

Dr. Wim Bastiaanssen, UNESCO-IHE

Water Accounting+

Water Accounting+

independent estimates of water flows, fluxes, stocks, consumption and services



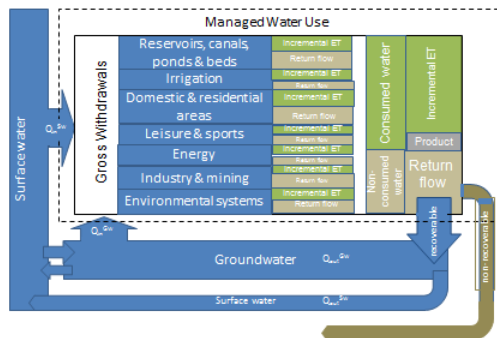
UNESCO-IHE
Institute for Water Education



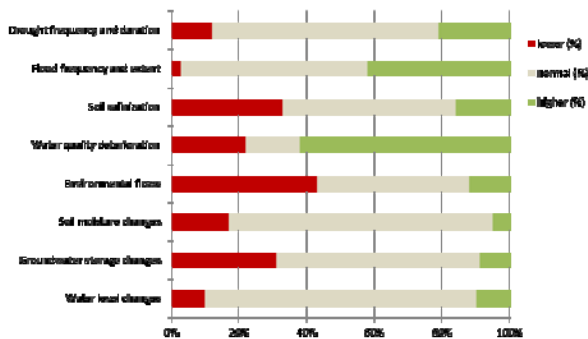
Objectives WA+

Operationalize a standard reporting system on water resources conditions in river basins, including hydrology, water management, land use and the services from consumptive use based on open access data sources, and with a standard terminology. Both current and future conditions can be assessed

Sheet 2: Utilized Flow Sheet



28 February 2014

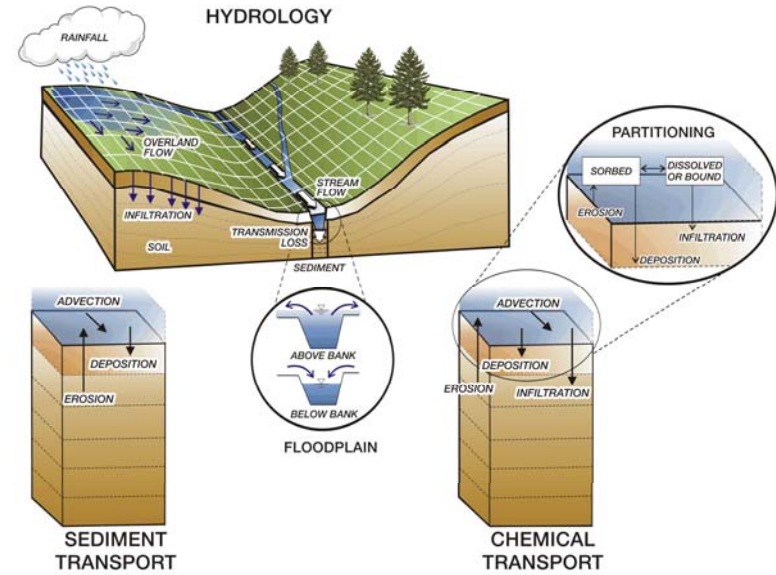
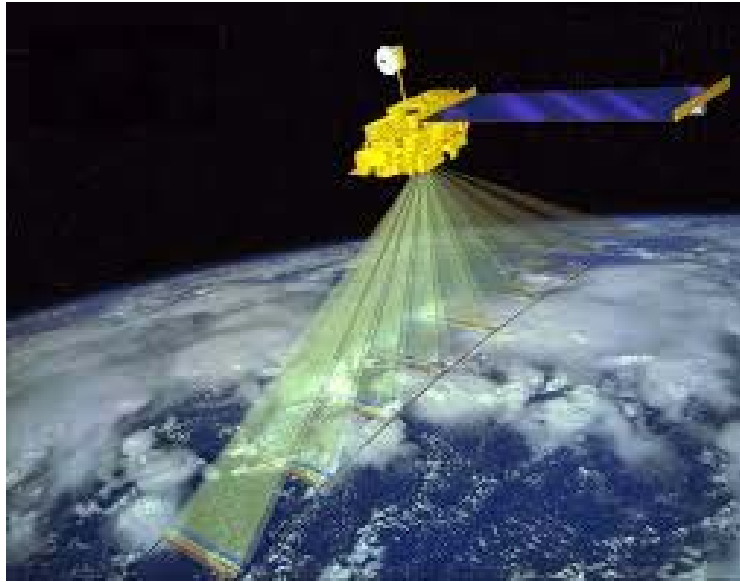


Water Accounting Plus (WA+)
Annual Data Series



River Basin: Nile and 14 tributaries
 Period of consideration: 2007
 Prepared by: Fouad Karim, Lal Mulwadh, Wim Swinnen and Yara Chami
 Verified by: Stephan Uhlenbusch & Peter van der Zaak
 Date of draft report: February 16 (2014)
 Date of final report: March 16 (2014)

