Research Project K5//2083/4

Empowerment of women through water use security, land use security and knowledge generation for improved household food security and sustainable livelihoods in selected areas of the Eastern Cape

J Denison, C Murata, A Perry, L Conde-Aller, N Monde, T Jacobs

Chenai Murata: Presenting

IN OVERVIEW ….

Research objectives

Approach

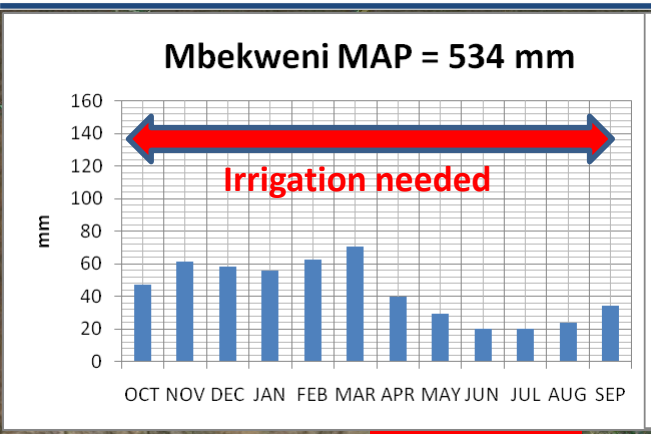
Gender dynamics, roles & responsibilities

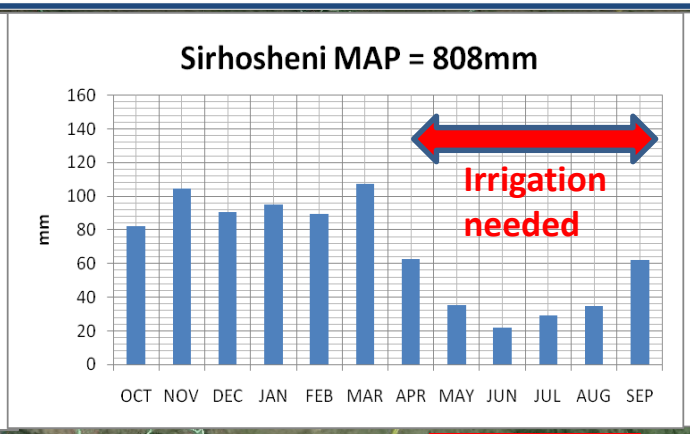
Water use and WAR impact

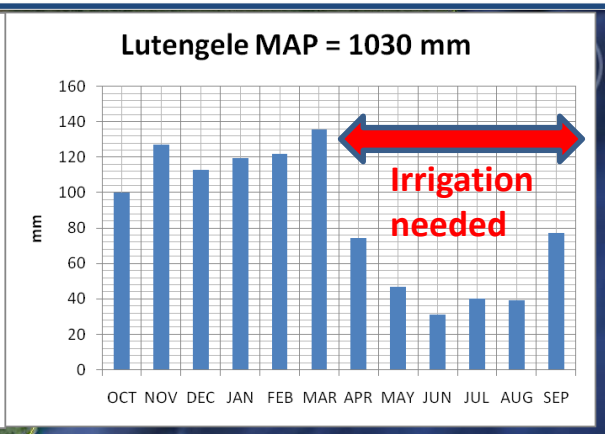
Land access control and use

Aspirations and interventions

Three Research Sites







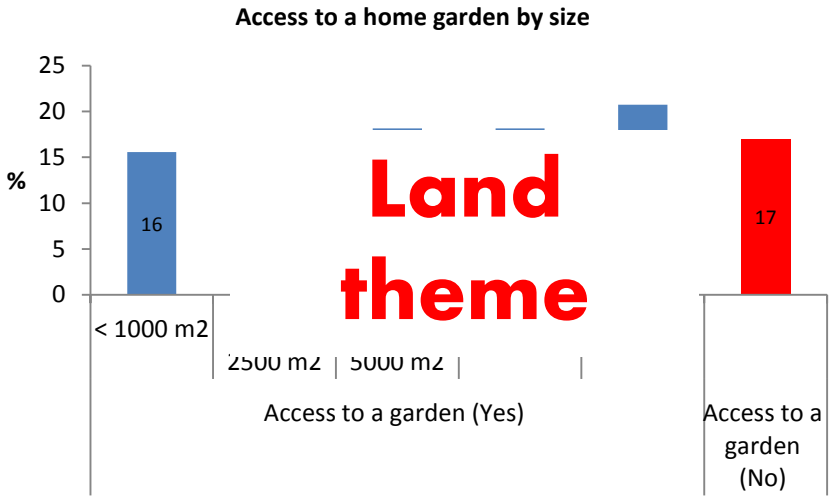
Another project sponsored by the Water Research Commission

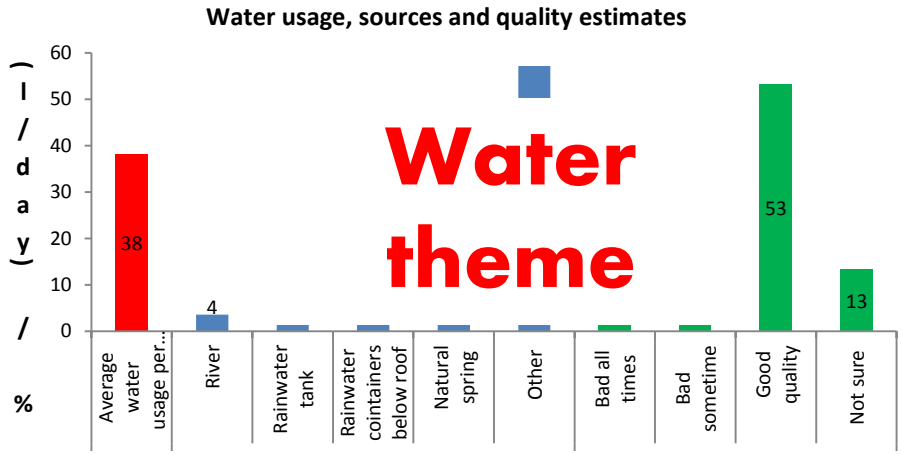
Aims and Objectives

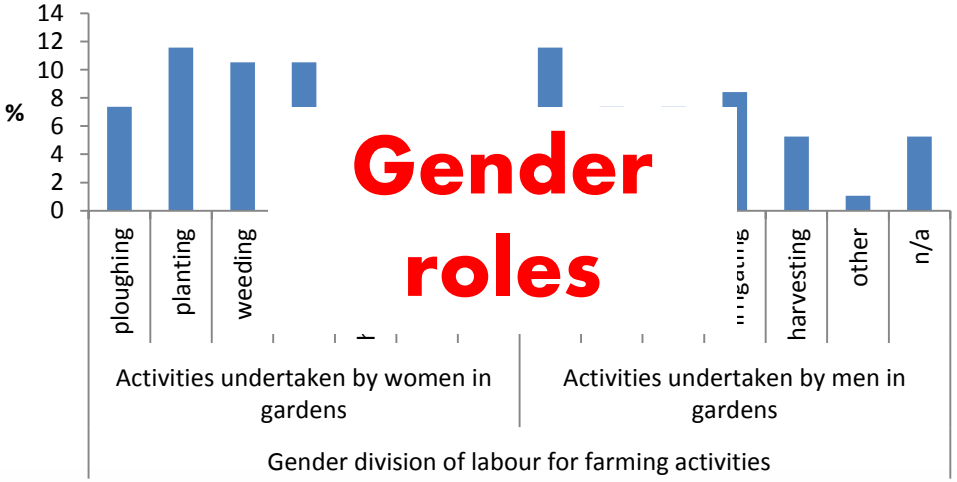
To investigate (with a focus on food production and women):

1. **… *water use* in crop cultivation in three rural villages**
2. **… *knowledge*, skills and skills development of women**
3. **… *social relations, gender* dynamics, roles and responsibilities**
4. **… *institutional* arrangements and incentives (land and water)**
5. **… *constraints*, needs, *aspirations* and goals**
6. **… recommend policies, *strategies and interventions***

