

Revitalisation of Smallholder Irrigation Schemes – (RESIS) in Limpopo Province

Pieter de Witt Pr Eng

Introduction

- Kofi Anan 25 May 2010: 265 million people in Africa have food shortages.
- In Africa more than half of the people are dependant on agriculture for an income
- Africa has to improve production to feed ourselves and export to the rest of the world

Limpopo province

- Annual rainfall of 450 mm
 - highly seasonal
 - thunderstorms
- Hot and dry climate
 - High temperatures
 - Low humidity
- Low production with dryland production
- Irrigation schemes are prime targets to lift production

Aim of this Presentation

- To make Engineers aware of the other disciplines involved in developing irrigation schemes
- To report on what we are doing in Limpopo to support Smallholder irrigation schemes

Current situation

- 126 smallholder irrigation schemes were developed 40 years ago
- Properties:
 - Communal land with No secure land tenure
 - At best permission to occupy (PTO)
 - Small allocations (1 to 5 ha)
- Infrastructure not maintained
- Only 30 % of fields planted

Canal not quite in use



Most fields are lying fallow



Photograph by Jonathan
Denison

Community uses for canals



Reasonable production on some schemes



Photographs by Jonathan Denison

Not efficient irrigation



Limited Marketing opportunities



Aim of Revitalisation

- Provide infrastructure to enable:

**PROFITABLE and SUSTAINABLE
PRODUCTION**



Ground rules

- Revitalisation of smallholder irrigation schemes is a social development with input from engineering.
- The production plan and the preferences of the farmers inform the infrastructure requirements.
- Engineering is a service provider to revitalisation, but does not own it because they spend the money