Past, current and future conditions



Past

Current

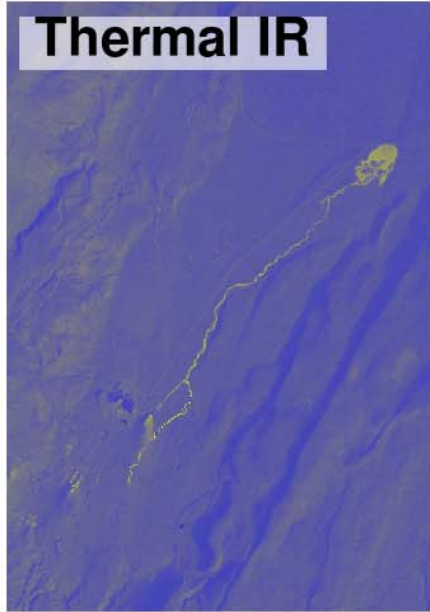
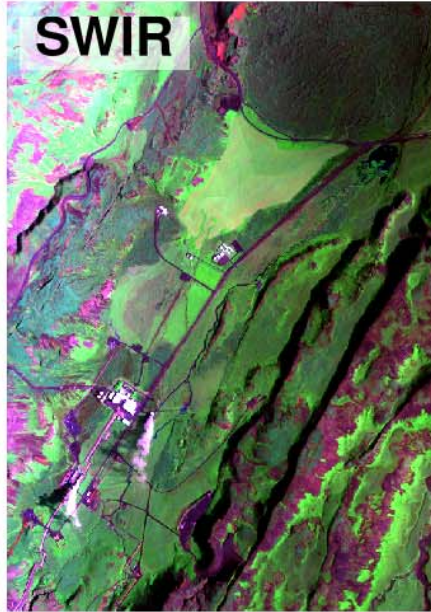
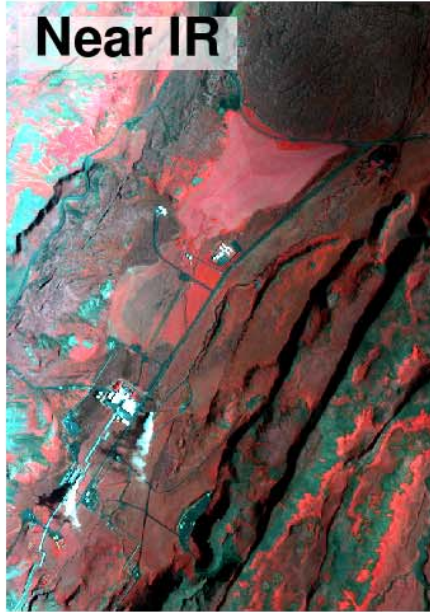
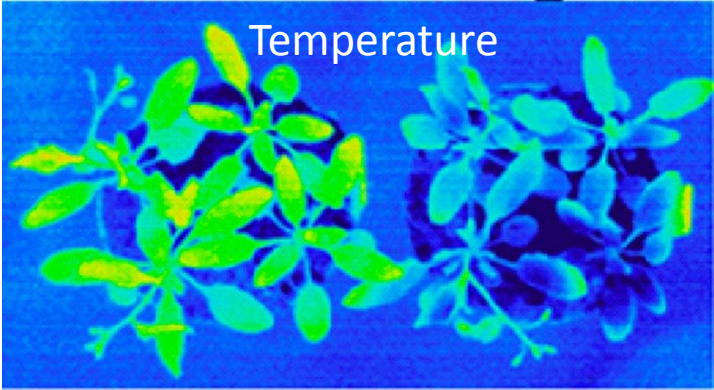
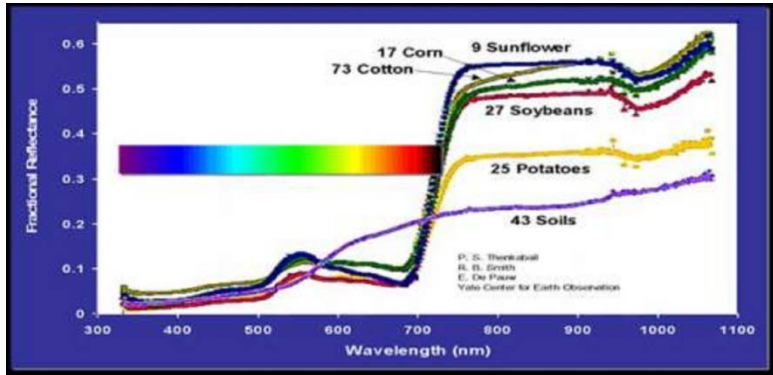


