Future Agricultural Potential and Water Requirements.

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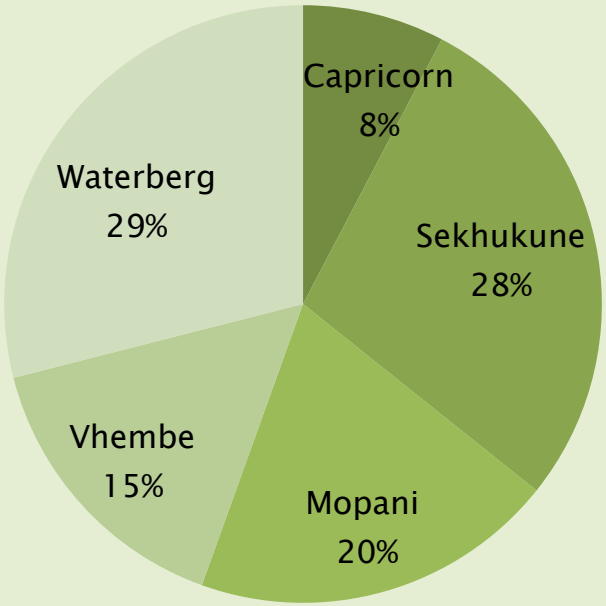
Vhembe Forum

Introduction:
Extracts from the Water Summit – Limpopo Current Irrigation Water usage

Municipality	Irrigated Area	Main Crop
Capricorn	12 185	Potato, Pastures, Maize, Vegetables
Sekhukhune	44 456	Citrus Grapes Maize, Vegetables
Mopani	31 338	Citrus Subtropical fruit, Tomatoes
Vhembe	24 616	Nuts Citrus Subtropical fruit, Tomatoes
Waterberg	45 937	Citrus Grapes, Grains, Vegetables
TOTAL	158 532	



Institutional Framework: Future Water requirements

- National development plan – 1 million hectares back into production by 2019, including the expansion of irrigated fields
- Limpopo's contribution is targeted at 200 000ha (Ref:Presentation: Water Summit, 09 July 2015 – RJ Maisela, HOD: LDAR)
- Limpopo Development Plan (LDP) and Agricultural Policy Action Plan (APAP) – agricultural values chain development
- Establishment of Agricultural Hubs such as Nwanedi

Key Issues on Agricultural water

(Presentation: Water Summit, 09 July 2015 – RJ Maisela, HOD: LDAR)

- Water resources are stressed
- Balance required between water right allocation requirements between new entrants and current existing lawful use
- Water Pollution, affecting crop yields and quality

  Competition for water (domestic mining and agriculture) HDI's and new entrants are negatively affected

