

The SAPWAT solution

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Introduction



Why do we need to utilise water efficiently?

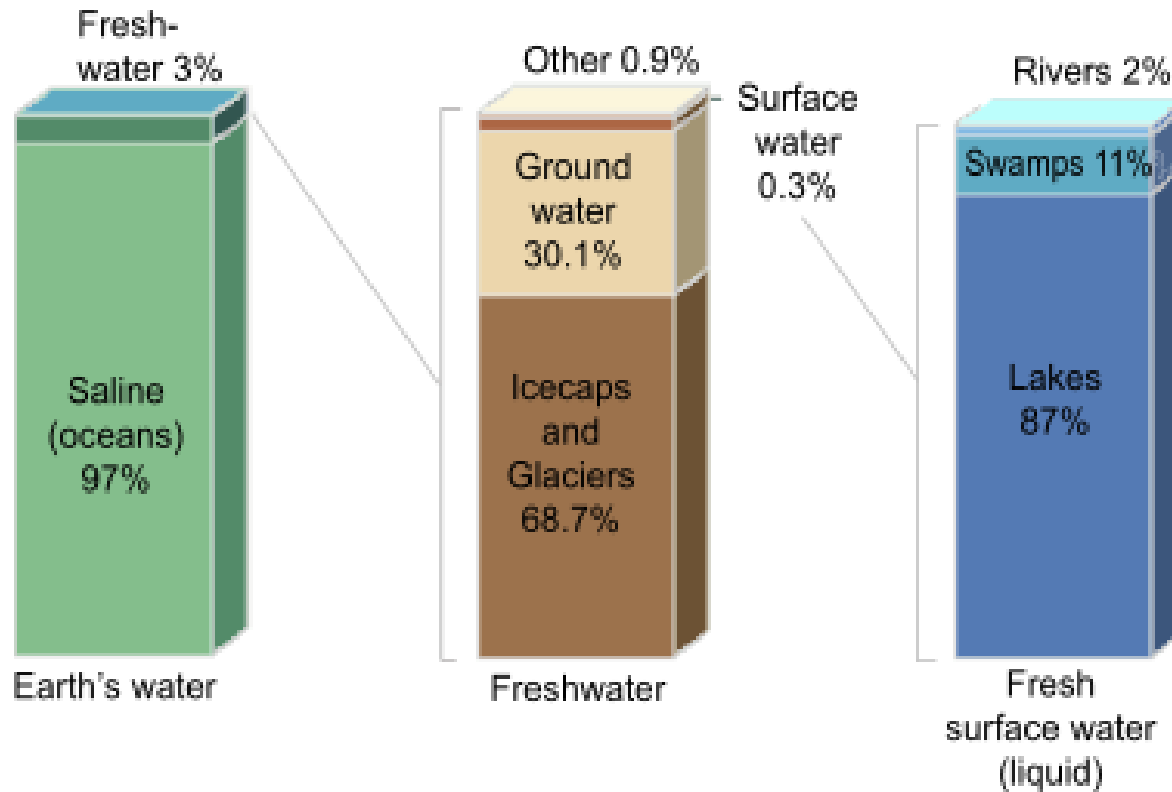
- Not enough water;
- 7 of 19 river basins over-utilised;
- South Africa is expected to run out of surplus water by 2030 – 2050;
- Irrigation efficiency third world countries = 38% (FAO).

- Solutions expensive:
 - Inter-basin transfers;
 - Desalinating sea water.

- Population distribution not in line with water distribution.