Socio-economic survey – 164 Households, main project themes



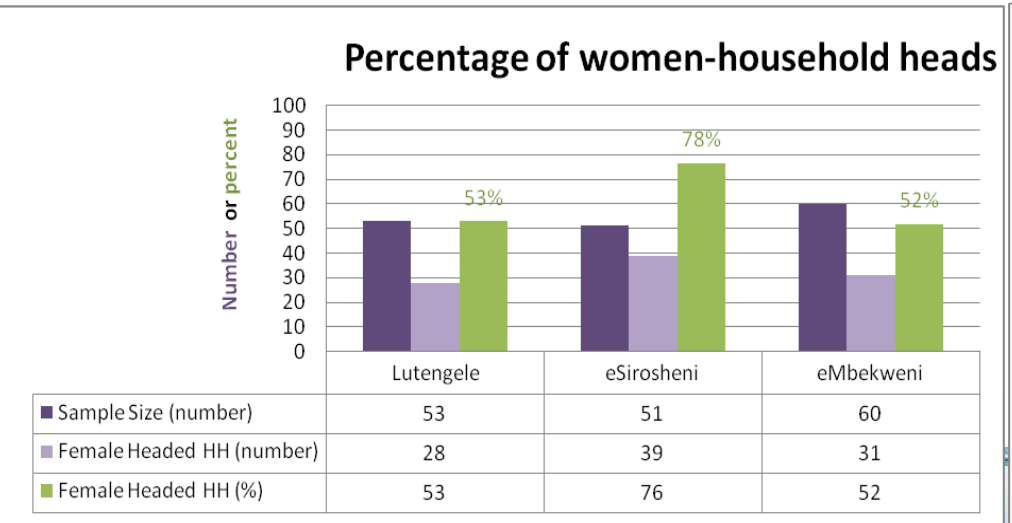




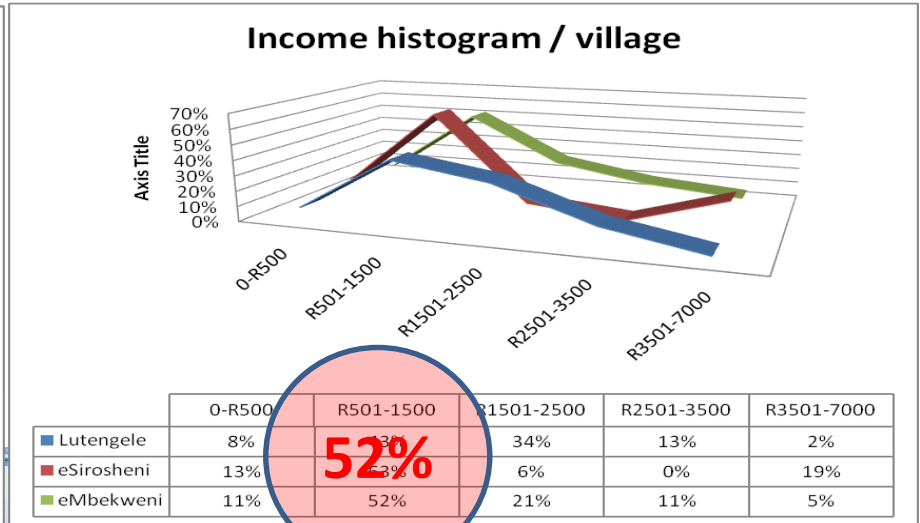
Socio-economic snapshot (n=164)

Characterised by low incomes, high dependence on social grants, high unemployment, small contribution of agriculture within a strategy of livelihoods diversification.

- Majority HH are **headed by women (**52-78%)
- 82-85% live on **less** than R2500 per month (USD1.3 pp/day)
- Only 22-28% of HH have 1 or more full-time **employed member**



	Lutengele	eSirosheni	eMbekweni
Sample Size (number)	53	51	60
Female Headed HH (number)	28	39	31
Female Headed HH (%)	53	76	52



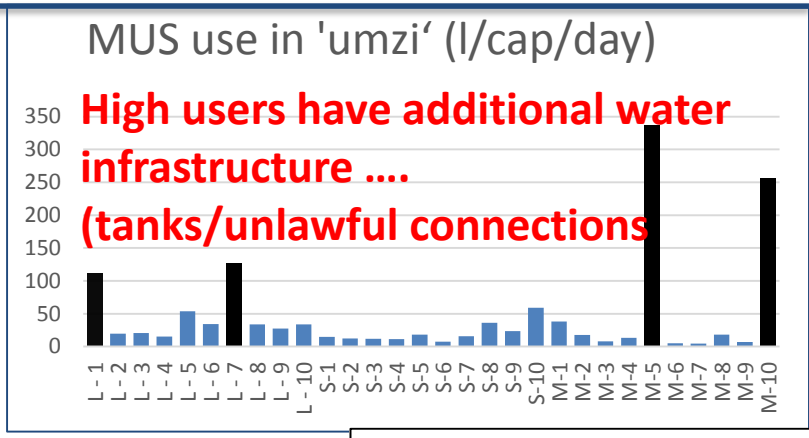
	0-R500	R501-1500	R1501-2500	R2501-3500	R3501-7000
Lutengele	8%	[illegible]	34%	13%	2%
eSirosheni	13%	[illegible]	6%	0%	19%
eMbekweni	11%	52%	21%	11%	5%

Despite material poverty
- abundance of positive energy
- substantial natural resources

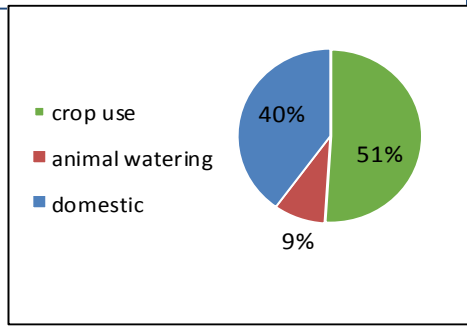
30 Case Study Households selected from the 87% who practised some farming in 2012-13

Conclusions on water use

1. **People use very little water in HH**
   - average 46 litres/person/day
   - **71% less than 25l/person/day**
   - **38% less than 12l/person/day**
   - **60% of total in homestead is for agric!**



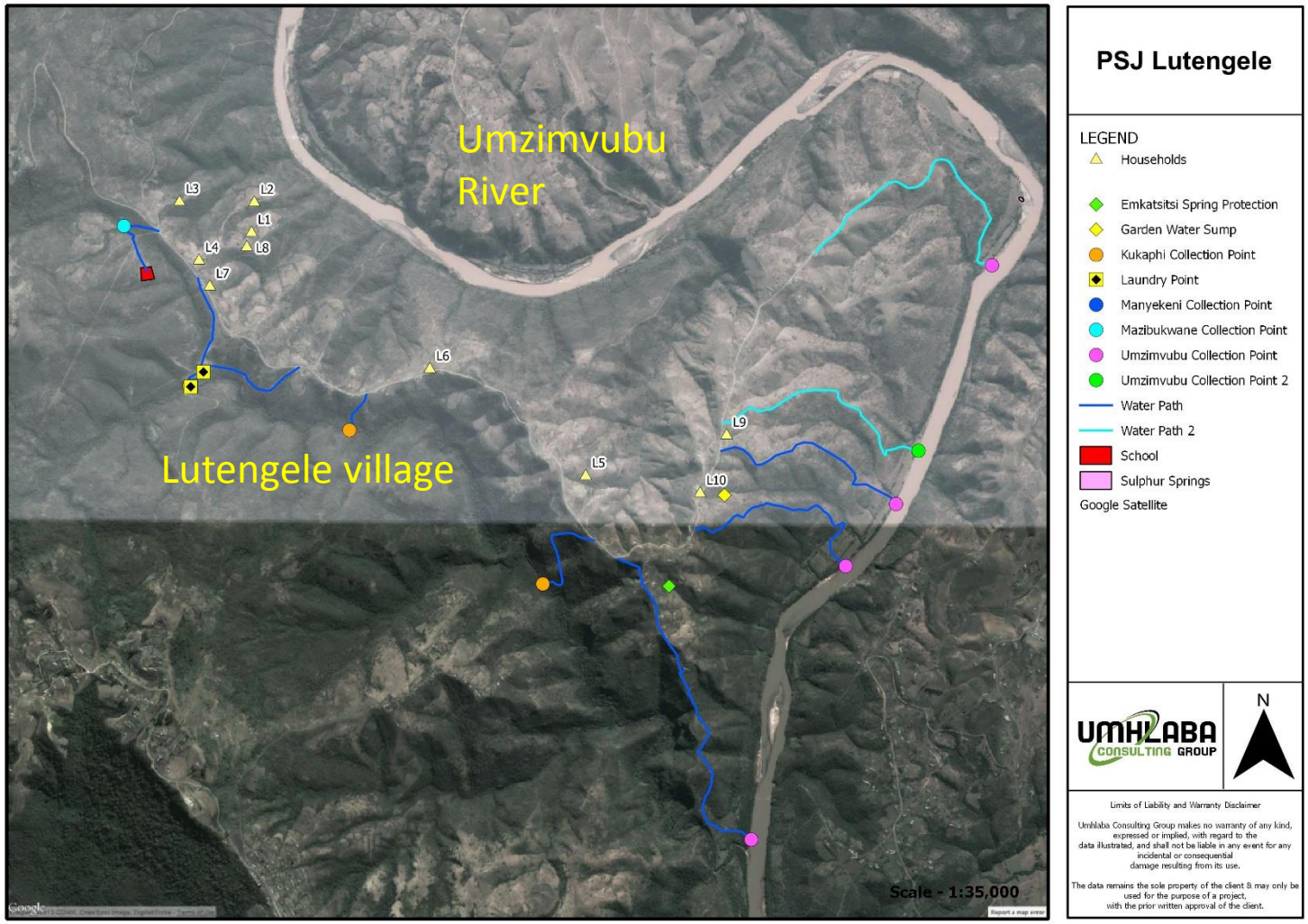
2. **Village water resources are markedly underutilised**
   - Lutengele the **Umzimvubu River** (fractional)
   - Mbekweni, **Bushmanskrantz Dam (15% of allocation)**



3. **The cost of water is extreme:** Up to 100 x typical municipal supply (Lutengele)

4. **Water is not the main constraint to field production:** There are other major constraints to agricultural production.

