The case study of Kitui in the context of the WatManSup project took place from June 2006 to March 2007. The main results showed that the physical component is essential for water managers to better understand the system, while the allocation component has proven to be very strong for scenario analysis. The overall conclusion is that both tools combined with multi-criteria analysis can support water managers in Kitui in their complex decision making process.

More information on the WatManSup project and the reports on the Kitui case can be found on the project website: **www.futurewater.nl/watmansup**.

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WatManSup

Integrated Water Management Support Methodologies

a case study in Kitui, Kenya

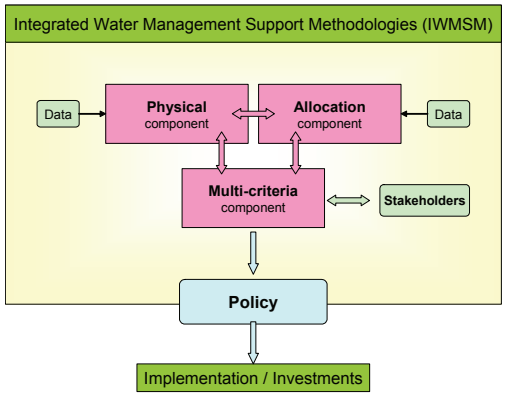
Supporting strategic water management decision making

FutureWater, Netherlands
Institute for Environmental Studies, Netherlands
Waterboard Hunze en Aa's, Netherlands
Soil&Water Resources Research Institute, Menemen, Turkey
SUMER, Izmir, Turkey
EA-TEK, Izmir, Turkey
SASOL Foundation, Kitui, Kenya
University of Nairobi, Kenya

Integrated Water Management Support Methodologies

Improved water management is highly required as water related disasters are on the rise. To support water management in complex decision making effective tools are essential. Each water related problem requires a different approach, different tools. To choose the appropriate tools for a specific situation is not straightforward.

The **WatManSup** project aims to help water managers to make that decision, to choose for the most suitable water management tool or combination of tools. In fact WatManSup will support water managers in making decisions regarding strategic water management including investment decisions.

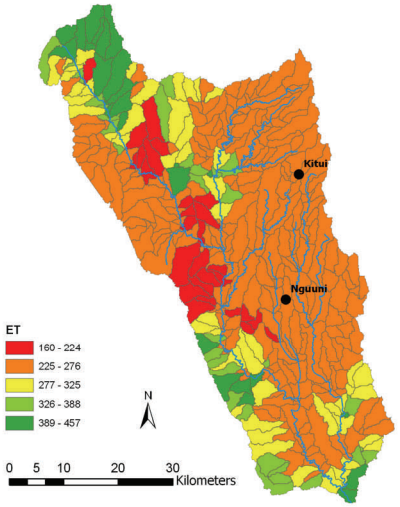


Integrated Water Management Support Methodologies (IWMSM) consist out of three components (Figure 1):

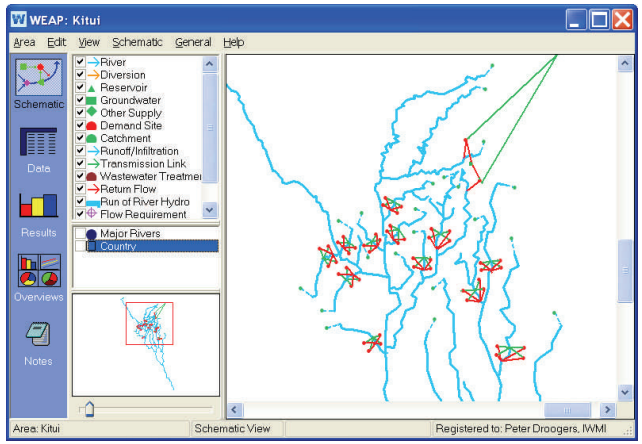
- **Physical component** (SWAT):
  This part relies on accurate description of the physical processes related to water.
- **Allocation component** (WEAP):
  This component is mainly used to evaluate the impact of human interference in water distribution and allocation issues for water shortage as well as water excess.
- **Multi-criteria component** (MCA):
  This component is used widely for all kind of applications, but only to a very limited extent for water management issues so far. The multi-criteria approach is however of paramount importance in strategic decisions involving multiple-stakeholders.

Main conclusions of the case study undertaken in the Kitui catchment in Kenya are:

- **SWAT**:
  The SWAT model has proven to be a strong tool able to support water managers and policy makers in Kitui, as physical processes and human interventions can be analysed in great detail. All components of the water balance of the sand dams were analysed, which can be used to evaluate scenarios, such as climate change.
- **WEAP**:
  The study clearly demonstrated that a framework as WEAP is powerful in evaluating current and future options in water resources. The strong aspect of WEAP is that the framework is already in place so that evaluation of alternative water allocations can be performed on the fly. Examples in Kitui include the impact of more dams or a change in crops.
- **MCA**:
  Multi-criteria analysis can deal with water management problems with multiple objectives and multiple stakeholders. Its strength is the combination of factual information with policy priorities. It combines results of SWAT and WEAP with the input of various stakeholders of the sand dams.



SWAT



WEAP