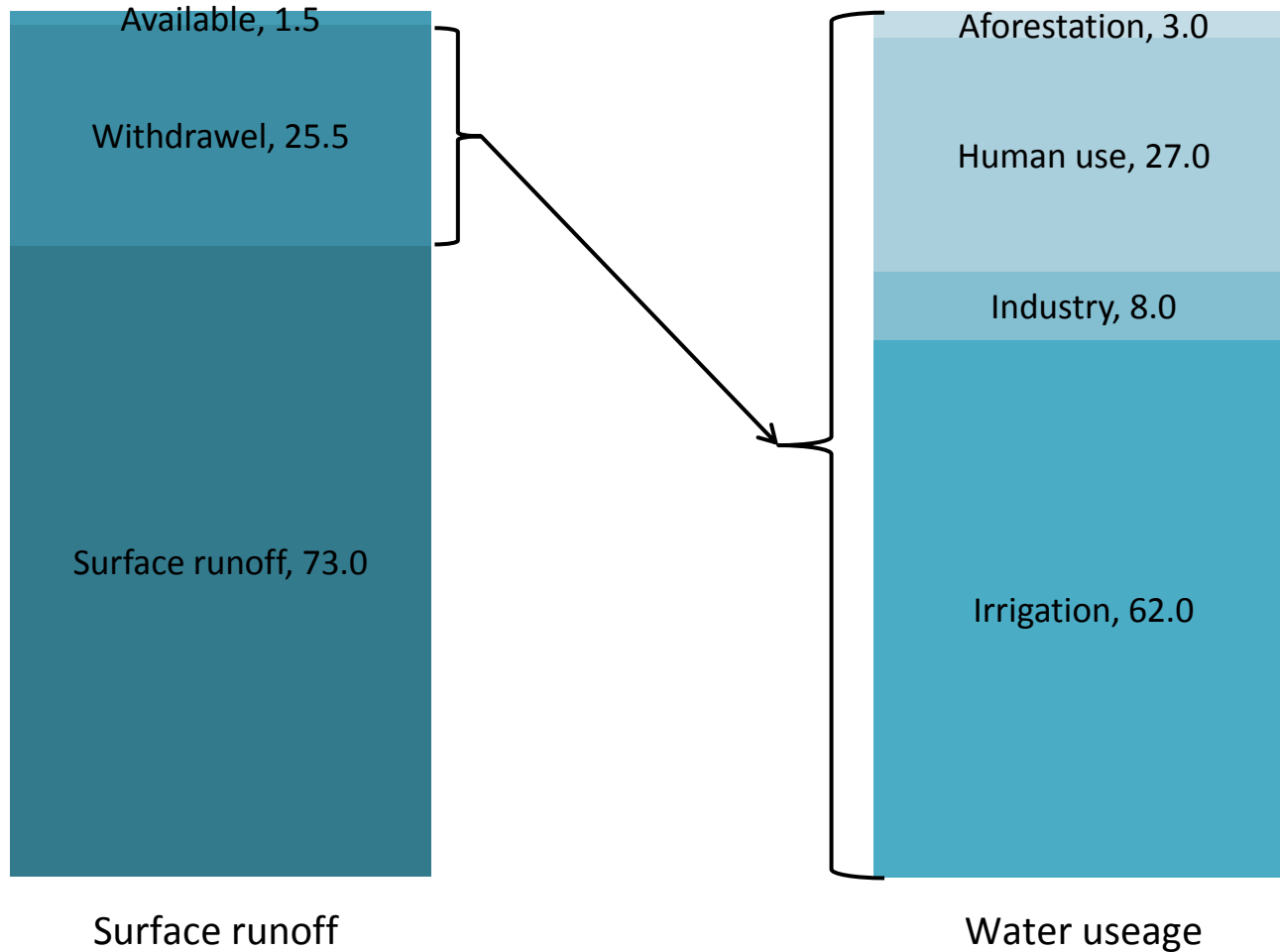
The international water picture

Distribution of Earth's Water



Wikipedia – water sources, 2012

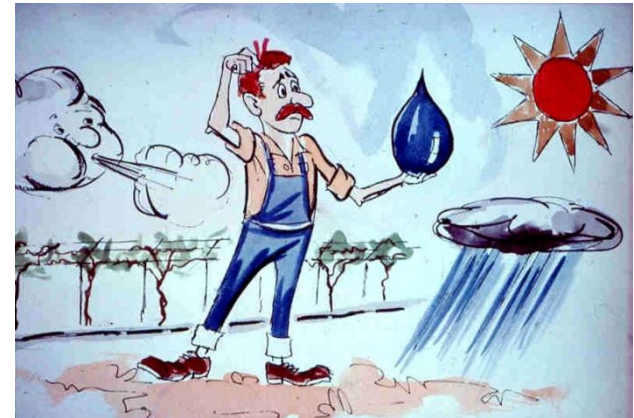
The South African water picture (%)