Future

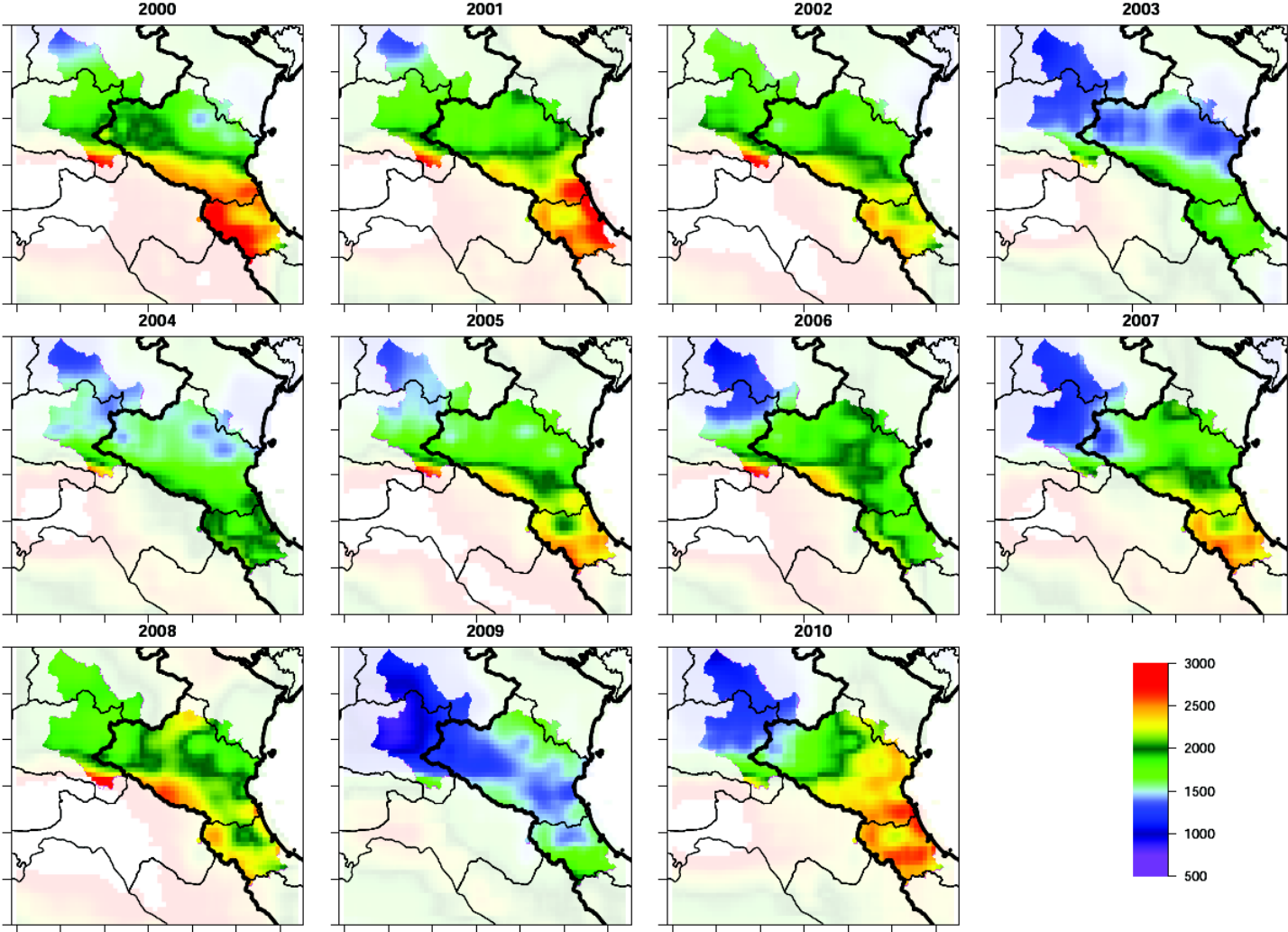
Water Accounting

Projective Water Accounting

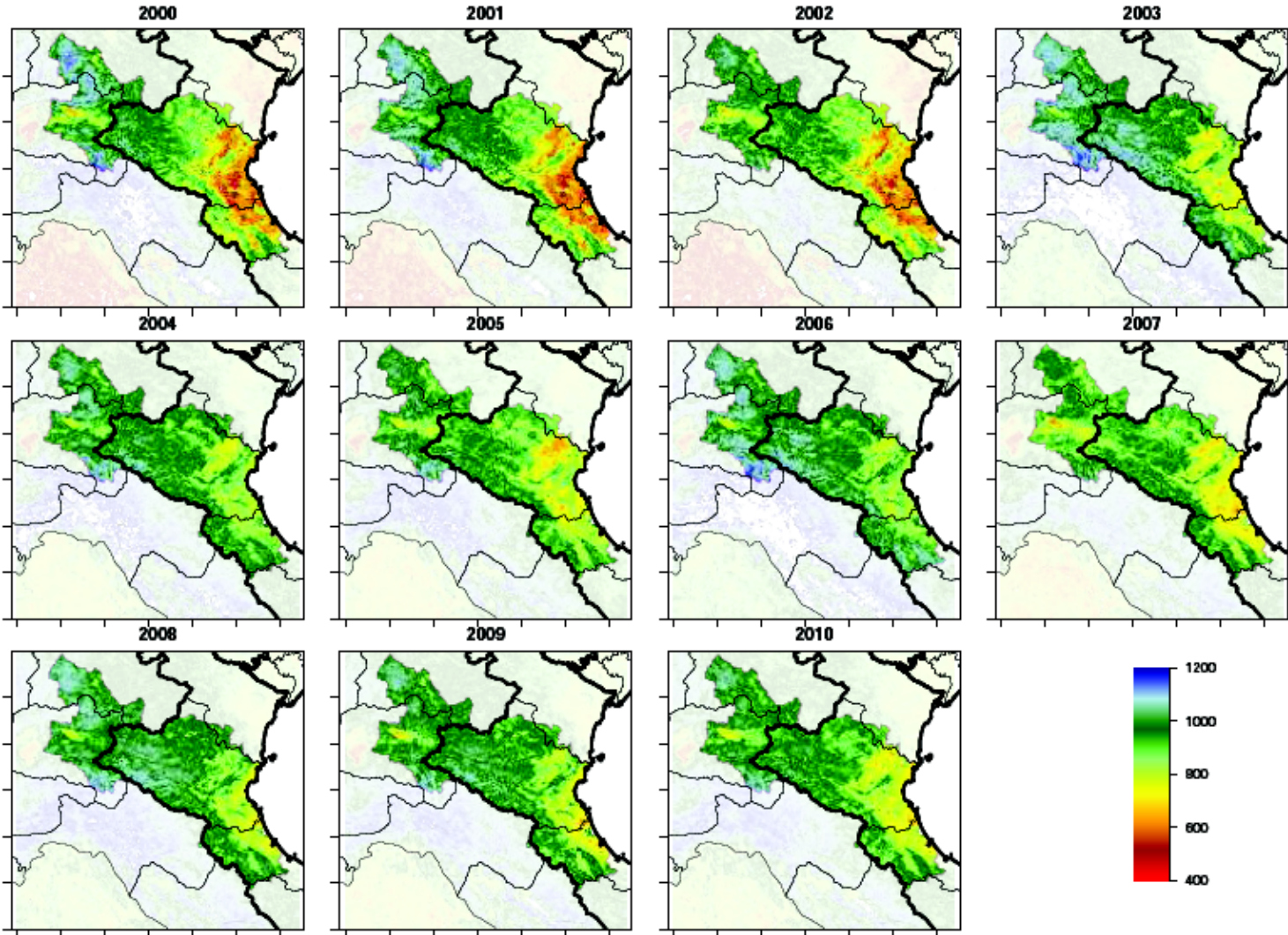
Development of remote sensing technologies



