: Focus Group Discussions in South Africa (October and November, 2016)

Agricultural Water Management Solutions

The concept of agricultural water Solutions is to unlock the potential of smallholder farmers by identifying, evaluating and recommending a variety of agricultural water management (AWM) solutions. This includes:

1. Technologies
2. Necessary supporting policies and institutions
3. Market infrastructure and associated business models
4. Financing arrangements

Agricultural Production Systems

- Types of agricultural production systems
- Source of water for production
- Cropping seasons
- Irrigation systems practised
- Crop fertilisation
- Livestock systems

Crop production

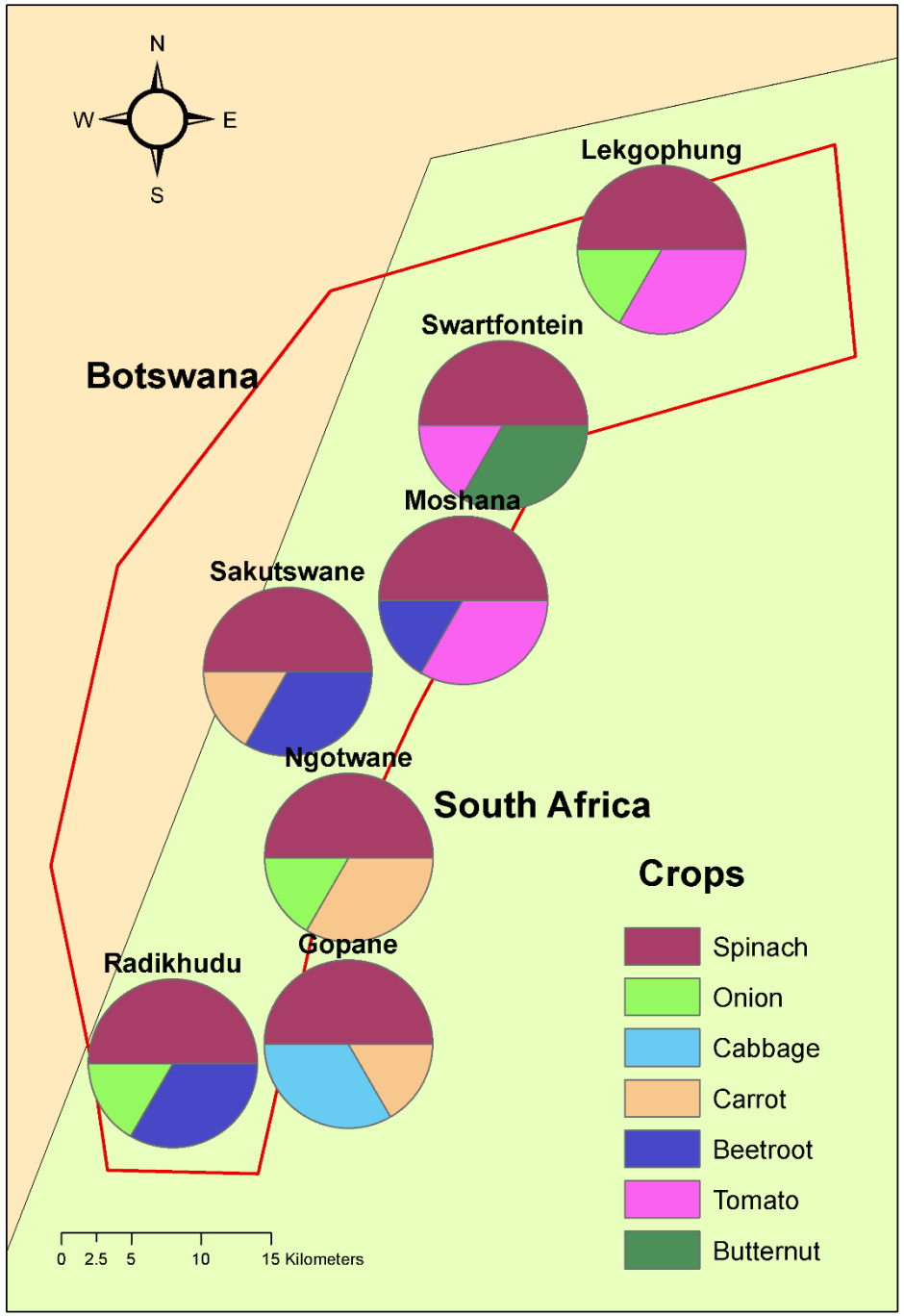

Figure 3: Important crops produced

Note: Other crops produced in the area include Sorghum, Maize, Wheat, Cowpea, Green beans, Cauliflower, Sunflower, Sage, Egg plant, Green pepper, Lettuce, Water melon, Pumpkin and Potato.

Table 1: Constraints on crop production of small-scale irrigation farmers

Note: – = not a problem, + = minor problem, ++ = problem, +++ = severe problem

Constraint	Settlement						
	Lekgophung	Swartfontein	Moshana	Gopane	Radikhudu	Ngotwane	Sakutswane
Water availability	++	+++	+++	+++	+++	++	+++
Long distance of farm from source of water	+++	++	+++	+++	+++	++	++
Operation and maintenance of boreholes	++	++	+++	+	+++	+++	+++
Crop pest infestation	++	+	++	+	+	+	++
Soil fertility problems	-	+	-	-	-	-	-
Access to inputs	+++	+++	++	++	++	++	++
Farm infrastructure and equipment	+++	++	+++	+++	+++	++	++
Absence of farmers' cooperatives	++	++	++	+	+	++	+
Limited access to market	+++	+++	+++	++	++	+++	+++