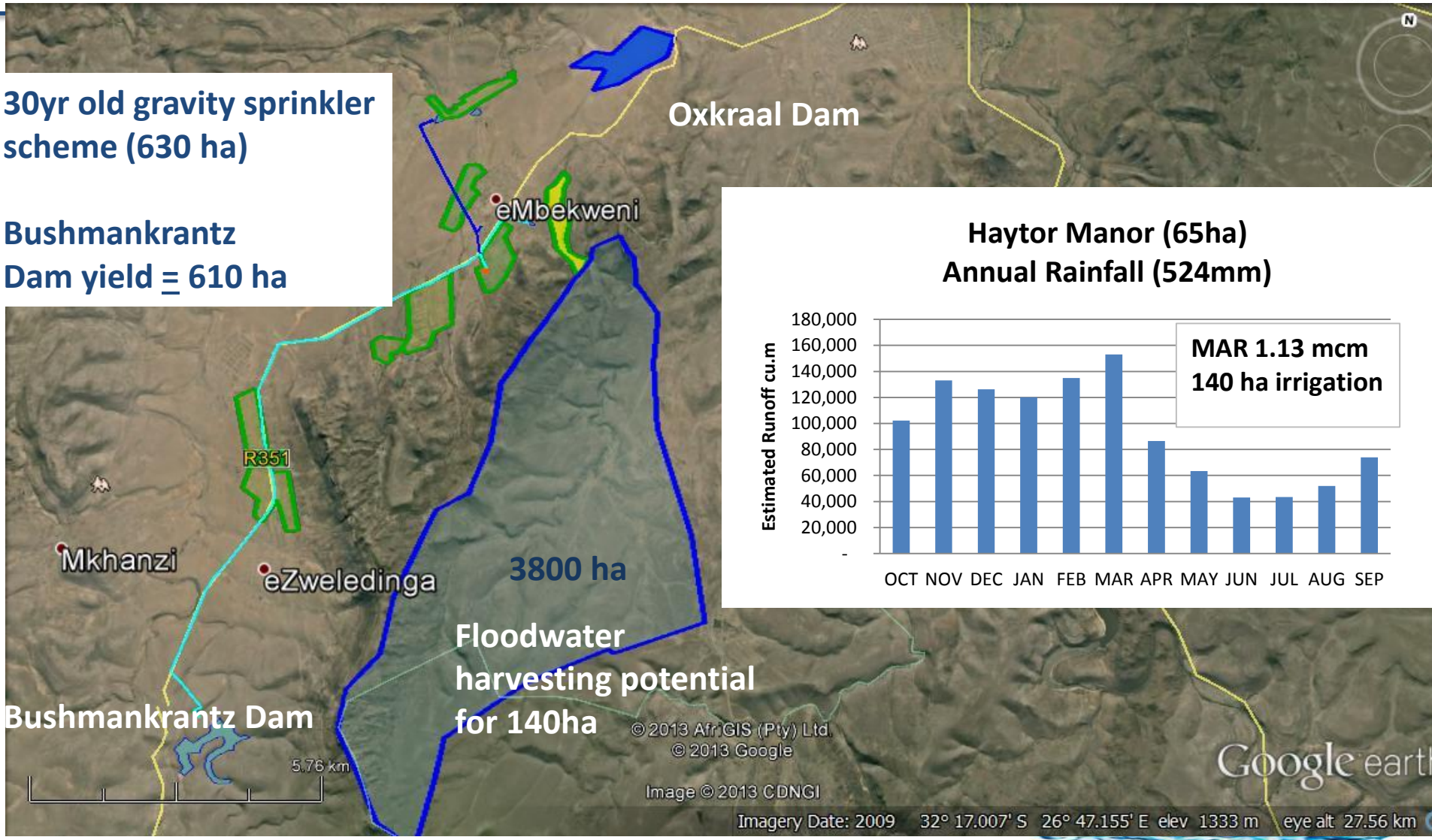
General experience of water deprivation despite resource abundance in vicinity



General experience of water deprivation despite resource abundance in vicinity

30yr old gravity sprinkler scheme (630 ha)

Bushmankrantz Dam yield = 610 ha



Haytor Manor (65ha)
Annual Rainfall (524mm)

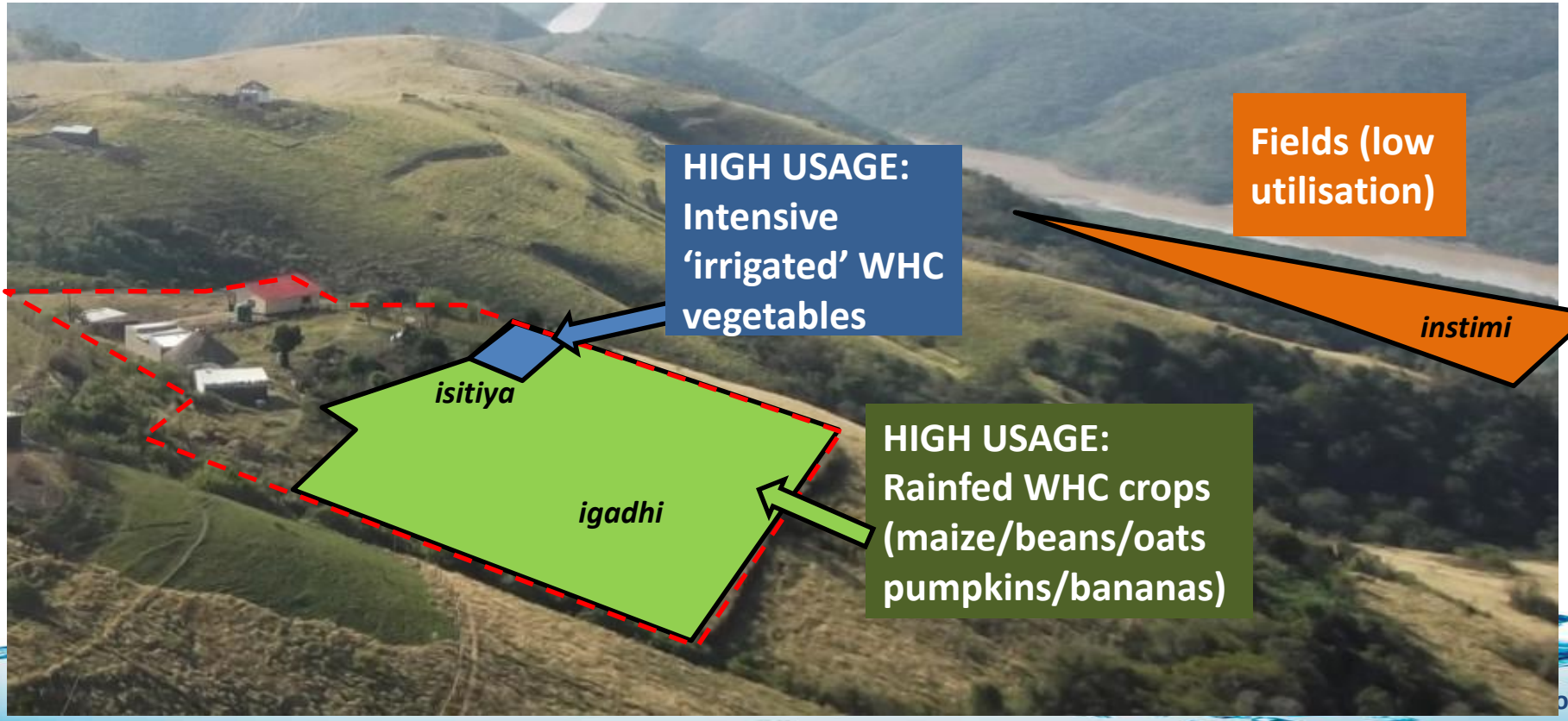
Findings on land: Institutions of Access

Overarching rule: land is **allocated to support family** (wife, children etc.) gender & marital status regardless.

- **Isitiya & igadhi are embedded** in the residential plot
- **Fields/intsimi detached** & applied for separately
- **Applicants locate land** & approach leadership
- **Token is payable** (Sirhosheni & Lutengele)

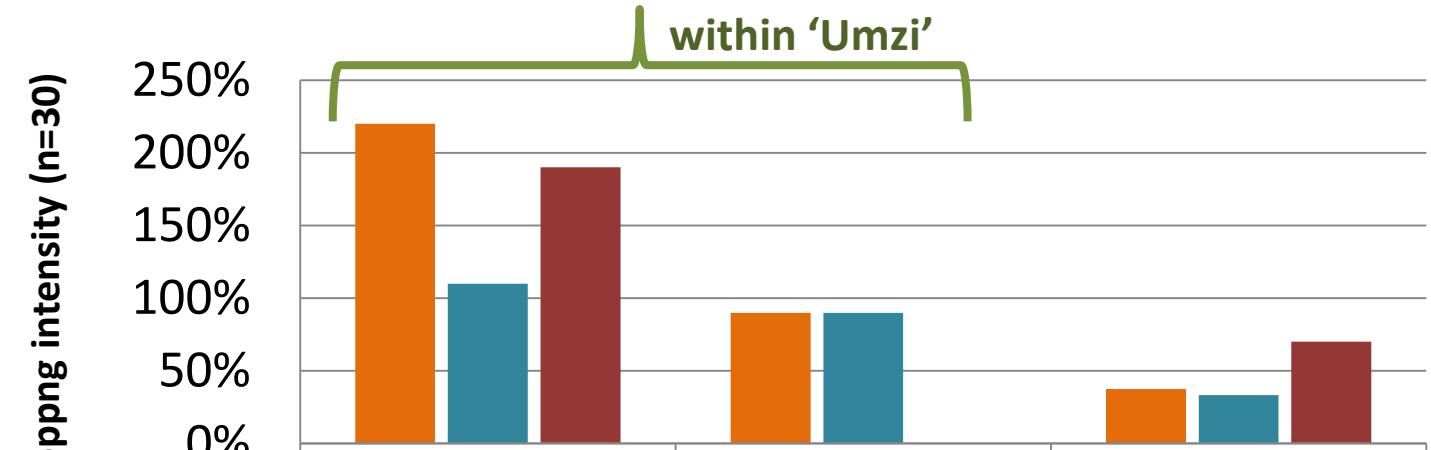
Findings on land size / differentiation

	Isitiya	Igadhi	instimi
HH with arable land portions (n=164)	87%	51%	69%
Size of arable portions (n=30)	680 sq.m	0.38 ha	1.32 ha