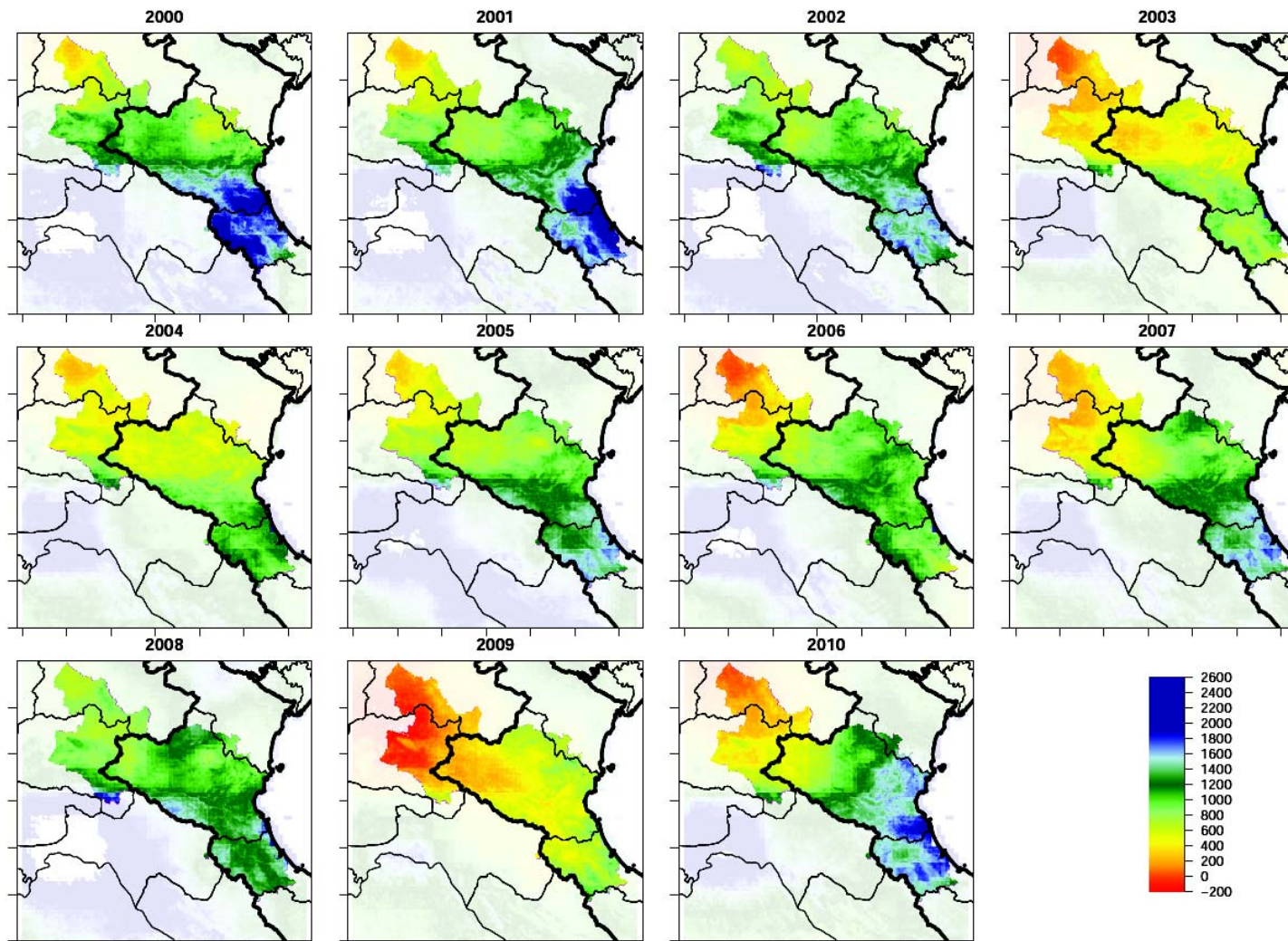
CHIRPS rainfall maps Ca Basin Vietnam



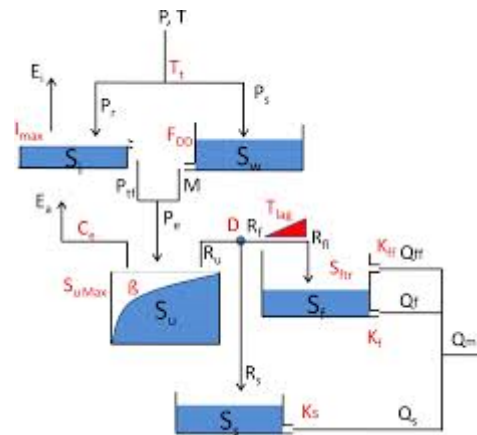
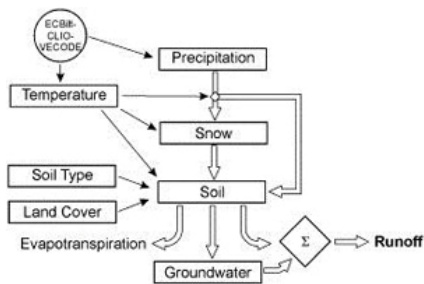
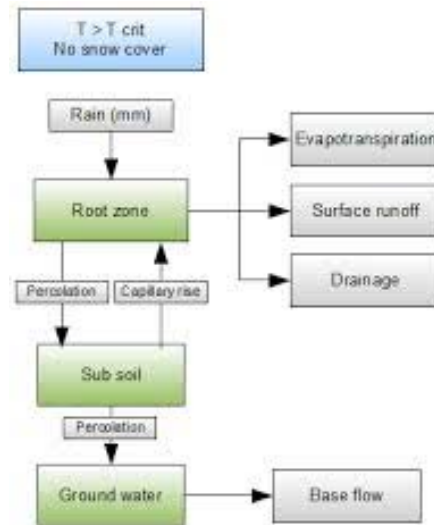
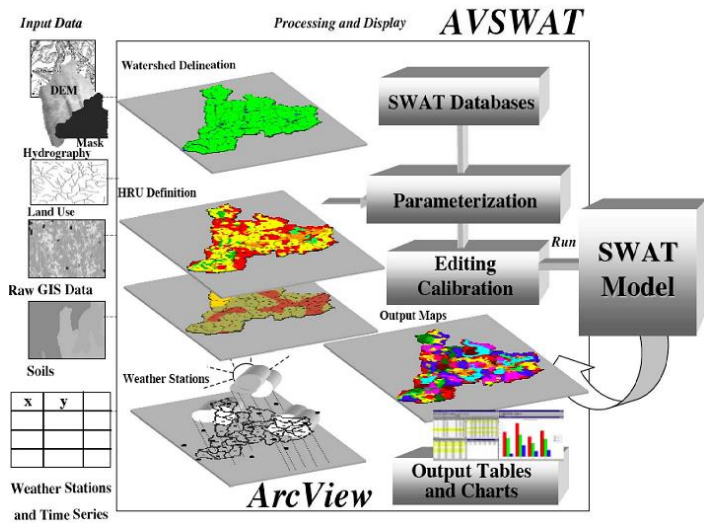
Ensemble ET product Ca Basin Vietnam