Stretching our irrigation water

Two strategies that follow on each other

- Planning – how to best utilise our water
- Real time water management – day to day best use



Planning irrigation water use

How much for this area? :-
the big question.

Water use requirement was researched over a long time:

- Local water use research;
- Linking crop water use to water evaporation;
- Linking crop water use to weather.

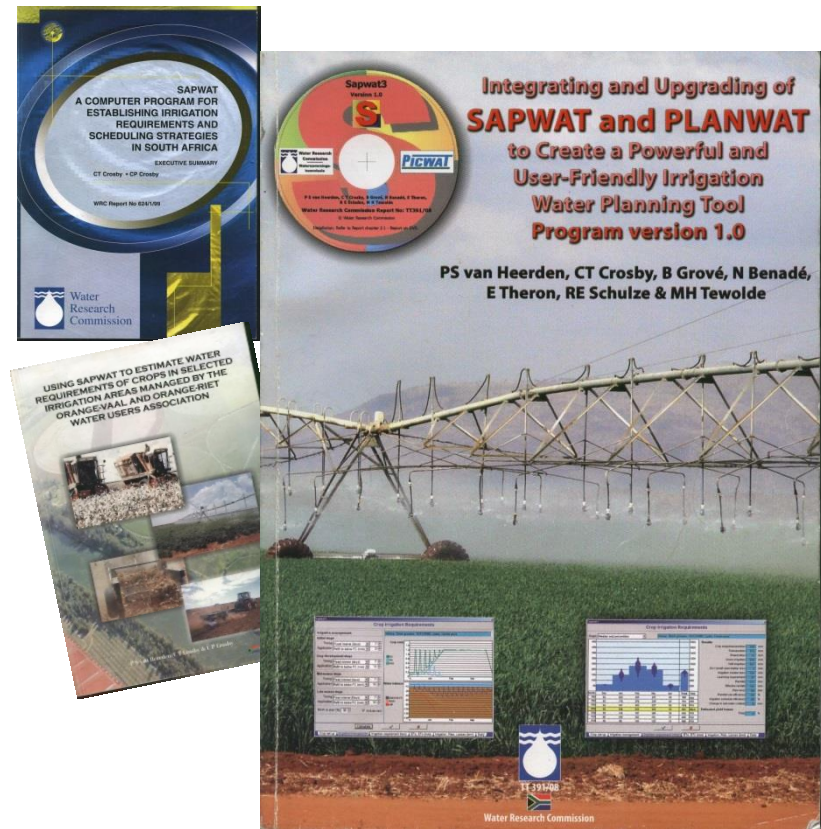