Use of arable land and cropping intensity

	within Umzi	instimi
Cropped their arable land portions (n=164)	63%	44%

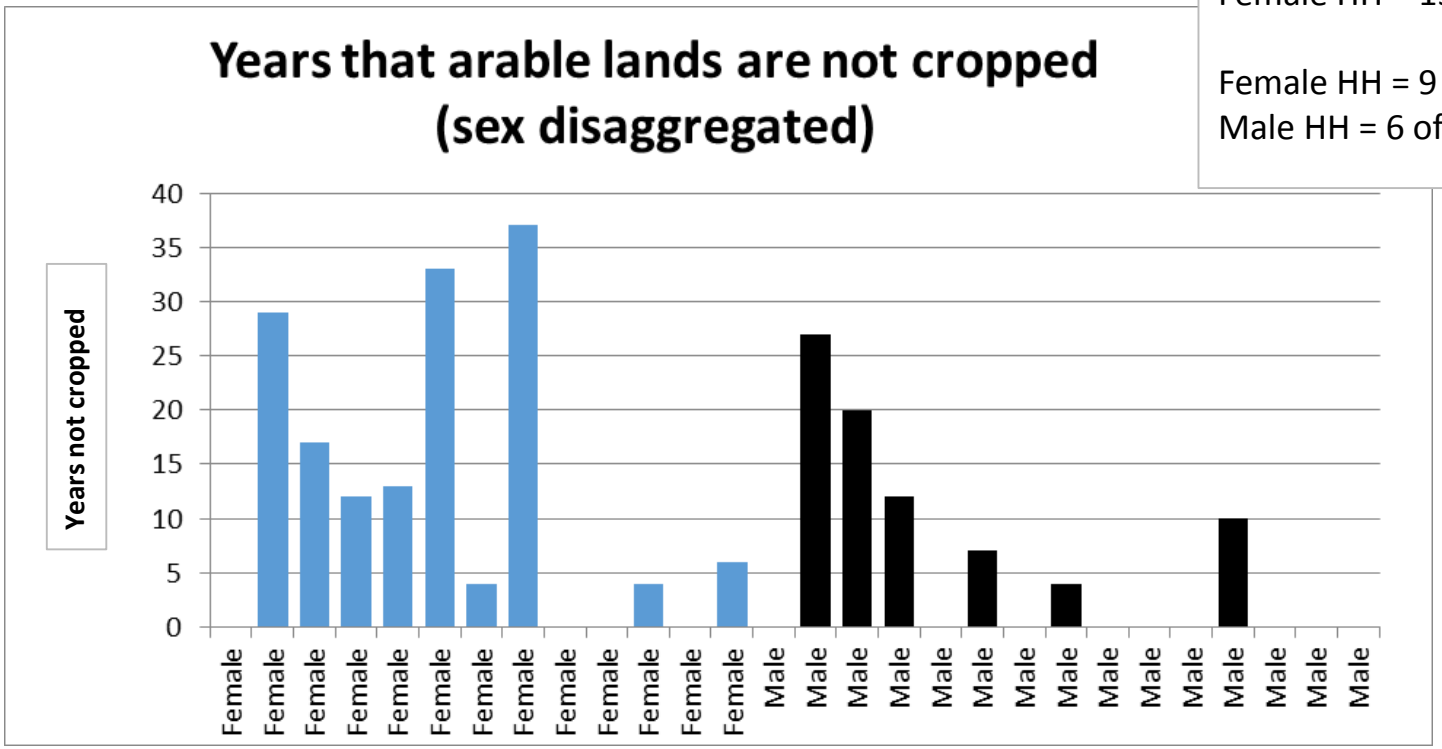


	Isitiya	Igadhi	Arable Fields
Lutengele	220%	90%	38%
eSirosheni	110%	90%	33%
Mbekweni	190%	0%	70%

Land use right is secure – even when unused

Case HH with arable land
Male HH =14 with arable land
Female HH = 13 with arable land

Female HH = 9 of 13 not cropping
Male HH = 6 of 14 not cropping



Conclusions on land at study sites

- Land **within the Umzi has much higher utilisation** than fields
- Land in fields is **abundant & widely underutilised**
- Land is **not arbitrarily repossessed** by leadership - it belongs to the household until they choose otherwise
- **No evidence that access to land is limited by gender**
- Customary land **access and use rights are secure**
- **Institutions** to facilitate land-transactions are limited and **disincentivise uptake of unutilised land**
- Low land utilisation in fields due to **other more critical elements of farming**

Defining aspirations using typologies

- **Multiple visits by researchers** over 3 years, surveys, discussions on styles, crop mix, water-use and resources and aspirations.

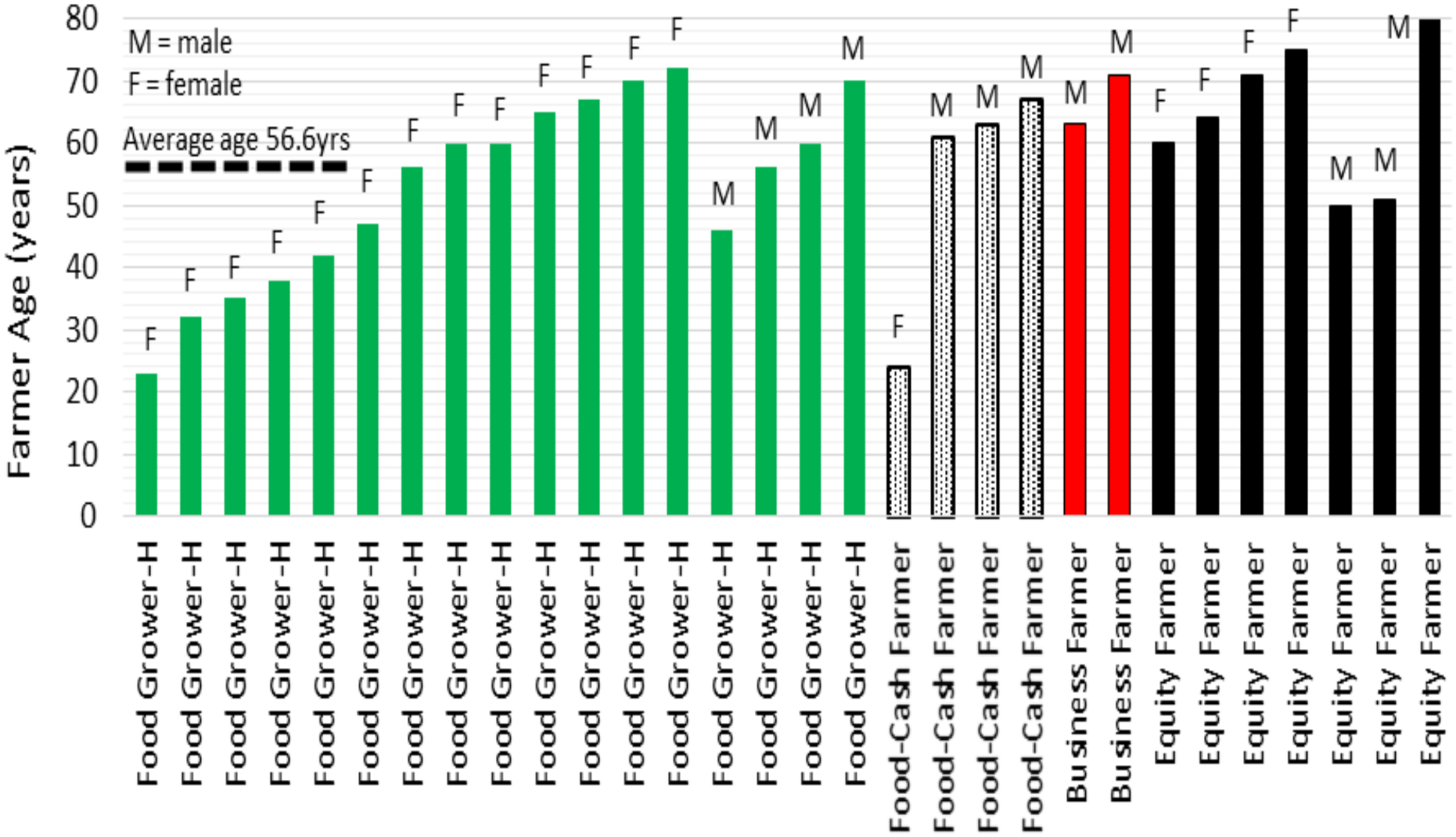
- **Informed by literature** on relevant South African smallholder farming styles (van Averbeke et al., 2011; Denison and Manona, 2007; Cousins, 2013; Aliber and Hall, 2012).