Yearly water yield maps (P- ET) Ca Basin Vietnam



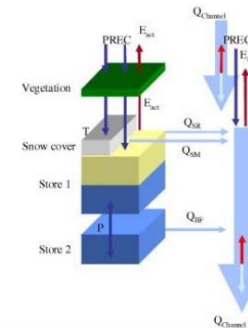
Different hydrological models



eWaterCycle



PCR-GLOBWB



Model selection depends on scenario and complexity

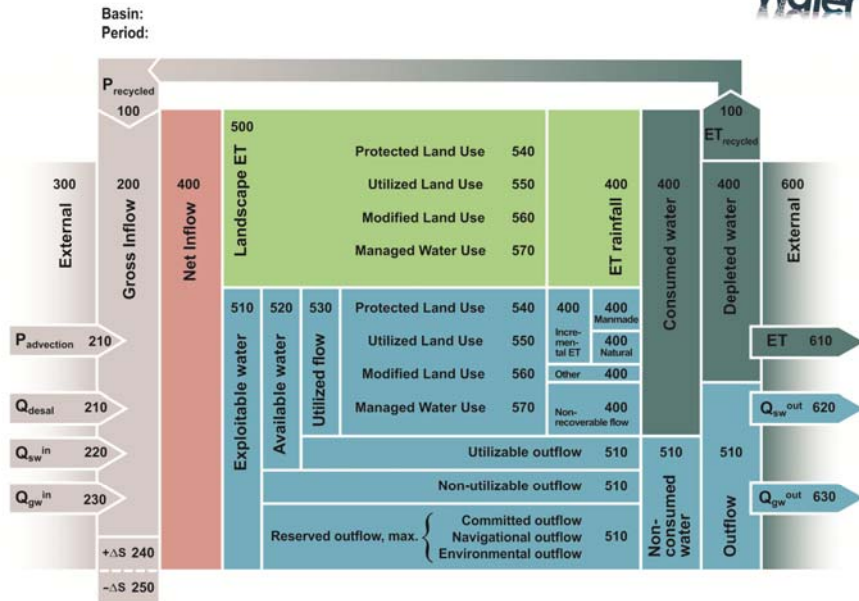
Accounting sheets



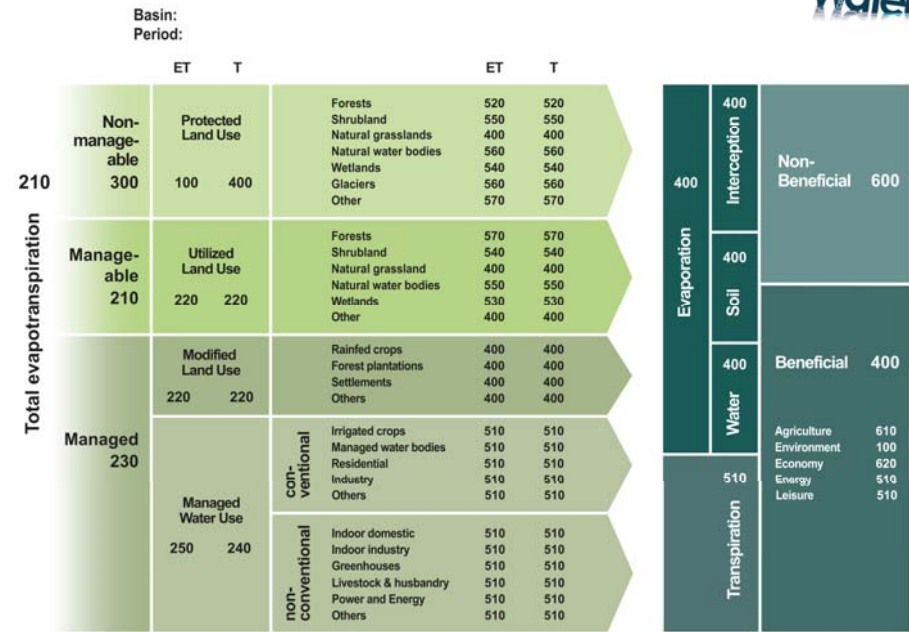
Assets		Liabilities	
Current Assets:		Current Liabilities:	
Cash	\$ 50,000	Short-term debt	\$ 30,000
Accounts Receivable	\$ 40,000	Accounts payable	\$ 50,000
Merchandise Inventory	\$100,000	Salaries	\$ 110,000
Total Current Assets	\$190,000	Total Current Liabilities	\$ 190,000
		Long-term debt	\$ 20,000
		Total Liabilities	\$ 210,000
		Owner's Equity	\$ 8,000
		Total Liabilities & Owner's Equity	\$ 218,000

Source	Planned Amount	Actual Amount	Beginning Date		Ending Date	
Revenue						
Expenses						
Total Gross Income						
Please Note: All expenses should be entered as negative numbers						
Source	Planned Amount	Actual Amount	Beginning Date		Ending Date	
Expenses						
Cost of Goods Sold						
Salaries						
Utilities						
Insurance						
Advertising						
Depreciation						
Interest						
Income Tax						
Other						
Total Gross Expense						
Net Income						
Net Loss						
Total Net						