The Case for Greenhouse Technology

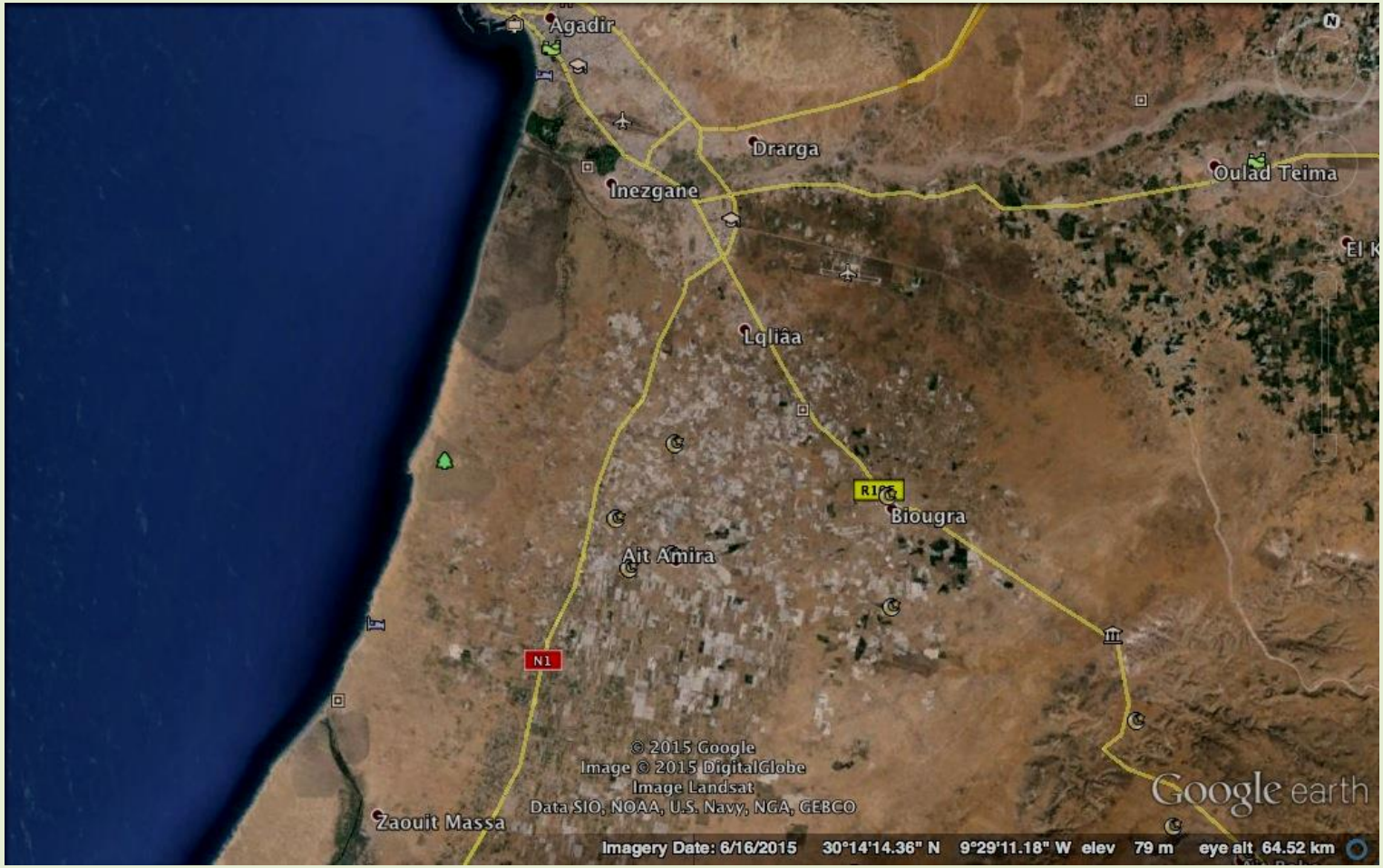
International Best Practice

1. The El Ejido Example in Almeria, Spain;
2. The Mexican Example in Culiácan, Sinaloa;
3. The Maroccan Example in Agadir;

Greenhouse Technology
45 000 ha of green houses in El Ejido, South of Spain.

Greenhouse Technology in El Ejido, South of Spain.

