water affairs
Department:
Water Affairs
REPUBLIC OF SOUTH AFRICA

Development of Reconciliation Strategies for Large Bulk Water Supply Systems of the Luvuvhu and Letaba Water Supply System
Study Steering Committee Meeting No 4
21 November 2013

Water use: Irrigation and afforestation (Item 8.2)

WATER IS LIFE - RESPECT IT, CONSERVE IT, ENJOY IT.

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Outline of Presentation

- **Summary of processes**
- **Identification of irrigation**
- **Identification of forestry**
- **Calculation of theoretical irrigation demands**
- **Selected results**

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Summary of process - Irrigation

- **Identify irrigated fields : 1998 & now**
- **For each field, establish:**
  - *Extent*
  - *Crop under irrigation*
  - *Irrigation system*
  - *Water source(s)*
- **Calculate crop water requirements**
- **Generate representative crop for each modeling unit**

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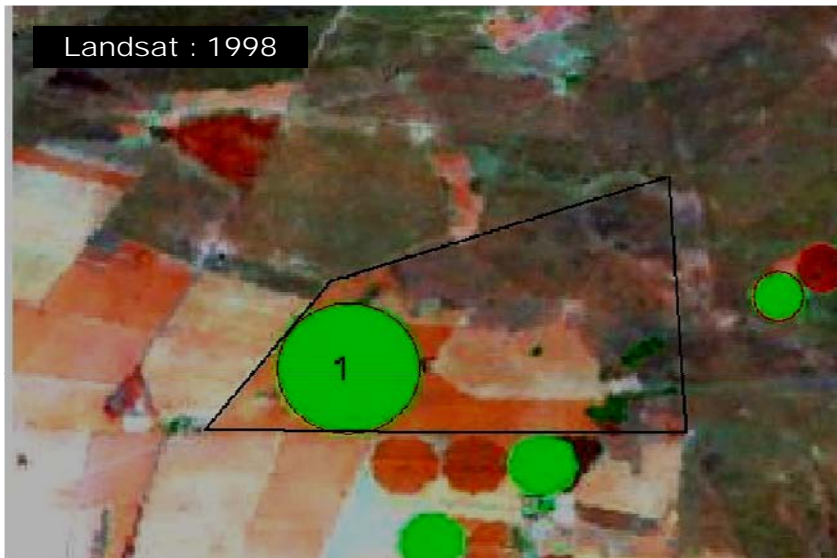
Summary of process - Forestry

- **Identify forestry areas : 1998 & now**
- **For each area, establish:**
  - *Extent*
  - *Specie*

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Identification of land use - 1
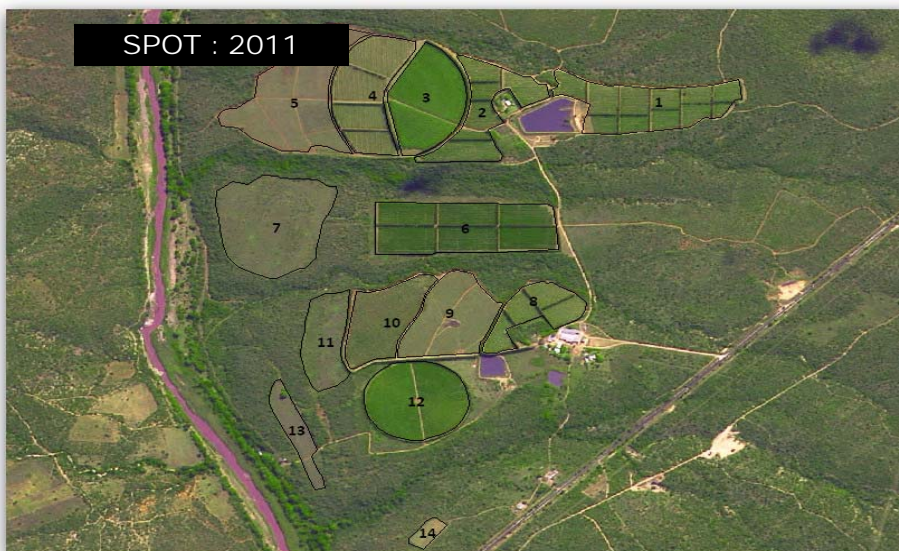

Landsat : 1998

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Identification of land use - 2

SPOT : 2011

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Identification of land use - 3

Aerial photography : 1995

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Identification of land use - 4

- **All fields were manually digitised**
- **Extent electronically calculated (GIS)**
- **Attributes** *(crop, irr. system, source, specie)* **captured for each field using data from**
  - *Previous field survey studies*
  - *Water use registration info (WARMS)*
  - *Validation/Verification study*
- **Results summarised per modeling area**