Sheet 1: Resource Base Sheet



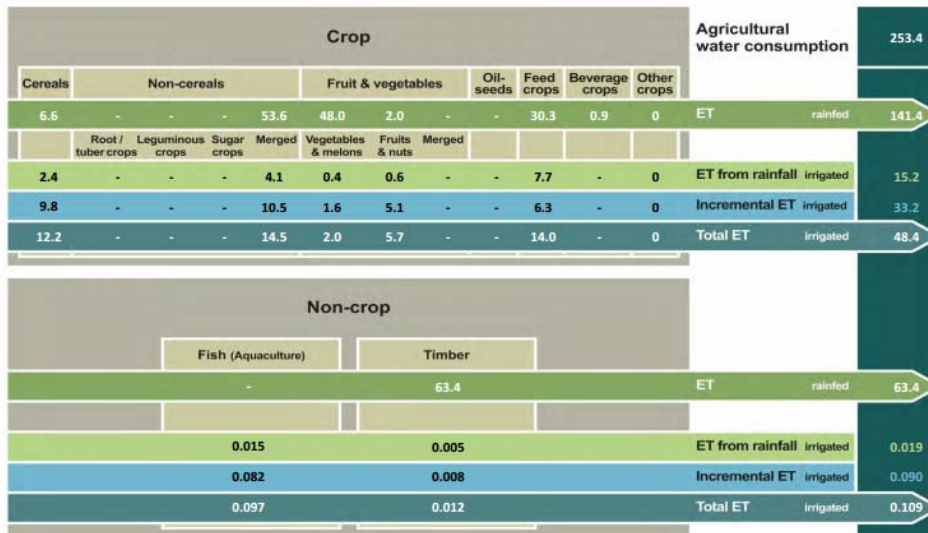
Sheet 2: Evapotranspiration (km³/yr)



Sheet 3: Agricultural services

Part 1: Agricultural water consumption (km³/yr)

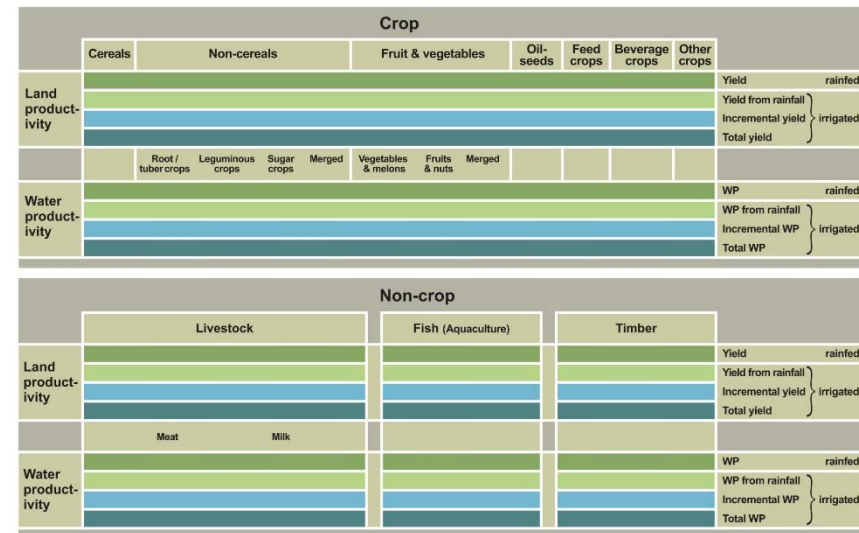
Basin: Nile Basin
 Period: 2005-2010



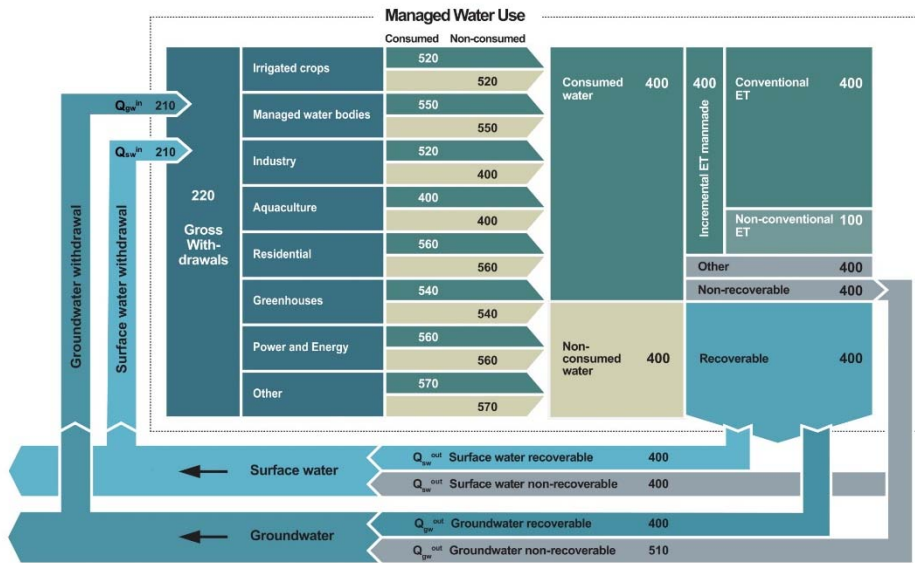
Sheet 3: Agricultural services

Part 2: Land productivity (kg/ha/yr) and water productivity (kg/m³)