Greenhouses in Agadir, Marocco



The Case for Greenhouse Technology

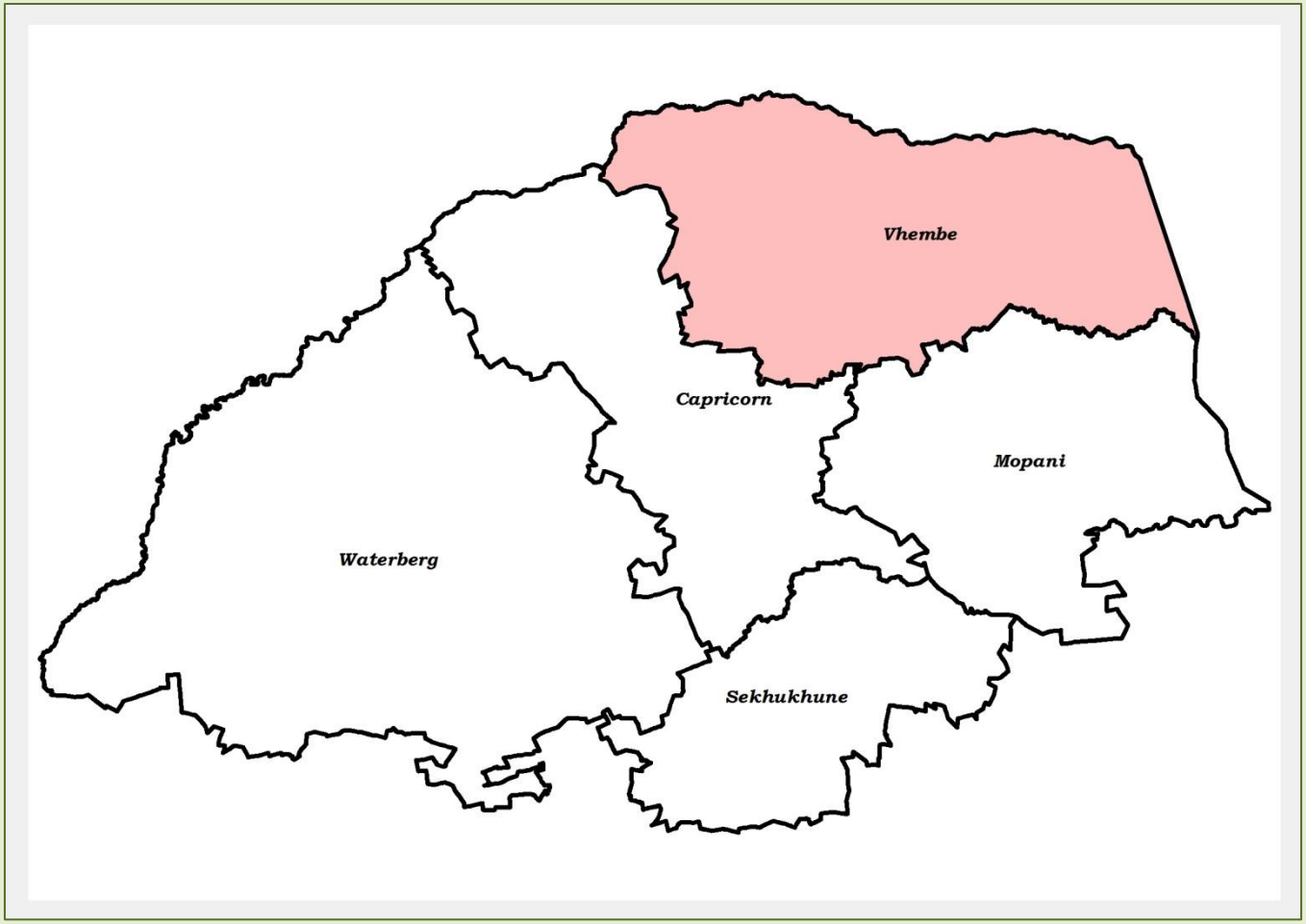
South African Best Practice Examples

1. Waterpoort and Mooketsi;
2. Hishtil at Mooketsi and Riebeek West.

Greenhouse technology

- The technology of greenhouse farming was only recently introduced to the Limpopo valley.
- Water utilization improved, for example, from (Sapwat) 58 liters of water used to produce 1 kg of tomatoes to 26 liters of water used to produce 1kg of tomatoes.
- Millions of tons of vegetables are exported from El Ejido to other European countries and other parts of the world each year. Due to its favorable climate Vhembe including the adjacent district in Zimbawe, has the potential to be the El Ejido of Southern Africa
- The Limpopo valley is already known as the bread basket of South Africa during Winter months with 70% of tomatoes and 60% of vegetable in the country being produced in the Limpopo valley.