Publications

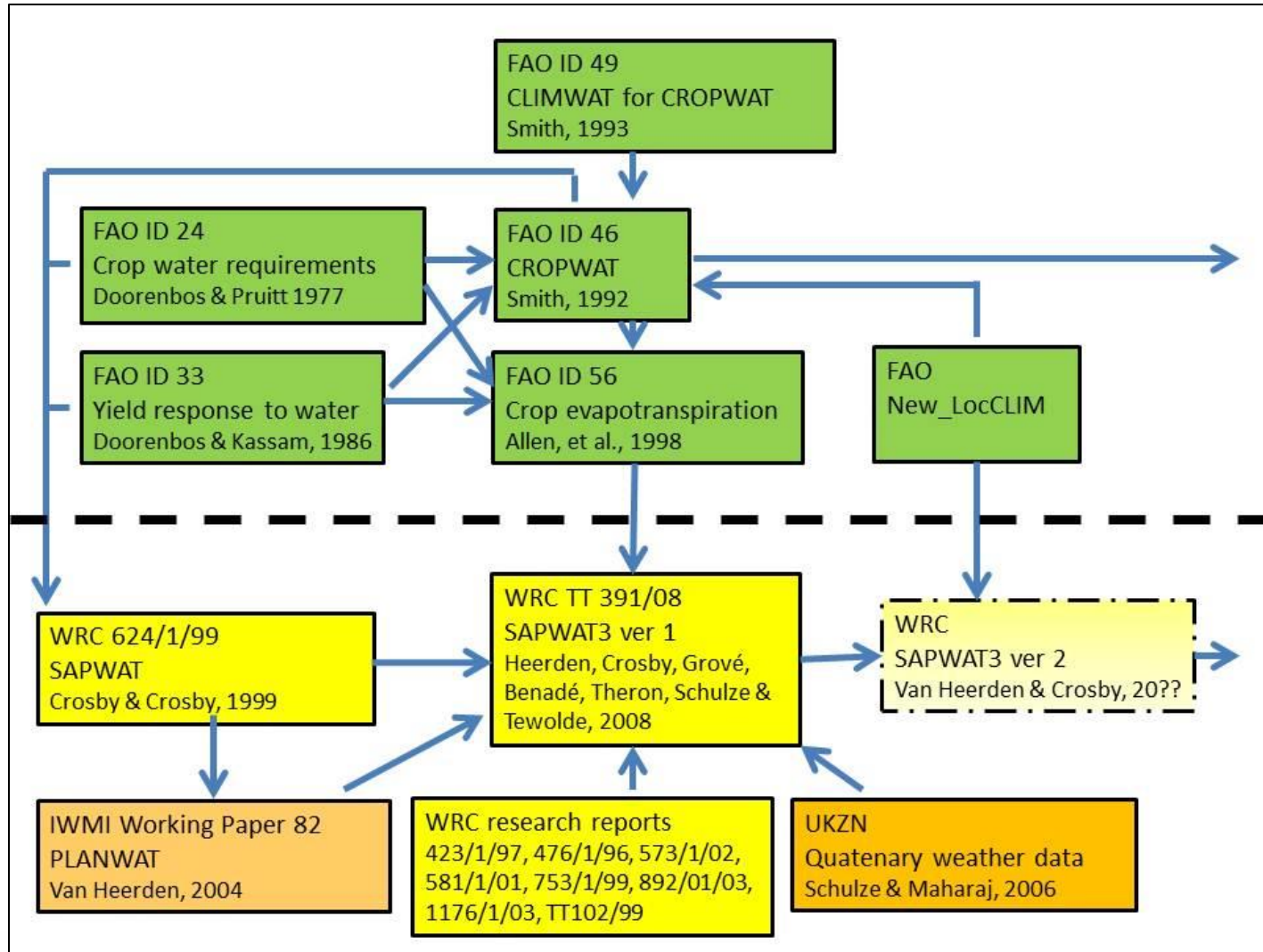
Some on the international scene



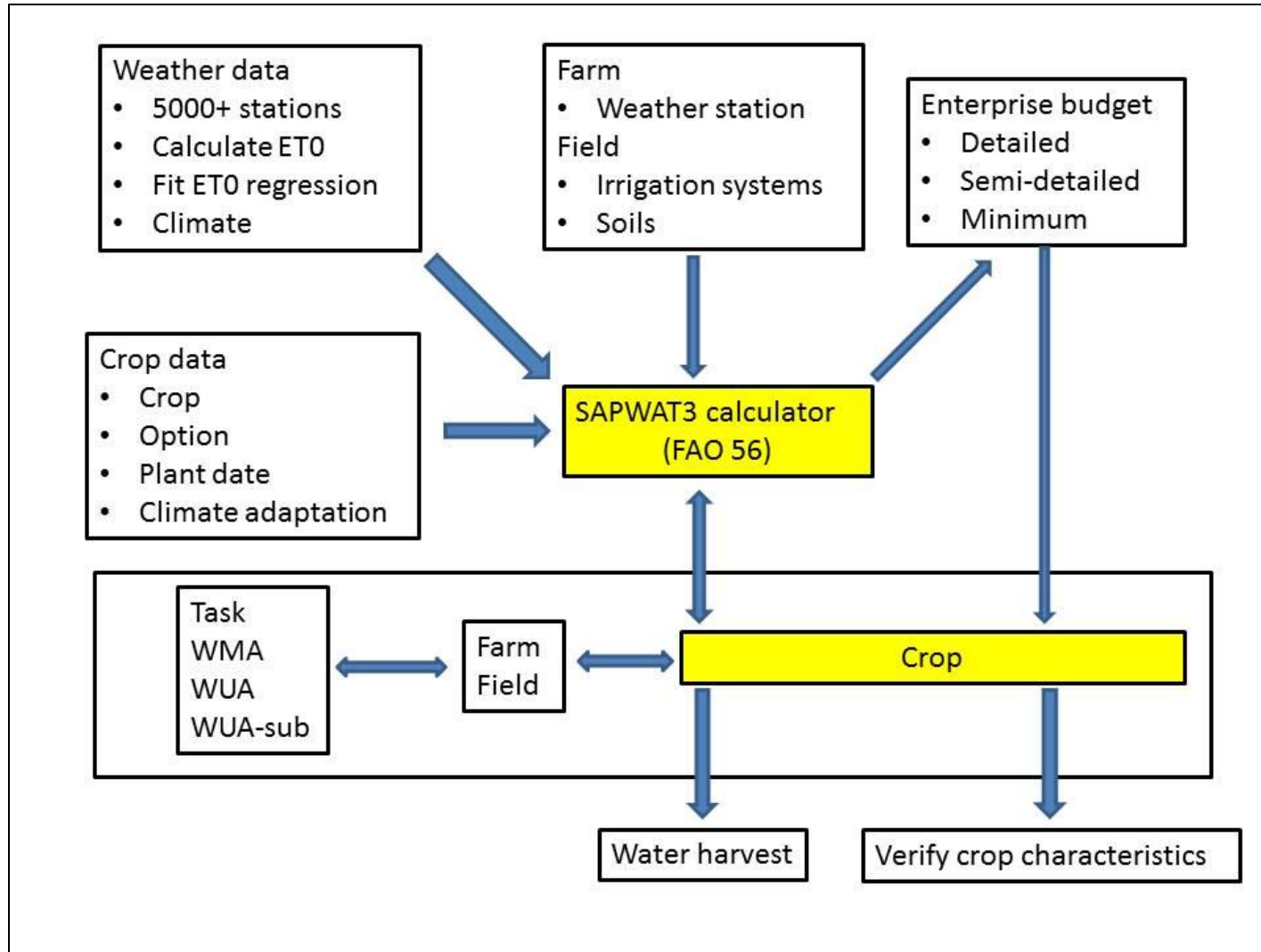
Some of the Water Research Commission



Linkage between SAPWAT3 and other publications