- **Initial typology of food-growers** emerged through intuitive deductive methods informed by key factors of
  - **crop preference**
  - **purpose**
  - **risk appetite (reflected by external dependency)**
  - **location and**
  - **scale of farming**

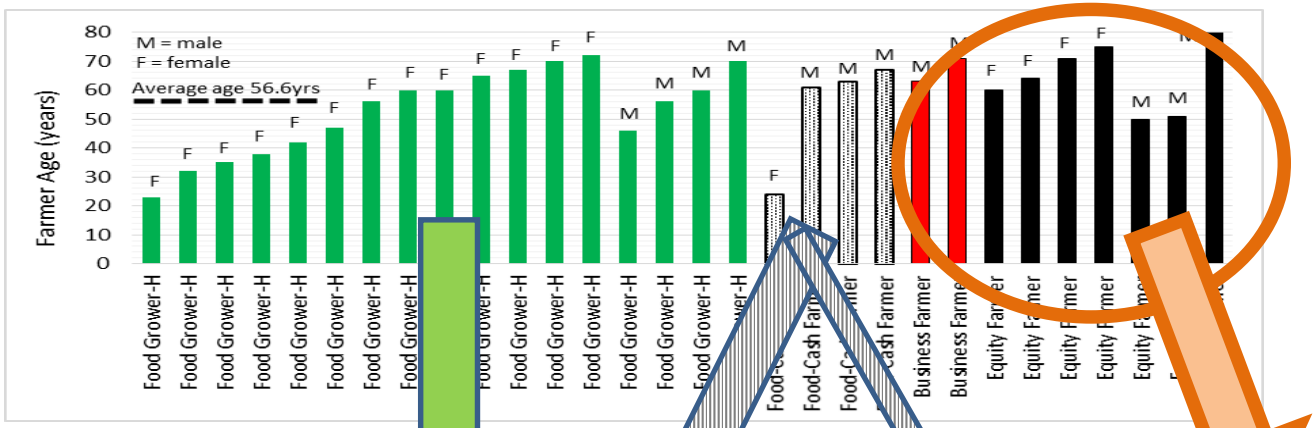
Typologies – scale and purpose

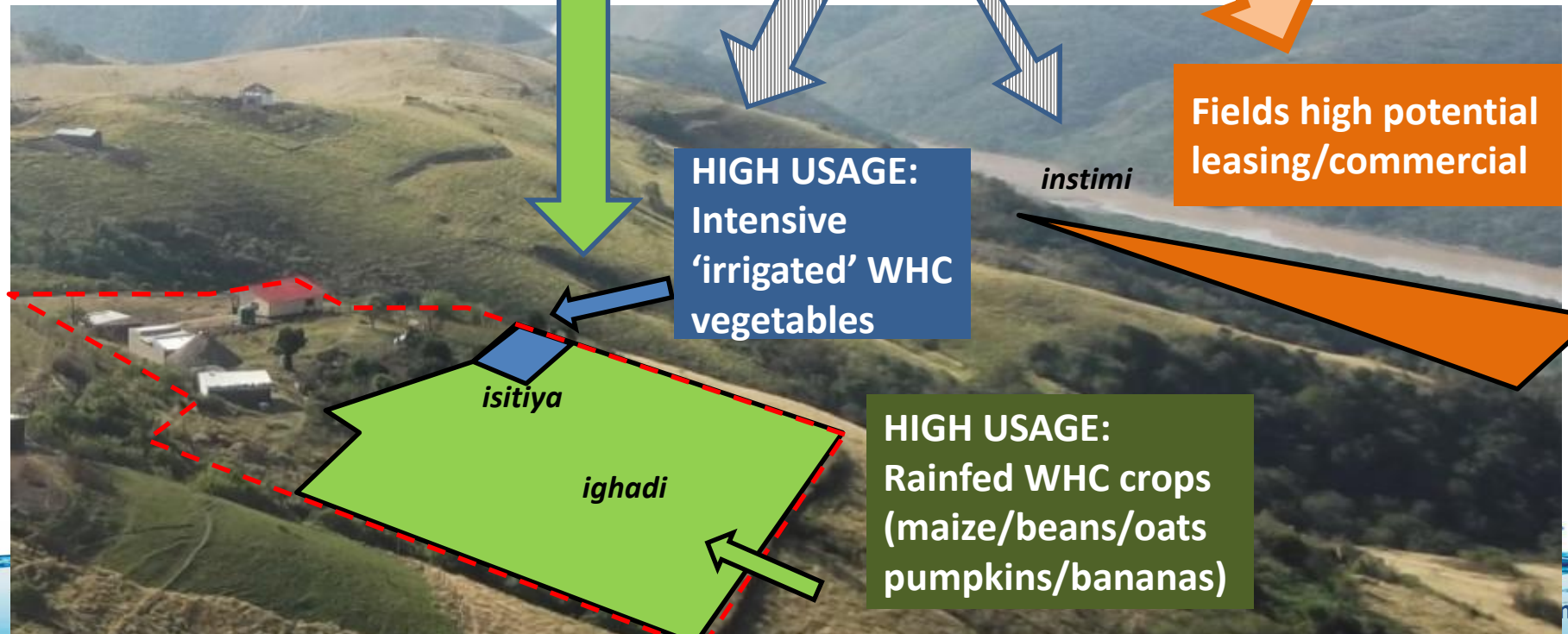
Typology	Key characteristics: Purpose / labour / risk appetite / external dependence	Approximate scale and location	Crop mix
A: Food grower – low productivity	People who grow primarily for home consumption (and social exchange) but with low productivity and minimal surplus for cash sale. Low-investment low-risk farming approaches.	< 200 m^2 isitiya and igadhi	vegetables greens maize pumpkins beans tree crops
B: Food grower – high productivity	People who grow primarily for home consumption, with high productivity and sale of surplus. Low external dependency. Primarily hand-watered.	0.1-1 ha isitiya and igadhi	
C: Food and cash farmer	Farming with intention of significant cash sale requiring external markets. Land preparation is mechanised but family labour predominates. Significant external dependency, moderate risk. Loose value chains predominate.	0.5 ha to 2 ha igadhi and intsimi	food and high-value cash crops
D: Business farmer	Farming for cash sale to external markets and where the farming enterprise makes a dominant contribution to livelihoods. Employed labour. Mechanised. High external dependency & high risk. Marketing though loose and tight value chains.	2 ha to 20 ha intsimi	intensive veg green maize field crops
E: Equity labourer with contracts	Residents who have rights to land and water and no intention of farming actively, but instead lease or sharecrop. Low financial risk, high contract risk.	field scale, consolidation of plots	commodity crops