Locality Map: Vhembe Distict

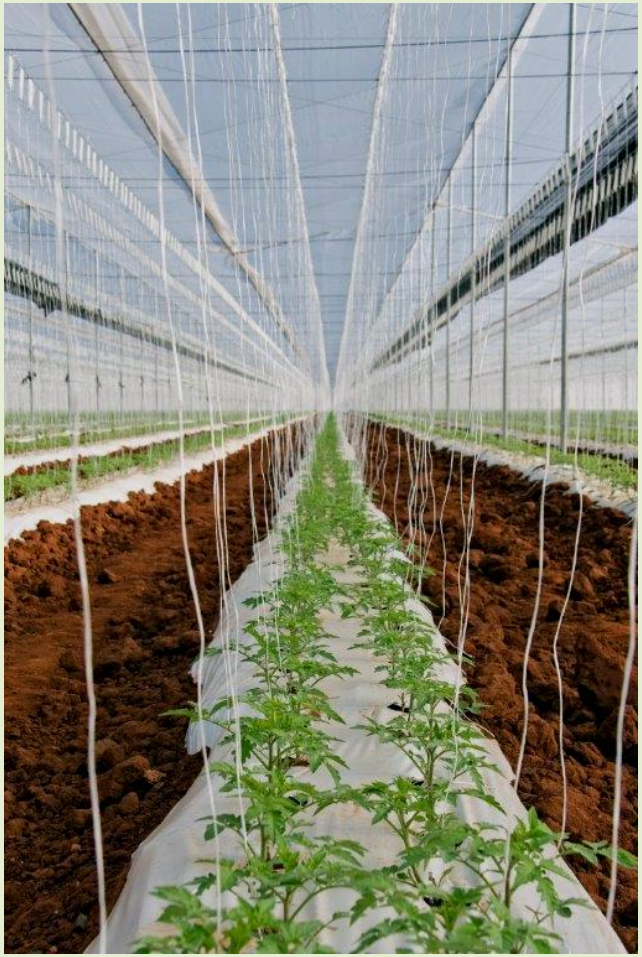


The First Greenhouse in Vhembe built in 2011 at Waterpoort

Arial view of the greenhouses

Arial view of the greenhouses

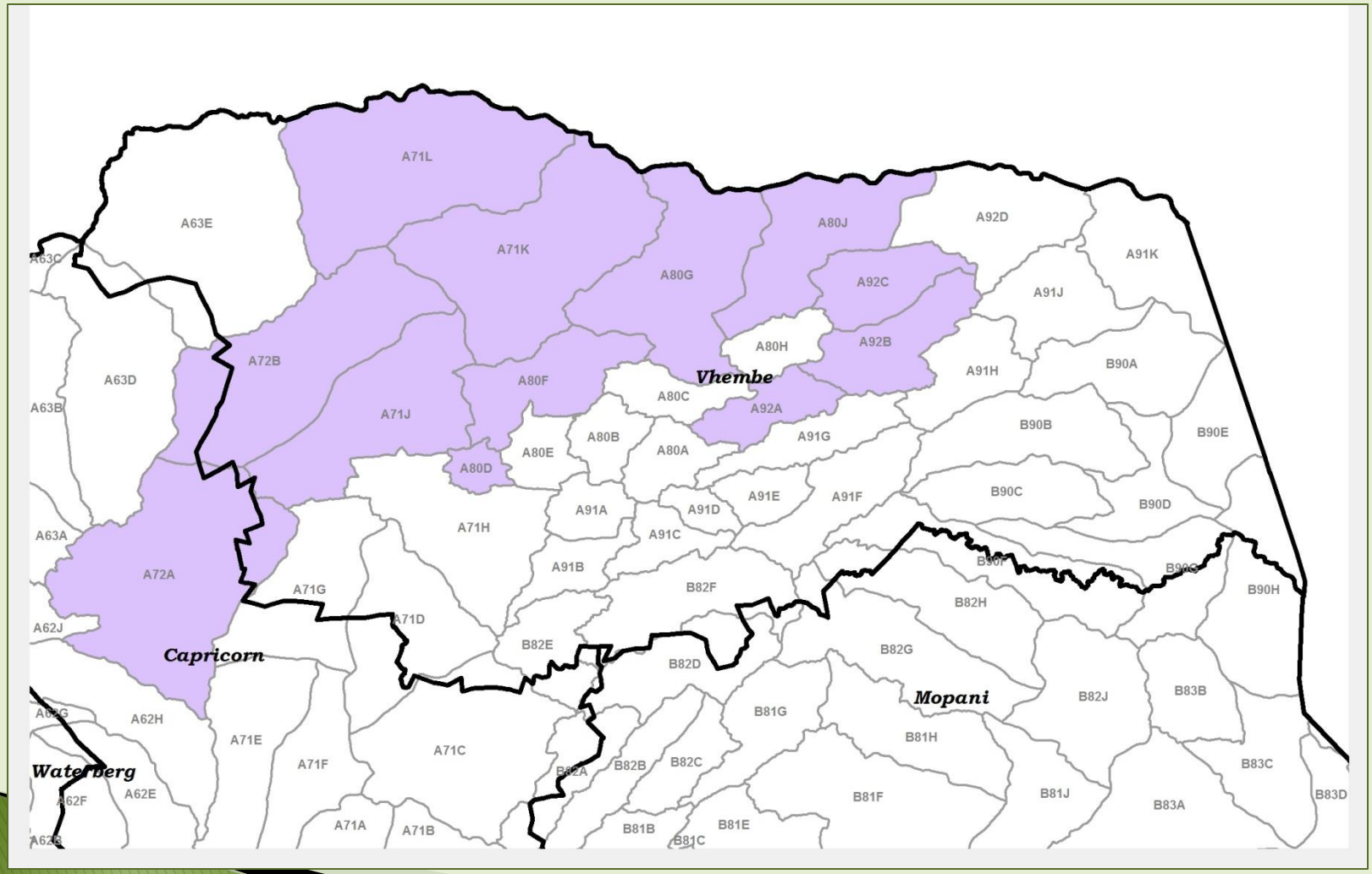
Inside a greenhouse



Future Irrigation Potential: Specific to Vhembe

- A privately funded feasibility study was done to determine the potential for future irrigation expansions.
- The Most suitable area for Irrigation expansion is the Quaternary Catchments of A92C, A92B, A92A, A80D, A80F A80G, A80J, A71J, A71K, A71L, A72A, A72B.
- 80% of the identified locations with potential for irrigation can directly benefit HDI's.
- The area identified is ideally suited for agricultural irrigation due to the favourable climate and high yields even with conventional agricultural methods.

Quaternary Catchments: Vhembe District



Future water requirements Surface water potential

- The study identified a volume of new water from storage of 188 million m^3 additional to the 52 million m^3 Existing Lawful Use.
- This total volume of 241 million m^3 represents a possibility of 28 717ha of irrigation using surface water.

Future water requirements Groundwater potential

- The study identified a volume of new water from groundwater of 60 million m^3 additional to the 59 million m^3 ELU.
- This new water volume represents a possibility of 8798ha of irrigation using ground water.

Future water requirements Total potential

- A total of 47500 hectares can be irrigated with the available 361,2 million m^3 of water per annum.
- 24 000 hectares is already used as ELU, consuming 112.2 million m^3 of water per annum.
- 249 million m^3 is therefore available for the development of approximately 30 000 hectares.

Development Potential and the NDP Targets.