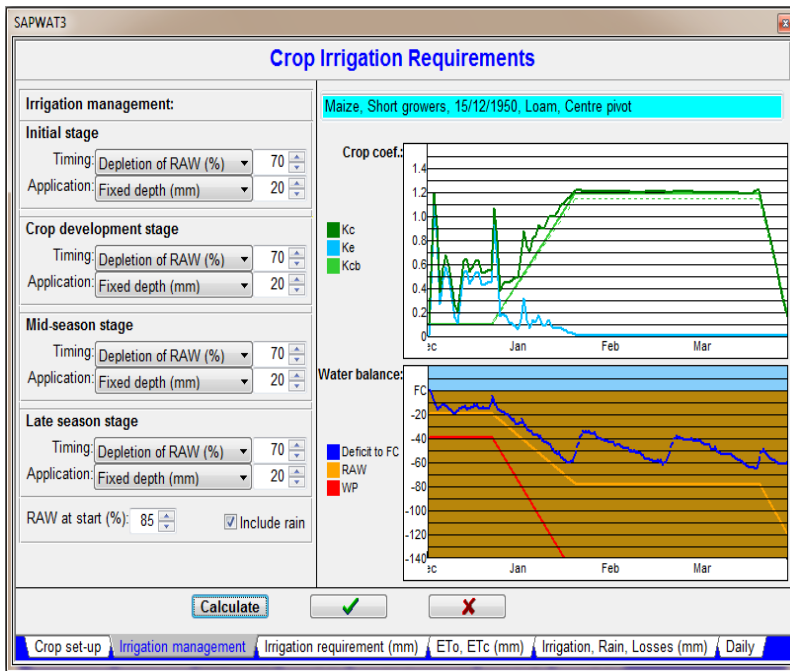


SAPWAT3 structure and content

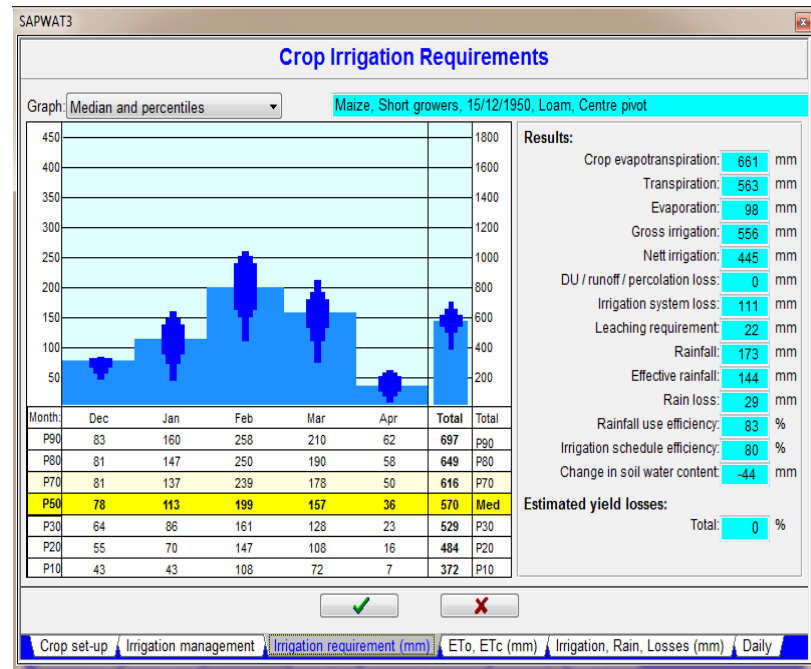


Some output screens

The water balance screen

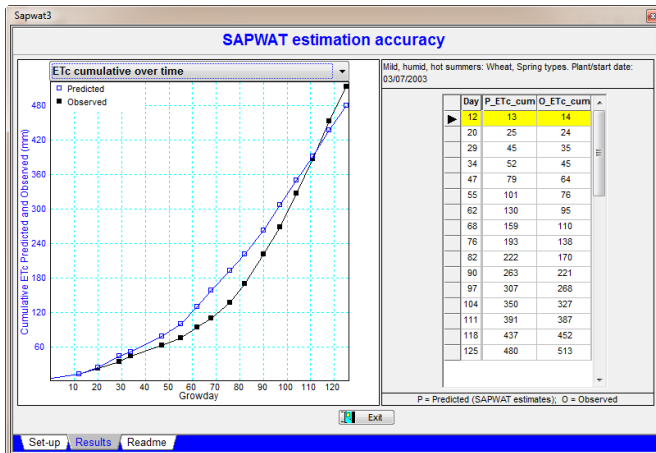
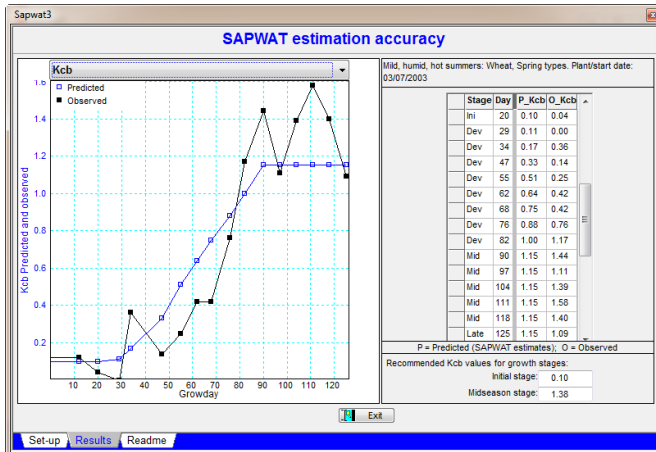