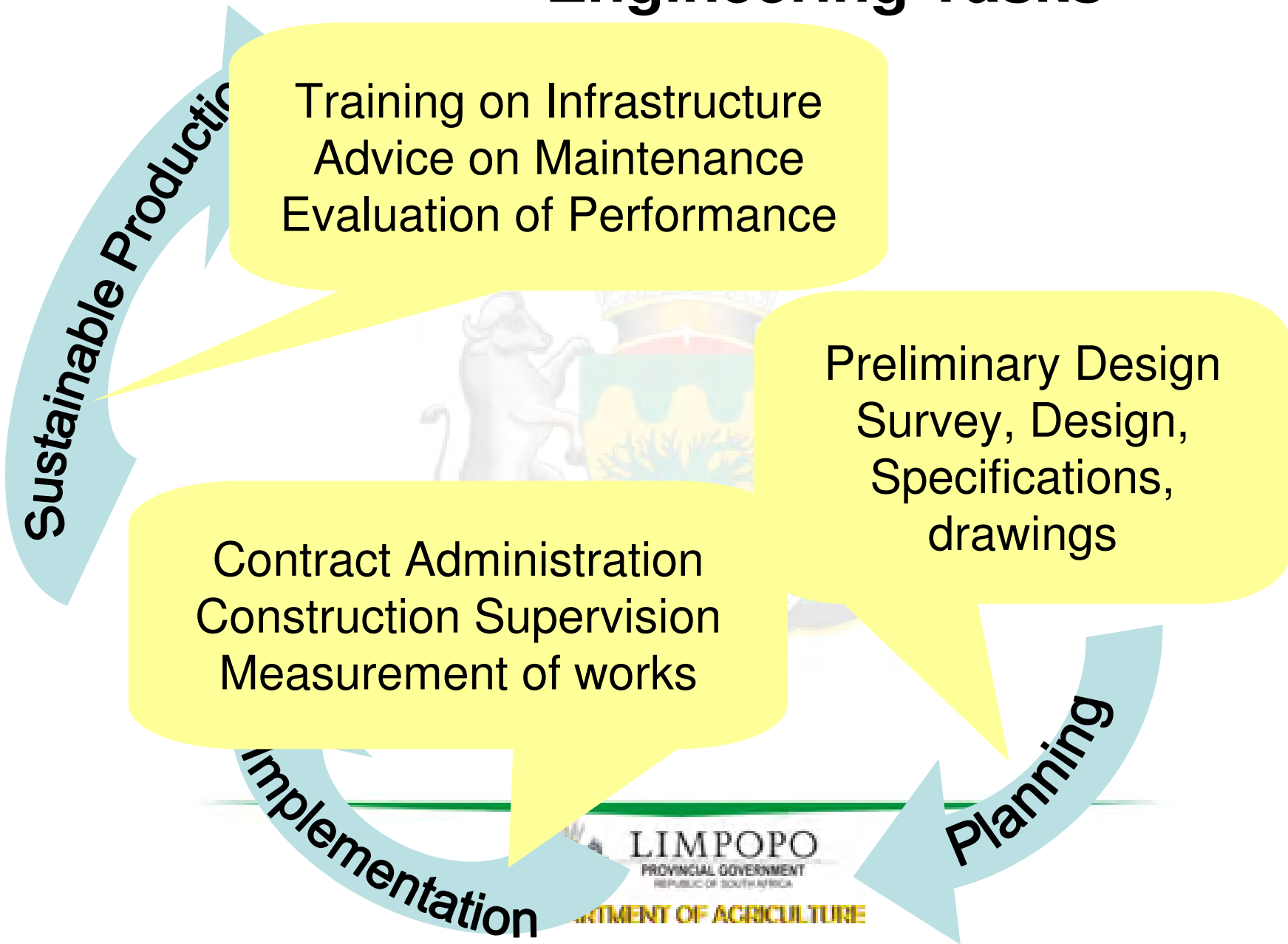
Role of Engineering Services

Development Model





Engineering Tasks



Infrastructure

- Bulk water systems
- Grid electricity connection
- Storage dams
- Soil conservation structures
- Roads
- In-field irrigation systems

Proper Engineering Standards

- Soil investigation: only class 1 and 2
- Proper run-off control planning
- Crop water requirements (informed by the production plan)
- Pumps and distribution systems design
- SA Irrigation Institute standards (sabi.co.za)

River pump station and canal



Storage dam relined



Pumps installed



Refurbished Pump House at Makuleta



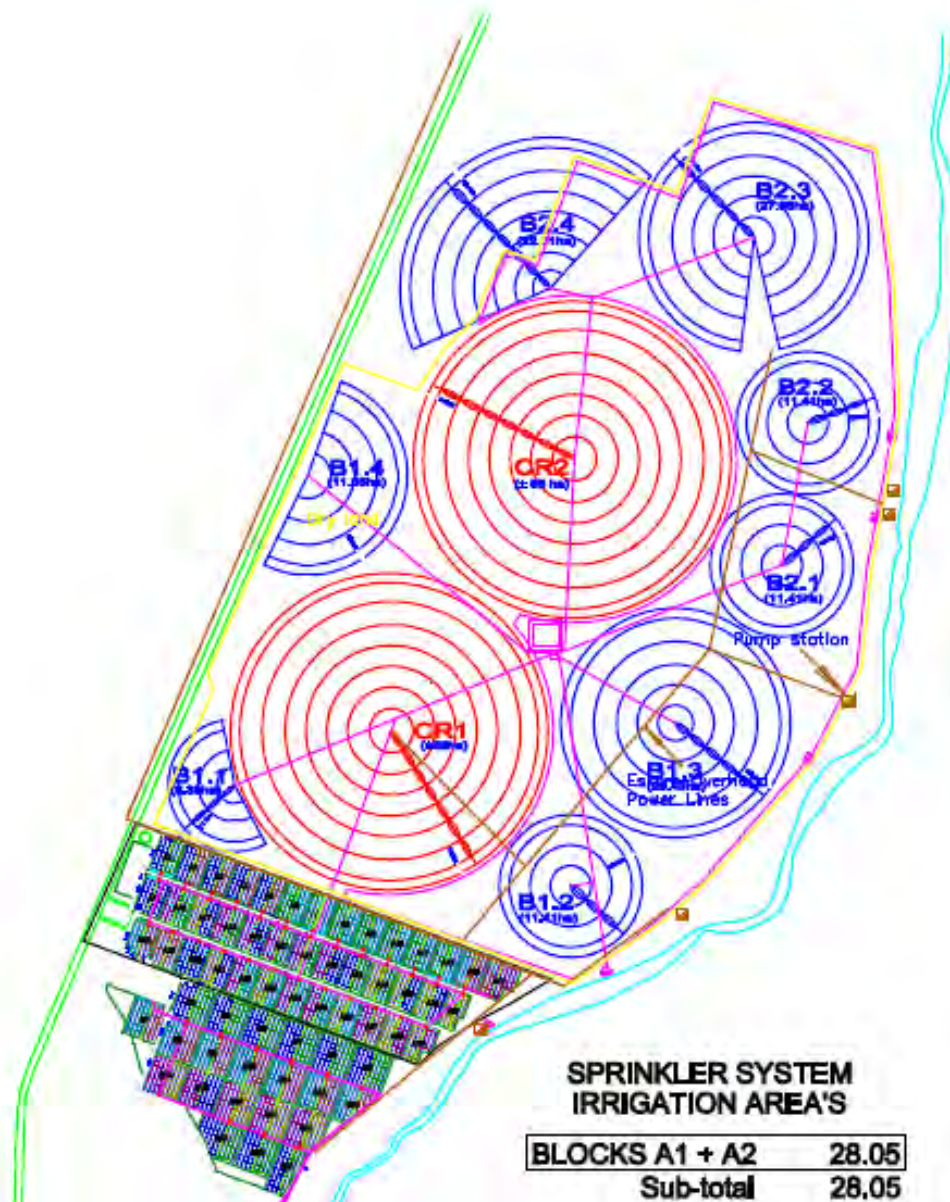
LIMPOPO
PROVINCIAL GOVERNMENT
REPUBLIC OF SOUTH AFRICA