Livestock Production

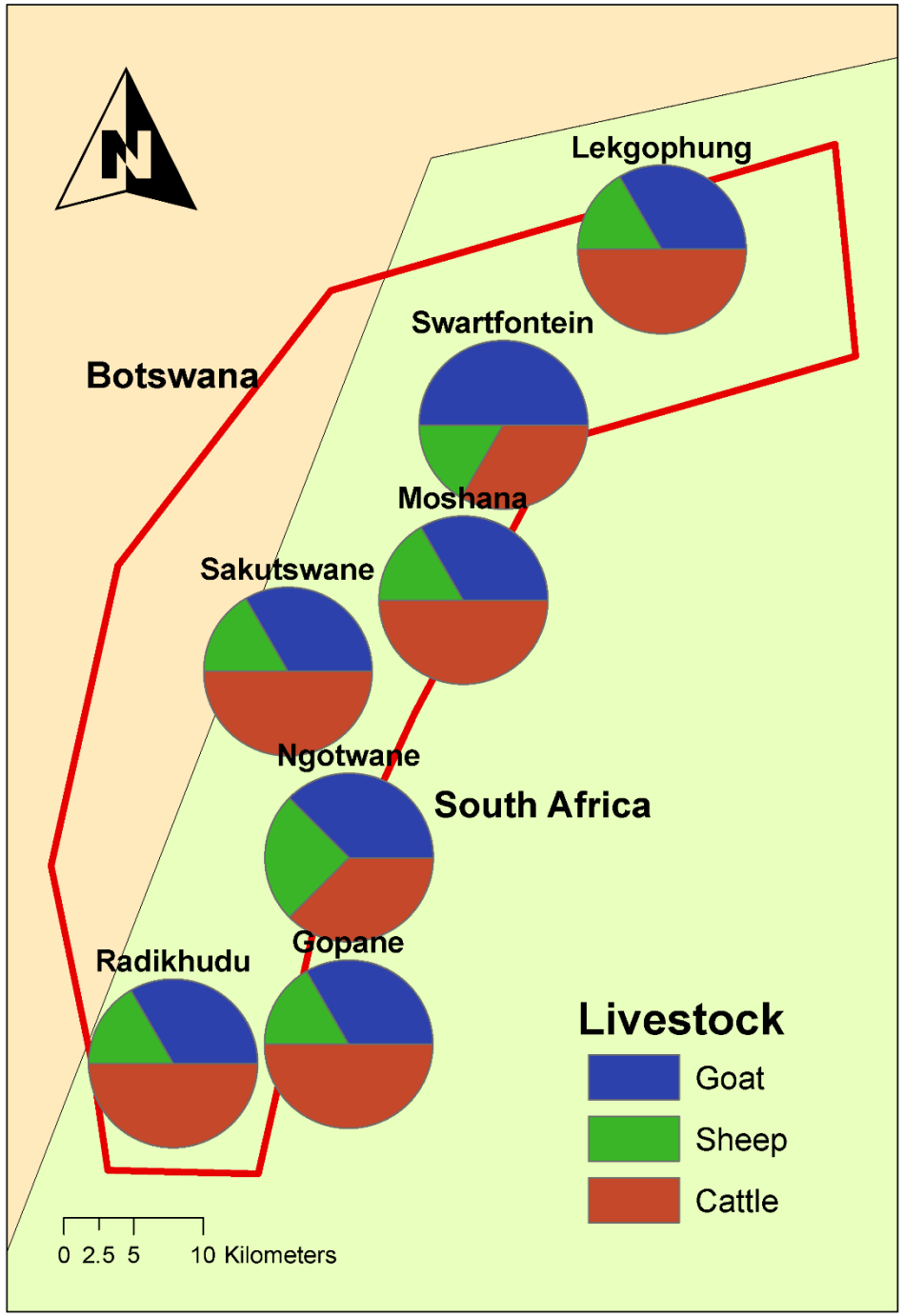

Figure 4: Important livestocks kept by most households in RTBAA South Africa

Note: Other livestocks domesticated in the area include Pig, Duck, Fowls, Turkey, Donkey, Horse and Mule.

Constraints to livestock production

- Siltation of dams and non-functional windmills
- Animals usually travel long distance (3-4 km) to source of drinking water
- Poor growth of pastures/grasses
- Limited knowledge on sustainable livestock production systems
- Distance to market to buy livestock feeds
- Weed invasion/desertification in some areas like Moshana
- Absence of willing investors and organized market within the community
- Theft of livestock due to lack of resources to fence farms
- Livestock vaccines are rarely available
- Lack of cooperation among farmers

Water Supply

- Regional/local water scheme
- Boreholes
- Springs in settlements like Gopane
- Rain water tank/drums, plastic containers and bathtubs
- Dam/pool/stagnant water (most of these will require rehabilitation)
- River/stream (1 river in Gopane)
- Water vendor
- Water tanker

Water Contamination

- The use of pit latrines and absence of planned cemeteries in most settlements have potentials for contamination of the aquifer
- Pollution of dams (Radikhudu and Ngotwane) from Botswana's sewage treatment facility
- Contamination from old pipes (since 1994) in Sakutswane

Sanitation practices

- Use of Ventilated Improved Pit (VIP) toilet system by some of the households
- When pit latrines are filled, they are closed and new ones are dug
- Emptying of septic tanks by those who have waterborne flush toilet system
- Few households in some settlements reuse grey water for irrigating their plants

Constraints to improved Sanitation Practices

- Unreliable water supply/scarcity is a constraint to switching from pit latrines to modernized waterborne system
- Limited financial resources (affordability of modernized toilet systems)
- Lack of adequate awareness and sensitization programmes
- Low level involvement of community stakeholders in developmental plans

Summary of findings

- Subsistence farming is mainly practiced in the settlements
- Groundwater is the major source of water for all uses
- Potential source of contamination for the aquifer include pit latrines and unplanned cemeteries
- There are ongoing transboundary water pollution problems in some settlements
- To a large extent, the improvement of agricultural water solutions, water supply and sanitation in the settlements are hinged on infrastructural problems

Way forward

- Developing effective stakeholders involvement to enhance research uptake
- Generating data on abstraction rates, quality and quantity of the groundwater resources in the area
- Identifying cost effective and sustainable groundwater infrastructural systems in the area
- Setting up effective mechanisms for monitoring and maintenance of boreholes
- Identifying opportunities for private public partnership on farm infrastructure and equipment
- Feasibility studies on sewage infrastructural system and a secondary treatment of the effluent for reuse in irrigation

END OF PRESENTATION