- The development potential as identified is aligned and supports the NDP as follows:
  - Agricultural expansion as identified in the NDP.
  - Confirms the provincial targets set out in the APAP of the Department for Agriculture.
  - Confirms the empowerment of HDI's and substantial new employment opportunities.
  - Nwanedi is already identified as an agricultural hub.

Current Irrigation: Nwanedi Valley

Current Irrigation: Nwanedi Valley

Current Irrigation: Nzhelele Valley

Employment in Agriculture

- Total employment in (traditional) agriculture in Vhembe numbers more than 27 000 jobs.
- Current irrigation comprises of 24 000ha.
- An additional 30 000 hectares (traditional) can create an additional 33 750 jobs in a mainly rural area.
- **In the event that intensive Greenhouse technology is implemented 30,000 hectares will create 210,000 sustainable direct employment opportunities due to the fact that intensive Greenhouse Technology is labor intensive.**

Economic Value of Greenhouse Tecnology

- The GDP of El Ejido is in excess of US$3.0 billion
- This equates to R870 000 per hectare per year
- For Vhembe this would mean a GDP of R27.8 billion per year

Conclusion

- Food Security
  - The above mentioned agricultural potential can have a significant impact on the food security in South Africa as well as Southern Africa.
- Sustainability
  - Greenhouse technology is considered as an agricultural best practice regarding water efficiency.
  - Environmentally friendly production methods minimizes water pollution.
  - Greenhouse technology is a sustainable solution to food production as well as economic growth.
- Water Pollution
  - “ the most severe problem of Coal Mining is water pollution” (TS McCarthy 2009 University of the Witwatersrand)