Aspirations – typology and age

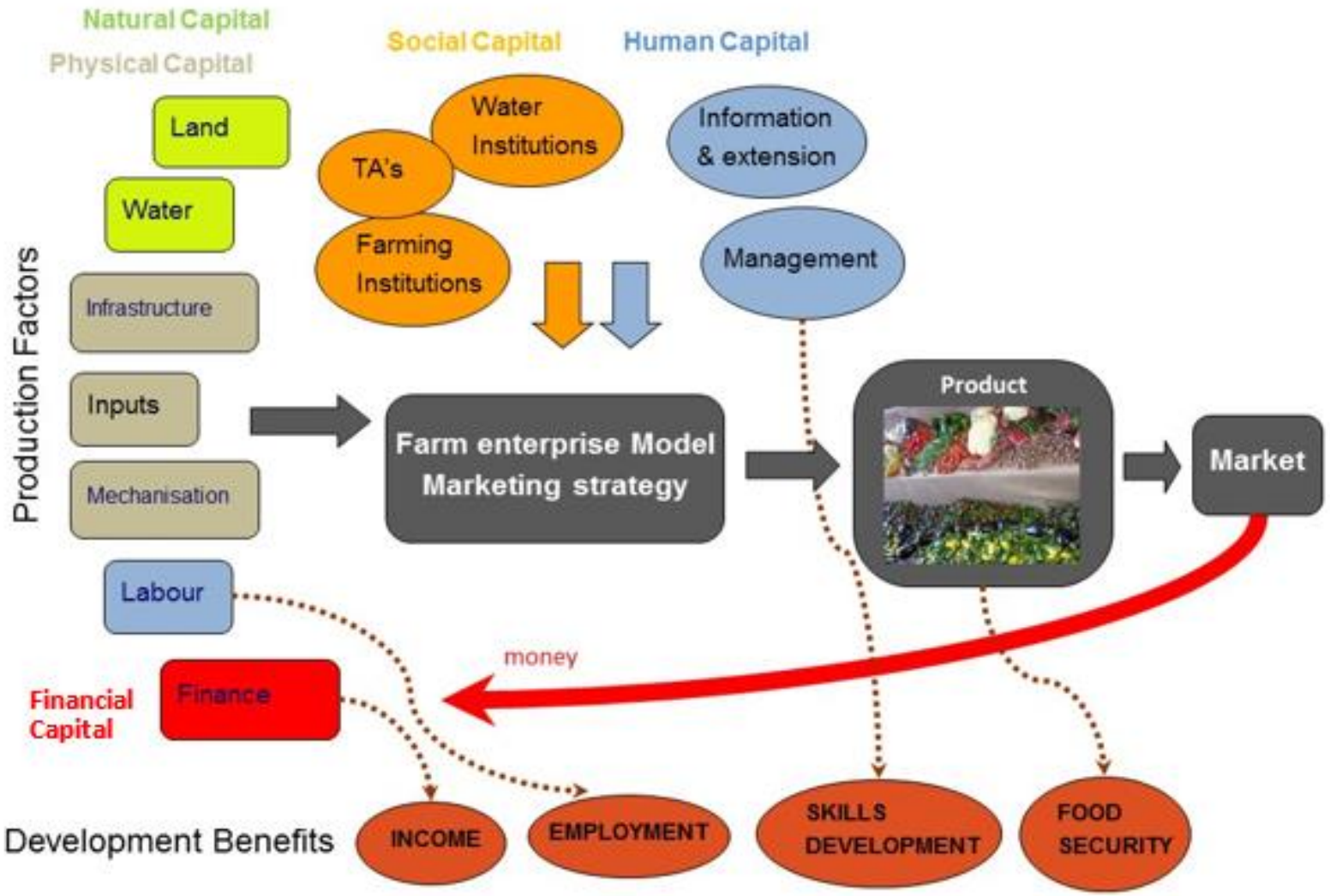


Spatial realities & aspirations





Farming systems perspective



Constraints and opportunities

	Type B Food–Grower	Type C Food-Cash	Type D Business	Type E Equity
Constraints *land area*	*isitiya/igadhi*	*Igadhi/intsimi*	*intsimi*	*intsimi*
Farming knowledge and skills	2	2	4	0
Land use rights	1	1	3	4
Land control rights	1	1	4	4
Water resource availability	1	2	2	0
Water infrastructure	4	4	4	0
Fencing	2	3	4	2
Mechanisation	1	3	3	0
Labour	1	2	2	0
Access to inputs	2	2	2	0
Ability to self finance	1	3	4	0
Access to markets	1	2	4	0
Score (indicative ranking only)	**17**	**25**	**36**	**12**

Key: Farmer assessed level of severity of farming challenge

Critical (4) | Serious (3) | Moderate (2) | Manageable (1) | Lessee problem (0)

Priority spatial areas for cropping

Constraints / land area	Type B Food–Grower isitiya/igadhi	Type C Food-Cash Igadhi/intsimi	Type D Business intsimi	Type E Equity intsimi
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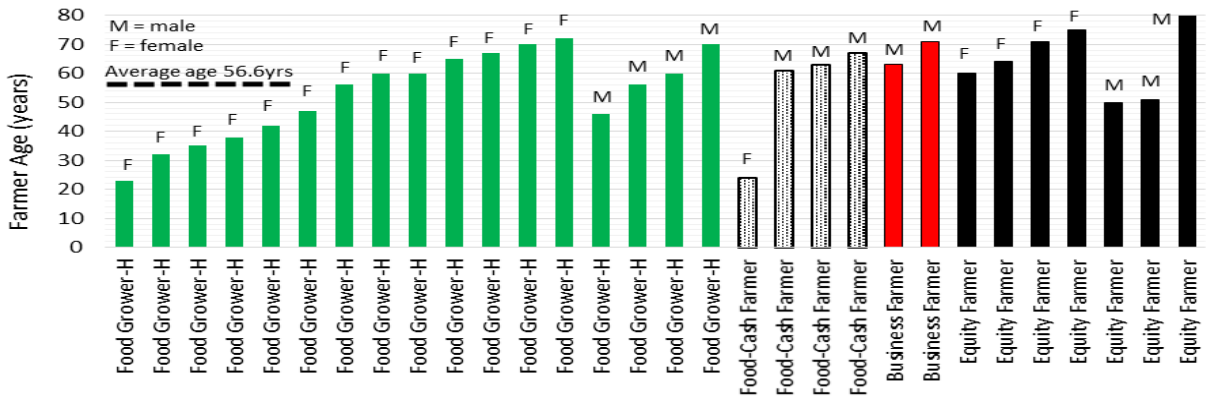

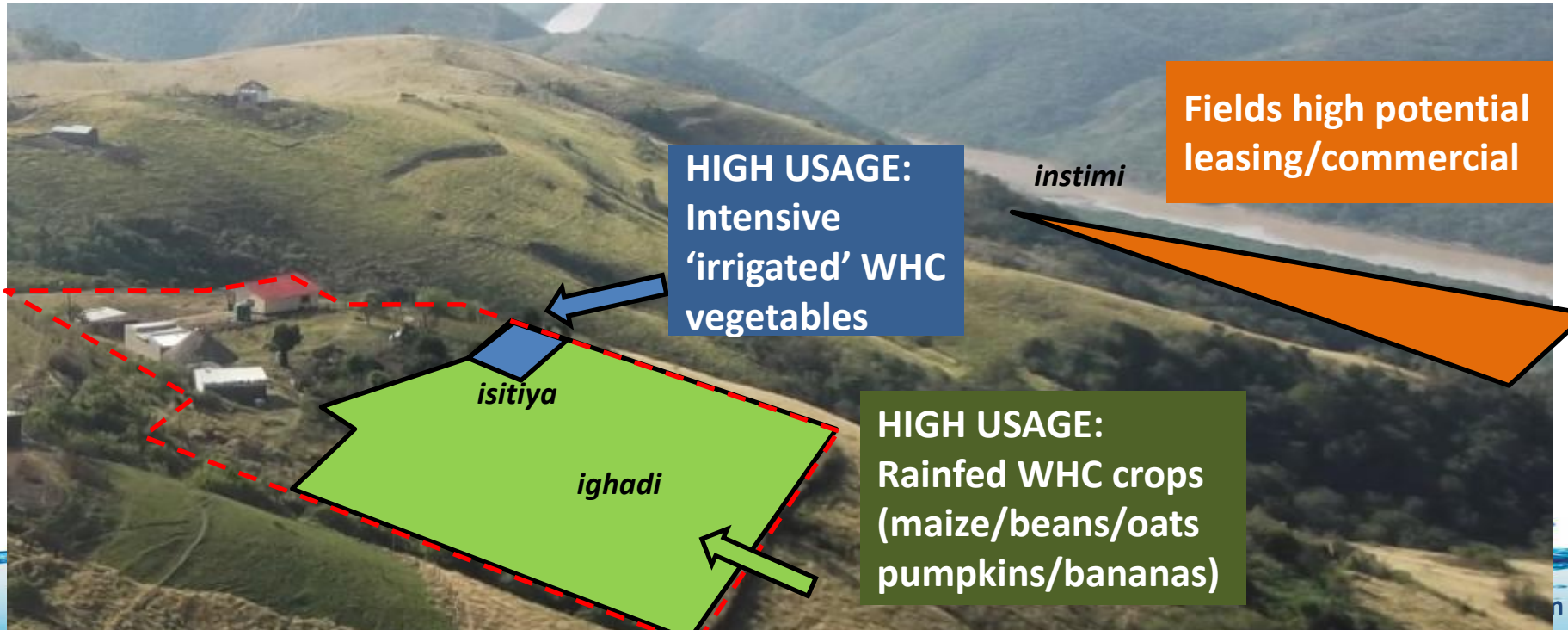

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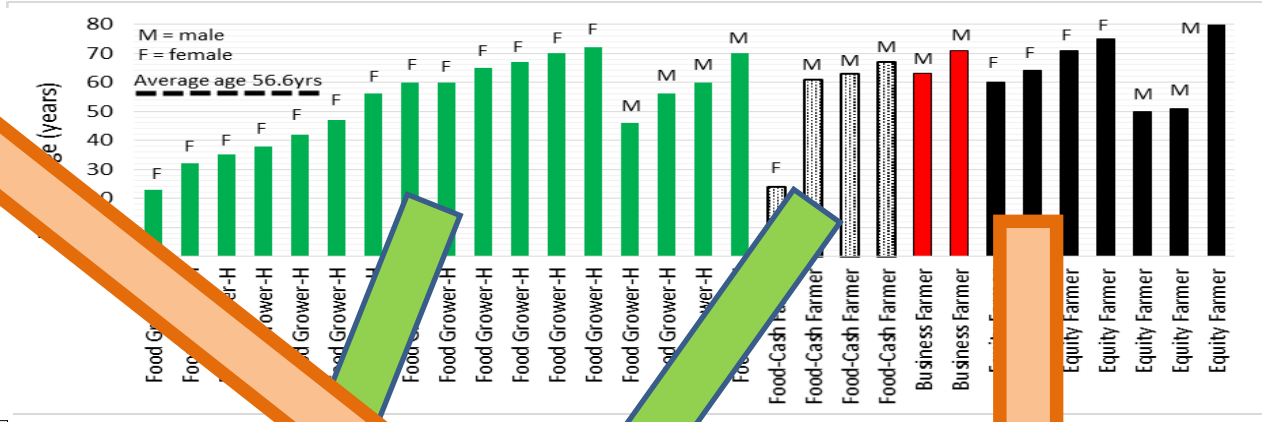