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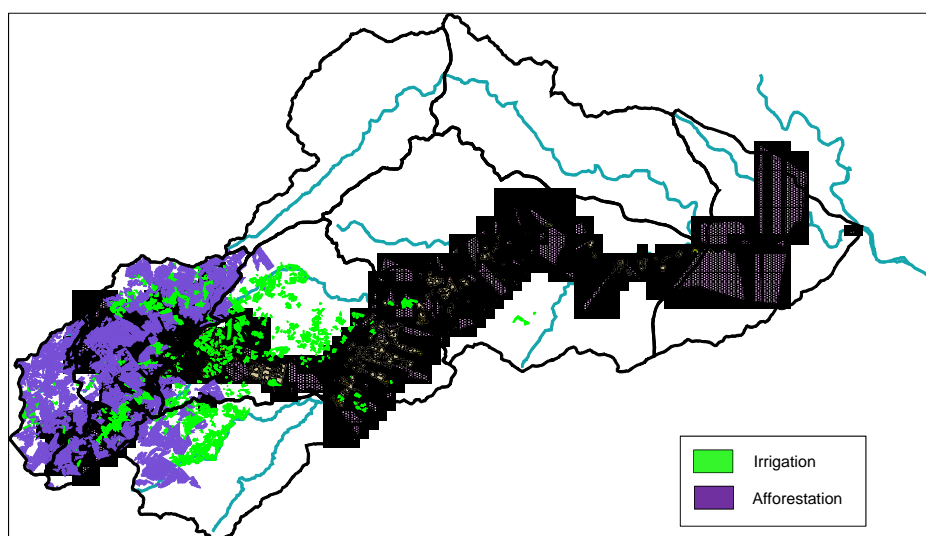
Calculation of crop water requirements

- **By using SAPWAT, theoretical crop irrigation requirements were determined for each quaternary drainage region.**

- **Above was done to facilitate the definition of a representative crop that mimics the effect of all the crops and irrigations systems within a particular quaternary catchment (unit).**

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Results

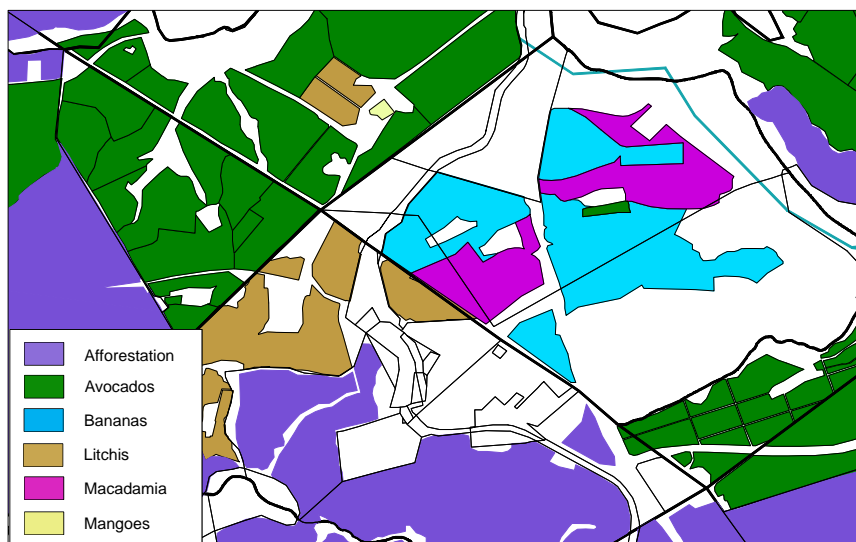Identified irrigation and afforestation – Great Letaba Catchment

Irrigation
Afforestation

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Results

Identified irrigation and afforestation – Zoomed view

Legend:
- Afforestation
- Avocados
- Bananas
- Litchis
- Macadamia
- Mangoes

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Results

Irrigation summary : Great Letaba River Catchment

Crop	Drainage Region									Total (ha)
	Above dam (ha)		Below dam (ha)							
	B81A	B81B	B81C	B81D	B81E	B81F	B81G	B81H	B81J	
Avocado	112	3 671	1 007	487	210	0	0	0	0	**5 487**
Bananas	0	181	574	529	45	0	9	0	0	**1 339**
Citrus	6	2	1 985	460	4 744	3 136	0	2	51	**10 385**
Litchi	0	268	198	87	165	28	0	0	0	**746**
Mango	0	119	733	1 010	1 980	1 114	27	2	35	**5 019**
Nuts	9	384	110	145	119	0	0	0	0	**766**
Vegetables (S)	92	13	127	352	579	647	166	97	227	**2 300**
Vegetables (W)	135	20	141	352	532	661	166	124	227	**2 357**
Other	122	1 314	135	276	370	121	402	22	0	**2 762**
Total	**475**	**5 971**	**5 009**	**3 697**	**8 744**	**5 708**	**770**	**246**	**539**	**31 160**

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Results

Afforestation areas : Great Letaba River Catchment

| Specie | Drainage Region | | | | | | Total (ha) |
| | Above dam (ha) | | Below dam (ha) | | | | |
	B81A	B81B	B81C	B81D	B81E	B81G	
Eucalyptus	1 693	16 697	1 115	4 608	1 174	49	**25 336**
Pine	8 089	1 587	0	485	0	0	**10 161**
Total	**9 782**	**18 284**	**1 115**	**5 093**	**1 174**	**49**	**35 497**

Summaries of irrigation areas (including source and representative crop values) and areas of afforestation were provided to modeling team for further analysis and inclusion in models.

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Thank You

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