The irrigation requirement screen

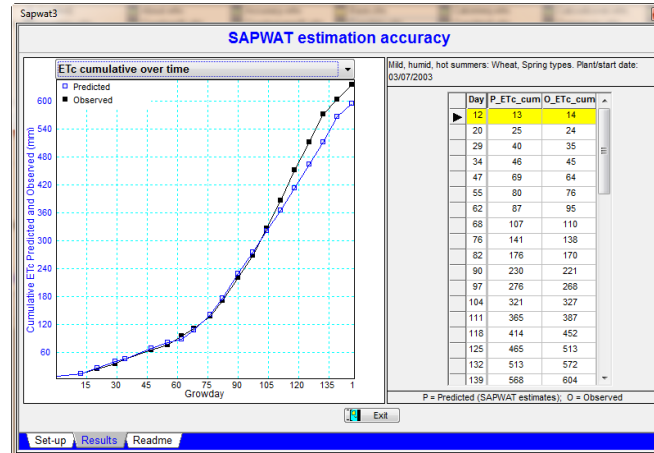
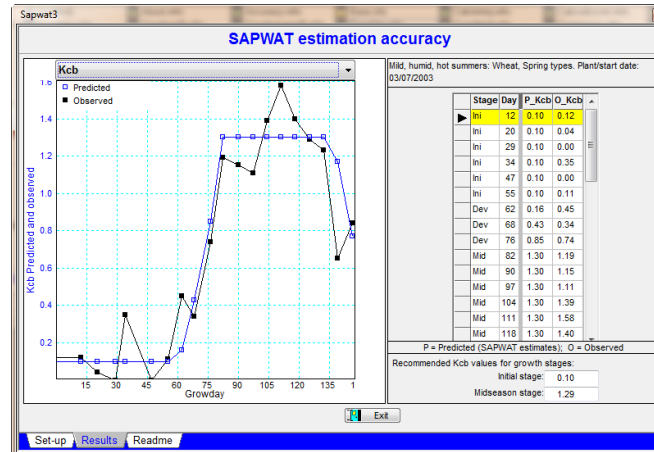


Calibration

Before



After



What SAPWAT3 is used for:



- Designing and planning (32%);
- Water requirement planning (25%);
- Scheduling / water management (8%);
- WUA planning and management (5%);
- Water use registration and licensing (11%);
- Hydrology (5%);
- Training (5%);
- Research (6%);
- Unspecified (3%).