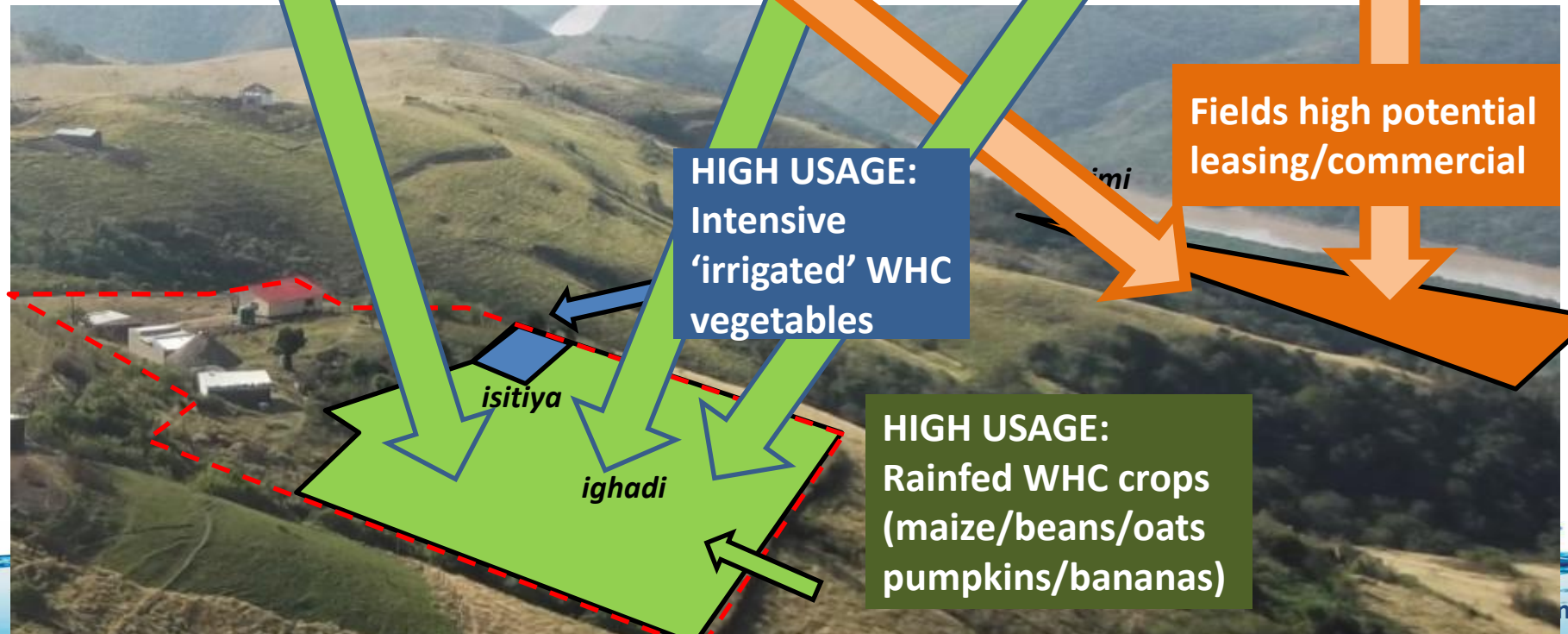

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Key points of direction from policy

Emphasis on women's empowerment and **agriculture is pivotal in driving rural development, health, jobs and food security**

Water reform – redress: access and control of water and the benefits thereof are highly topical and fundamental to the current water law review

South Africa's water management system is built on established principles of IWRM – **devolution, integration and various scales**

Factors and processes beyond the boundaries of their specific sector and **embrace the productive enterprise system**

Market linkages and knowledge building themes are widely evident, along with movitations for a comprehensive approach in rural development

Agricultural water expansion – 500,000ha TARGET

Farmer Typology

A: Food farmer: Lower productivity

B: Food farmer: Higher productivity

C: Food and cash farmer

D: Business farmer

E: Equity-Labourer/corporate

Intervention 1 – Small homestead storage and WHC methods

Locations of practice: *isitiya* and *igadi*

Typologies supported: A, B and C.

71% of people are using less than t
minimum 'Free Basic Water' supply
(25l/pp/day) and 38% less than h
minimum RDP level demonstrati
water deprivation in the homest

Farmer Typology

A: Food farmer: Lower productivity

B: Food farmer: Higher productivity

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E: Equity-Labourer/corporate

File name

Intervention 2 – WHC methods at scale

Locations of practice: *igadi instimi*

Typologies supported: A, B, C, D

6. Tied Ridges

also called:	used in:	
• in-field RWH • partitioned furrows[15] • cross-ridges • furrow dikes[16]	gardens fields grazing land	✓ ✓

This method increases the water that is available to plants by collecting rainfall from an unplanted sloping basin and catching it with a furrow and ridge. Planting takes place on either side of the furrow where the water has infiltrated.

Basins are created by digging out shallow furrows along the contour lines of the slope and constructing ridges on the downside of the furrows. These are "tied" together by slightly lower ridges which are constructed at regular intervals along the furrows (these ridges are also called crossties). The loss of water through evaporation can also be minimised by placing mulch in the furrows.

Figure 7.10 Mulch placed in furrows to minimise evaporation

Figure 7.11 Water is captured in furrows

14. Saaidamme

also called:	used in:	
• floodwater harvesting • "planting dams"	gardens fields grazing land	 ✓ ✓

This method entails the diversion of floodwater from non-permanent rivers into a series of flat basins which are used for cropping. Each flat field is completely surrounded by a low earth embankment (wall) of between 0.5 and 1.5 metres high. Diverted water from the flooding river is channelled into the fields and completely submerges the land for 1 to 3 days, where it fully saturates the soil.[50] Water is released from the saturated field to the next field needing water, through small stone spillways or larger steel sluice-gates.

Slopes and field size

The fields vary from a few hundred square metres to 100 ha in size.[51] The steeper the slope, the smaller the fields. (Larger field sizes are found on very flat lands; smaller fields which have some slope require levelling and this demands that topsoil is removed from higher levels to fill the lower levels. Levelling leaves a shallower layer of topsoil on the upper slope. This means that the steeper the slope of the original land, the smaller must be the fields to maintain enough soil depth.)

Implementation support

Saaidamme are used extensively on a commercial scale for lucerne and vegetable production in arid areas in South Africa.[52] This floodwater-harvesting

Figure 7.27 Saaidamme at Rooikranshoogte, west of Craddock in the Eastern Cape

Farmer Typology

A: Food farmer: Lower productivity

B: Food farmer: Higher productivity

C: Food and cash farmer

D: Business farmer

E: Equity-Labourer/corporate

Intervention 3 – Seedling supplies

Locations of practice: *isitiya, igadi, instimi*
Typologies supported: A, B, C

seedling supply critical for fresh veg production (healthy, available, affordable)