DEPARTMENT OF AGRICULTURE

In-Field systems

- Type of system is dependent on crops and site specifics
- More crop per drop (Efficient systems)
- Automated (To attract commercial Strategic partner)
- Field crops
 - Center pivots
 - Overhead sprinkler
- Orchards or vegetables (limited on RESIS schemes)
 - Micro or drip irrigation

Design showing 10 pivots





Pivots at Makuleke

DEPARTMENT OF AGRICULTURE

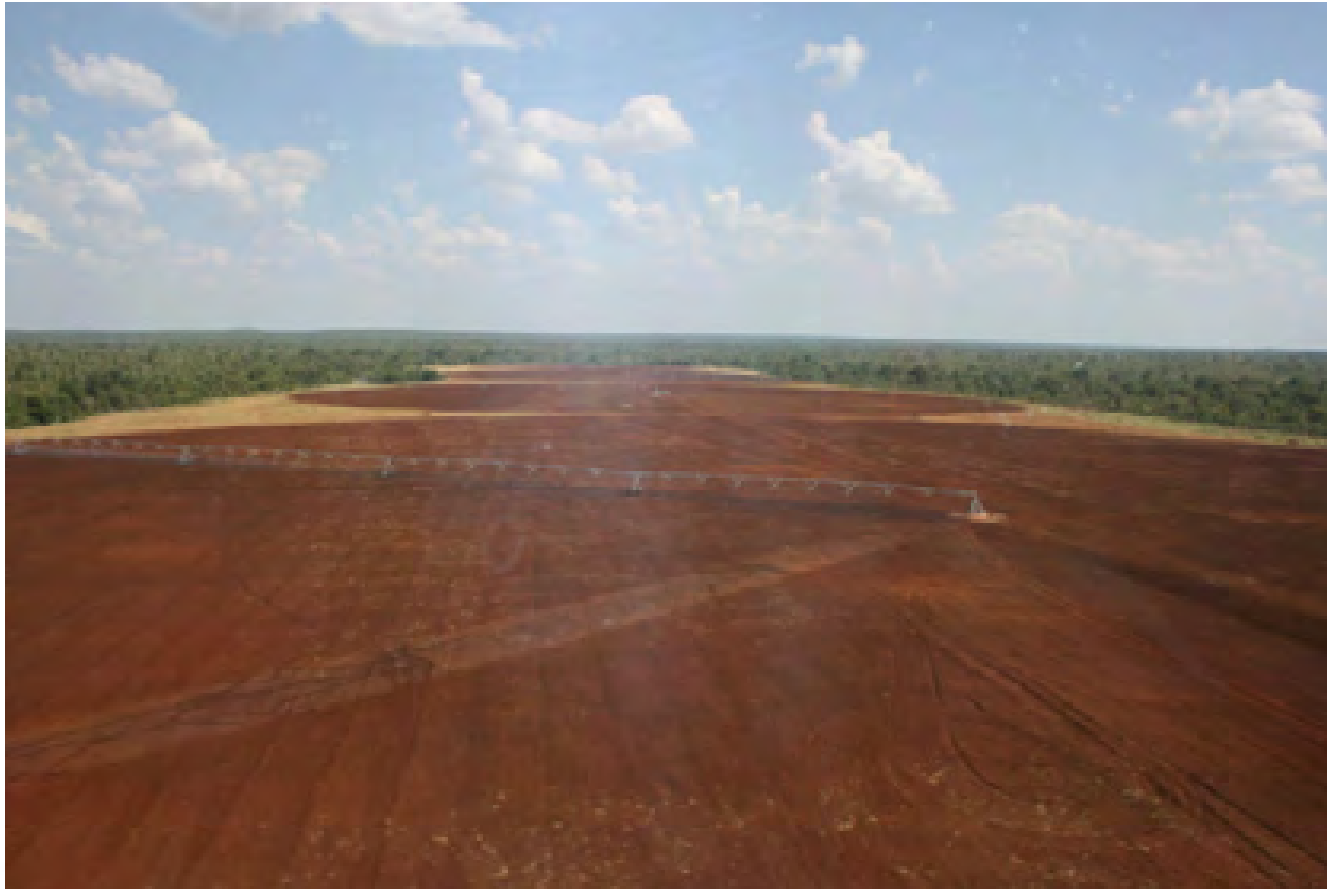
Makuleke potato crop under irrigation



Second crop at Makuleke



Challenges Land lost on corners



Center pivot smaller than 10 ha



Overhead Sprinkler system





Dry bean crop



Floppy not flopping



Supply pipes easily damaged



Homu drip irrigation Hydrant



Peppedew under drip irrigation at Homu



Challenges



Metz In-Field 11/10/2007

Fire damage



Conclusion

- Proper engineering do assist profitable and sustainable production
- The social processes are most important
- Land tenure to be secured
- Ownership of infrastructure is crucial to limit vandalism
- A holistic view is necessary

Community meeting



Vandalism



Closing remarks

- Does current best practices such as Conservation Agriculture and renewable energy get enough attention?





• The End