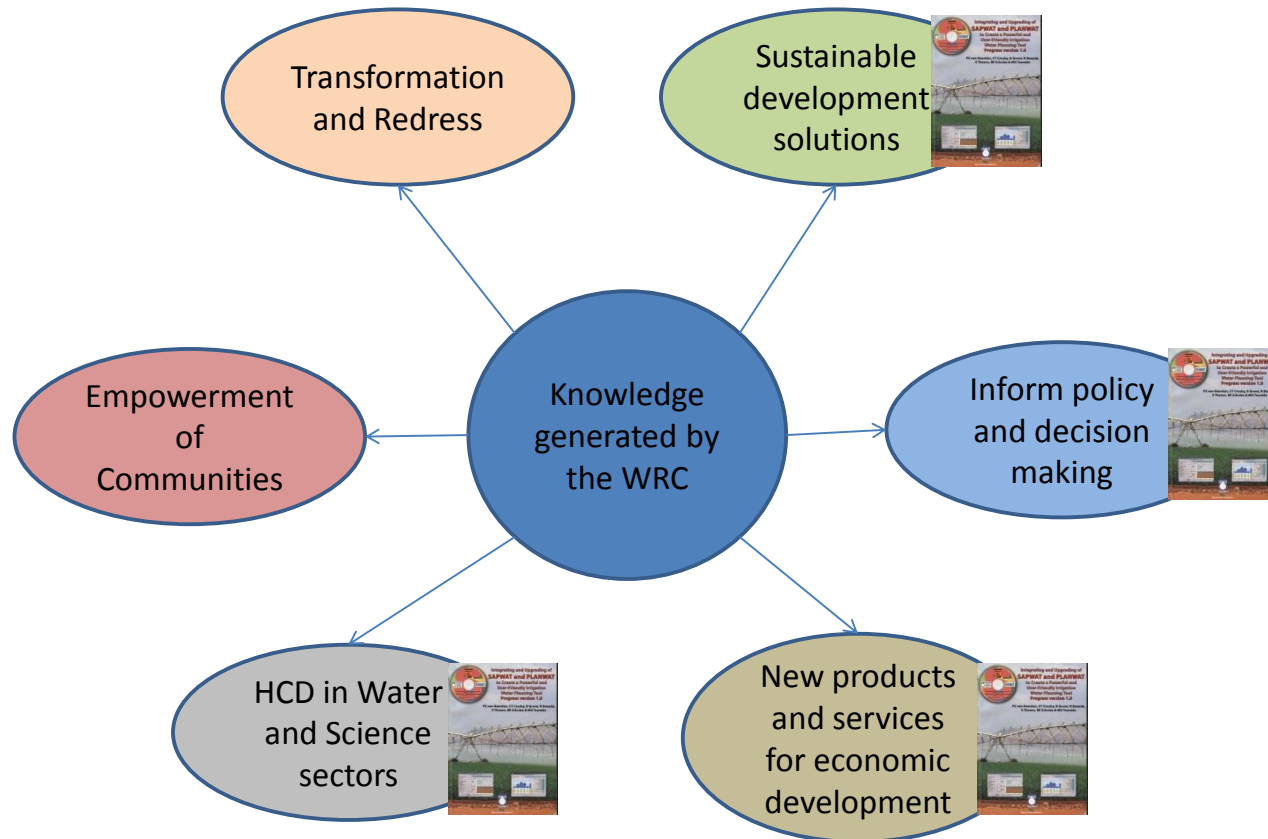


980 copies.

Impact:

- Better efficiency: water saving 33% - 50% reported;
- Big development projects in third world countries: 3000 ha sugar cane in Mozambique;
- Improved water management at WUA level: Orange-Vaal.

Impact of SAPWAT3



Recognition



- International Commission on Irrigation and Drainage (ICID): WATSAVE award (2011)
 - Pieter van Heerden & Charles Crosby.
- South African Irrigation Institute: Exceptional contribution to irrigation technology (2011)
 - Pieter van Heerden.

Acknowledgement



To the Water Research Commission:

- Funding of the development of SAPWAT3;
- Funding of the development of Meteorology, Crop, Soil, Engineering and Economic research that could be built into SAPWAT3.

To co-authors who made the publication of SAPWAT3 possible.

To scientists, engineers, economists, WUA managers and farmers for advice and support.



Thank you





Local solutions with global impact

Please have one slide where you clearly articulate the global impact of your research in terms of internationally recognised research, or international collaborations formed, etc.

Impact

Please articulate the impact your research has made

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