Farmer Typology

A: Food farmer: Lower productivity

B: Food farmer: Higher productivity

C: Food and cash farmer

D: Business farmer

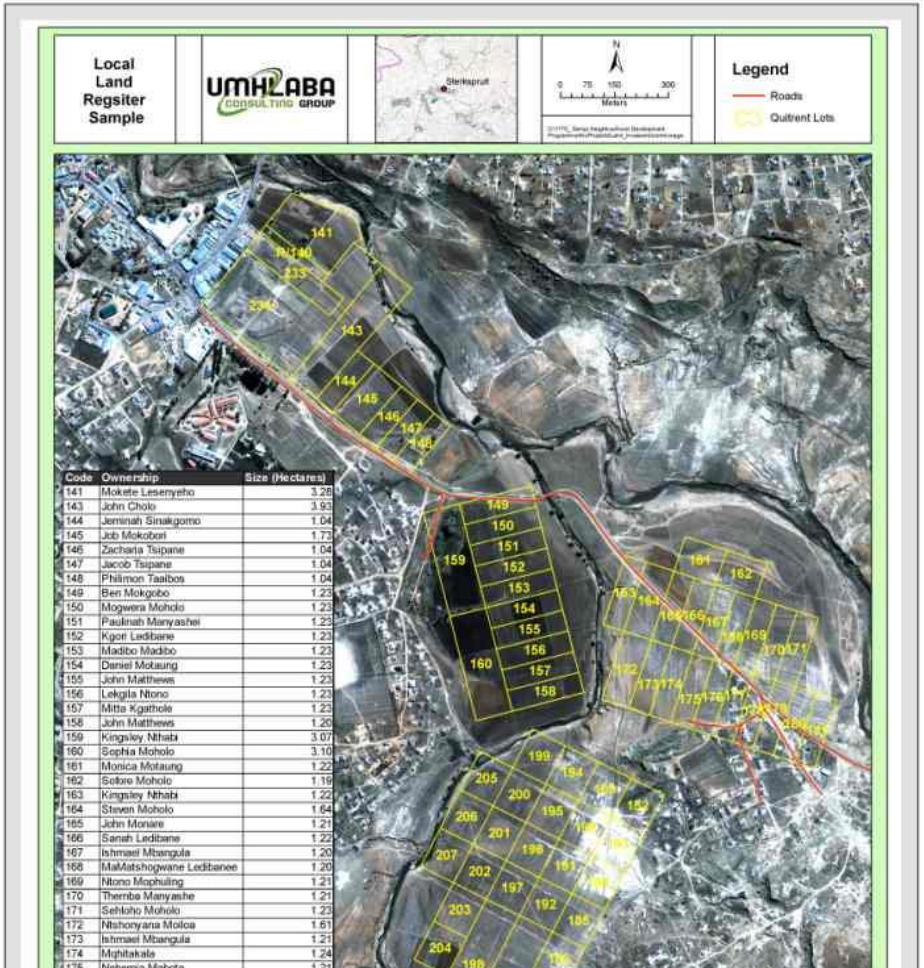
E: Equity-Labourer/corporate

File name

Intervention 4 – Land exchange

Locations of practice: *instimi only*

Typologies supported: C, D



Code	Ownership	Size (Hectares)
141	Mokete Leseriyeho	3.28
143	John Cholo	3.93
144	Jeminah Sinakgomo	1.04
145	Job Mokobori	1.77
146	Zacharia Tsipane	1.04
147	Jacob Tsipane	1.04
148	Philimon Taaibos	1.04
149	Ben Mokgobo	1.23
150	Mogwera Moholo	1.23
151	Paulinah Manyashei	1.23
152	Kgori Ledibane	1.23
153	Madibo Madibo	1.23
154	Daniel Motaung	1.23
155	John Matthews	1.23
156	Lekgila Ntono	1.23
157	Mitta Kgathole	1.23
158	John Matthews	1.20
159	Kingsley Nthabi	3.07
160	Sophia Moholo	3.10
161	Monica Motaung	1.22
162	Sotiore Moholo	1.19
163	Kingsley Nthabi	1.22
164	Steven Moholo	1.64
165	John Moniare	1.21
166	Sanah Ledibane	1.22
167	Ishmael Mbangula	1.20
168	MaMatshogwane Ledibanee	1.20
169	Ntono Mophuling	1.21
170	Themba Manyashe	1.21
171	Sehloho Moholo	1.23
172	Ntshonyana Molloa	1.61
173	Ishmael Mbangula	1.21
174	Mphitakale	1.24

Farmer Typology

A: Food farmer: Lower productivity

B: Food farmer: Higher productivity

C: Food and cash farmer

D: Business farmer

E: Equity-Labourer/corporate

Intervention 5 – Tractor business

Locations of practice: *ighadi, instimi*

Typologies supported: C, D

- Financing
- Business planning
- Technical operator training
- Monitoring and support

Farmer Typology

A: Food farmer: Lower productivity

B: Food farmer: Higher productivity

C: Food and cash farmer

D: Business farmer

E: Equity-Labourer/corporate

File name

Intervention 6 – Learning through knowledge networks

Locations of practice: *all*

Typologies supported: A,B,C, D, E

amanzi FOR FOOD

Farmer Typology

A: Food farmer: Lower productivity

B: Food farmer: Higher productivity

C: Food and cash farmer

D: Business farmer

E: Equity-Labourer/corporate

File name

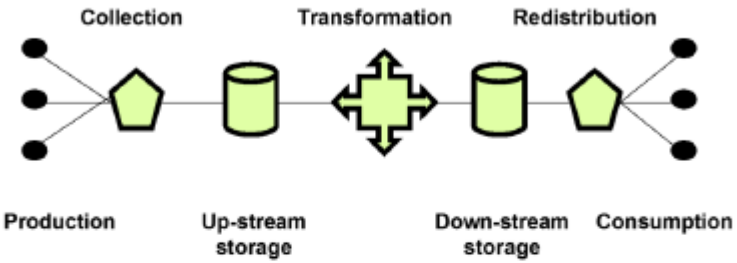
Intervention 7 – Value chain analysis and streamlinig

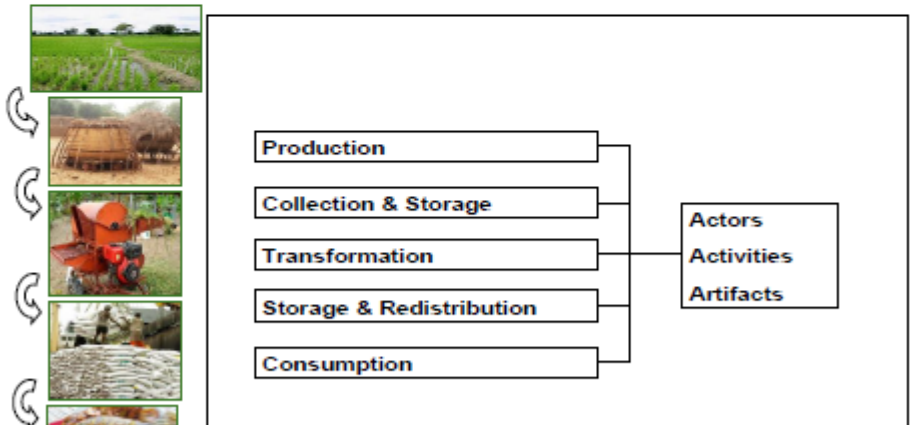
Locations of practice: *ighadi and Instimi*

Typologies supported: C,D

Approach to value-chain analysis

The study of value-chains is complex and the filière approach, illustrated in the schematics below, can be used to develop detailed knowledge on the way agricultural commodities are produced, stored, transformed, transacted and consumed in a particular locality or region [8].





Farmer Typology

A: Food farmer: Lower productivity

B: Food farmer: Higher productivity

C: Food and cash farmer

D: Business farmer

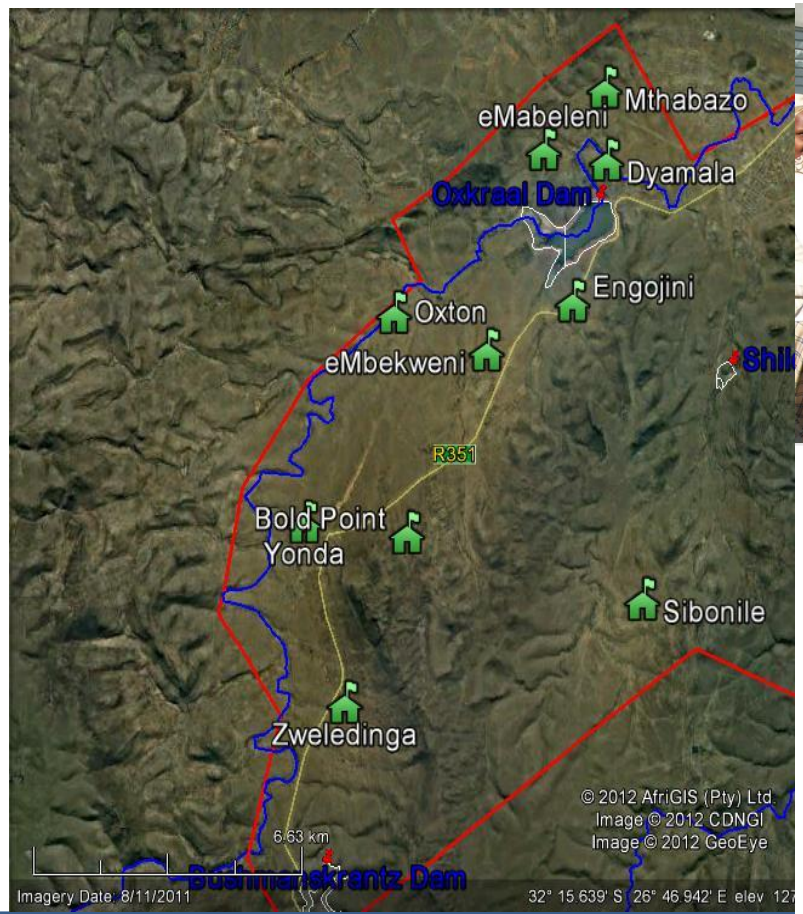
E: Equity-Labourer/corporate

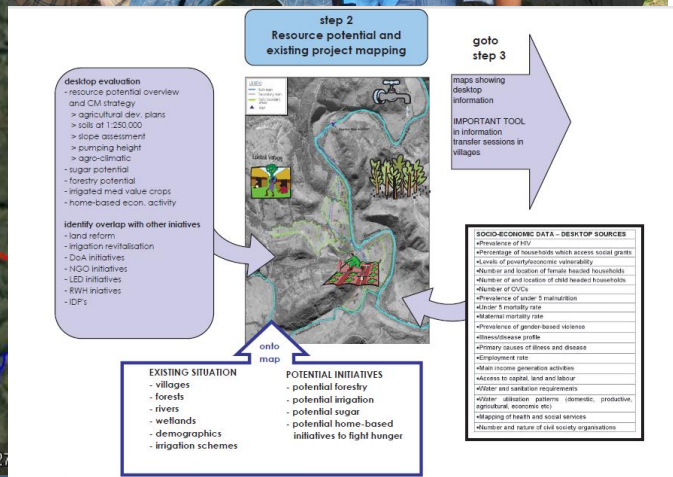
File name

Intervention 8 – Watershed based implementation

Locations of practice: *all*

Typologies supported: A,B,C,D,E





Research Project K5//2083/4

Empowerment of women through water use security, land use security and knowledge generation for improved household food security and sustainable livelihoods in selected areas of the Eastern Cape

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