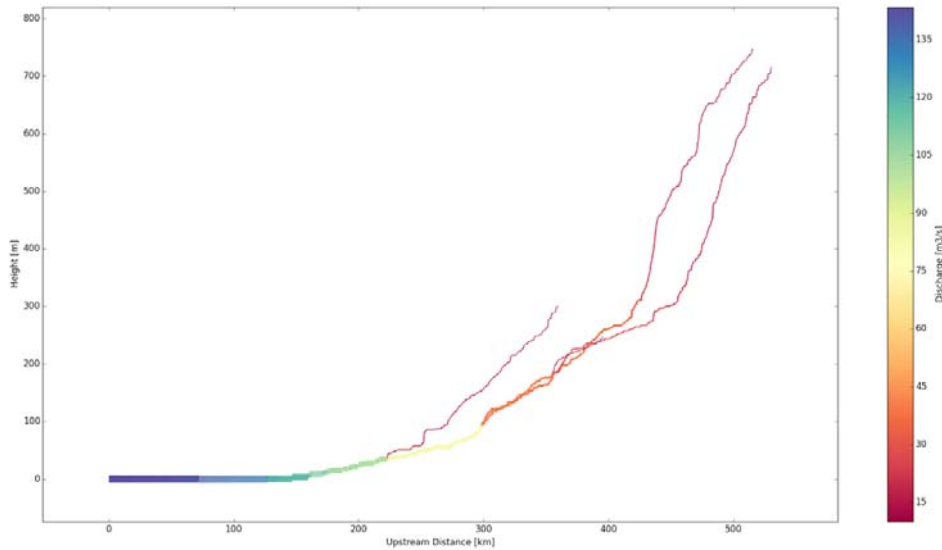
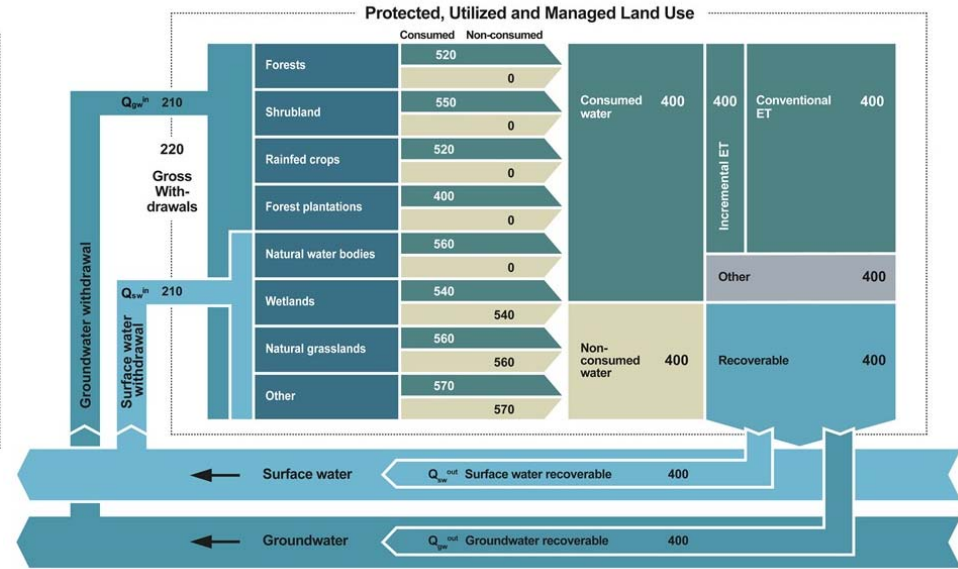
Basin:
 Period:



Sheet 4: Utilized Flow
Part 1: Manmade (Mm³/yr)
Basin:
Period:



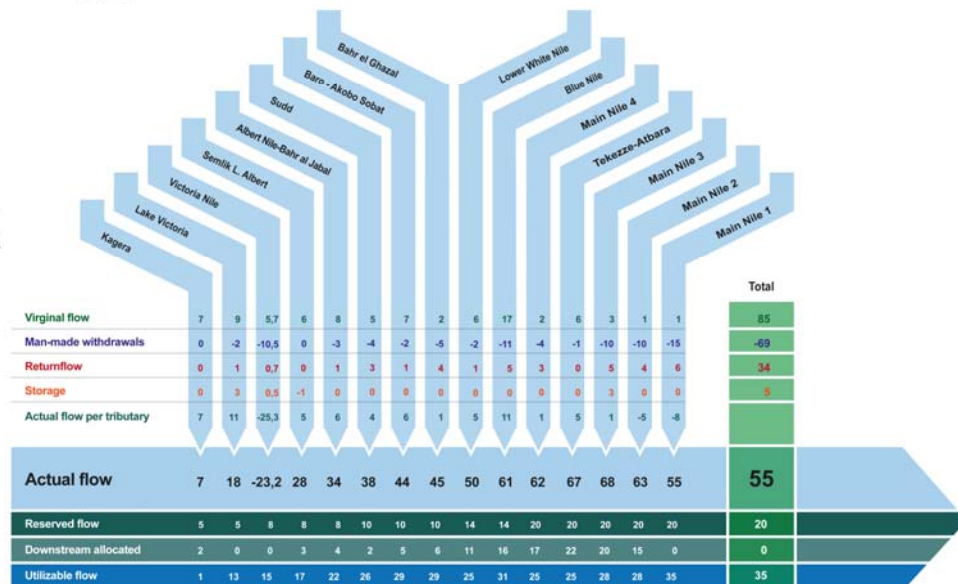
Sheet 4: Utilized Flow
Part 2: Natural (Mm³/yr)
Basin:
Period:



Sheet 5: Surface water (km³/yr)

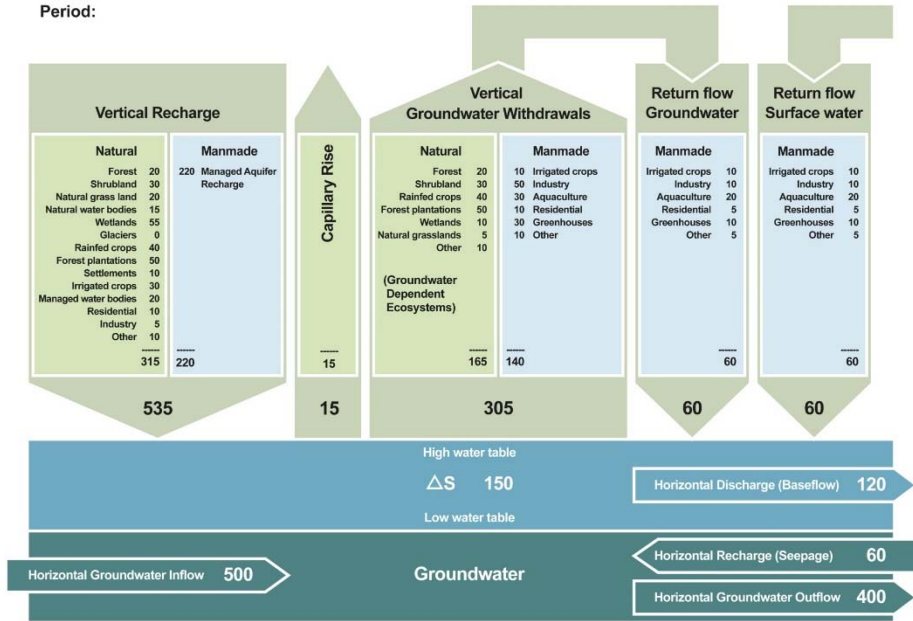


Basin:
Period:



Sheet 6: Groundwater (Mm³/yr)

Basin:
Period:

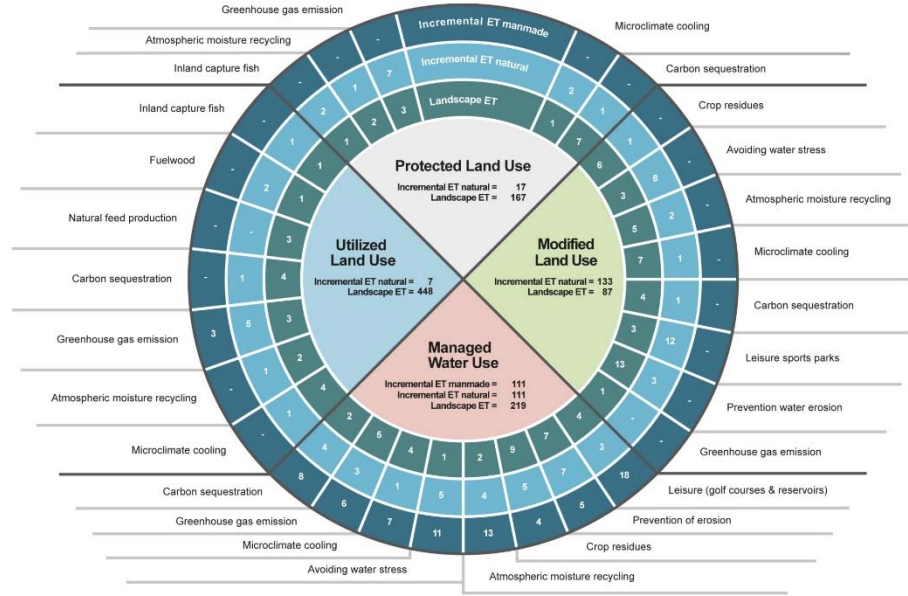


Sheet 7: Ecosystem Services

Part 1: Water Consuming Ecosystem Services (Mm³/yr)



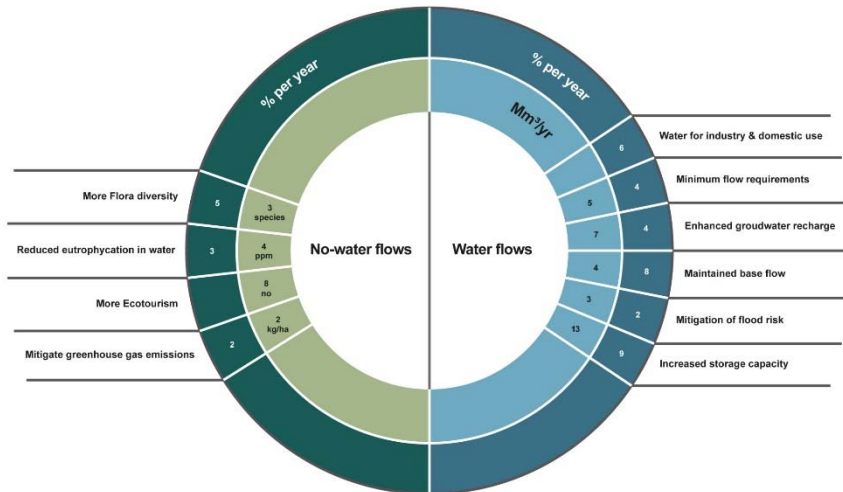
Basin:
Period:



Sheet 7: Ecosystem Services

Part 2: Water Regulating Services (non-consumptive use) (Mm³/yr)

Basin:
Period:



Conclusions

- Difficult to find consistent and high quality data sets based on in situ measurements only
- Remote sensing is the solution for past and current situation
- Hydrological models are required for scenario analysis
- Water Accounting summarizes the overall water situation, both from remote sensing and hydrological models
- WA+ is a measurement – planning - monitoring tool and is meant for longer term modifications
- With 8 sheets and tables, one can understand the situation quickly

www.wateraccounting.org

Water Accounting+ - Google Chrome

www.wateraccounting.org

Applications Bastiaanssen, Wim (l... Buildings in the Net... SVS Animation 4044 ... TU Delft: Bastiaanss... Postvak IN (4) - wim... duale bachelor Geo... www.pcd.nl/Portal... Africa - Home Goedkoopste vliegti... Large Scale Hydrolo... Support studies and ... W Water Accounting+

Water ACCOUNTING+

Water Accounting+
independent estimates of water flows, fluxes,
stocks, consumption and services

[Background](#) [Basins covered](#) [Data Sources](#) [WA+ publications](#) [Contact](#)

- **Introduction**

Why water accounting?	
Rationale	
Formulation	
Financial support	
News	
Glossary	

Introduction

Water problems around the world are increasing; however, information useful for decision makers within the water sector and related to the water sector seems to be decreasing. Solving water problems requires information from many disciplines, and the physical accounts (describing sources and uses of water) are the most important foundation. The information has to be coherent and harmonized in order to provide an integrated picture useful for the assessment of the problems. The current hydrological data democracy does not provide all required data necessary for a proper water consumer communication, which hampers the development of good water stewardship.

Water accounting integrates hydrological processes with land use, managed water flows and the services that result from water consumption in river basins. Its objective is to strive to achieve equitable and transparent water governance for all water users and a sustainable water balance. Users can provide value assessments of certain process, and more accurate data sets, that replaces the default data collected from open access sources that represent "best estimates". Water accounting has been developed originally by Dr. David Molden from the International Water Management Institute (IWMI) and has been modified and upgraded with inputs from the Delft University of Technology.

The current website provides the framework and results of a new Water Accounting method that is based on global scale public domain datasets (FAO, UN, etc.)