Experiences Gained Under WATPLAN FP7 Project

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with inputs from

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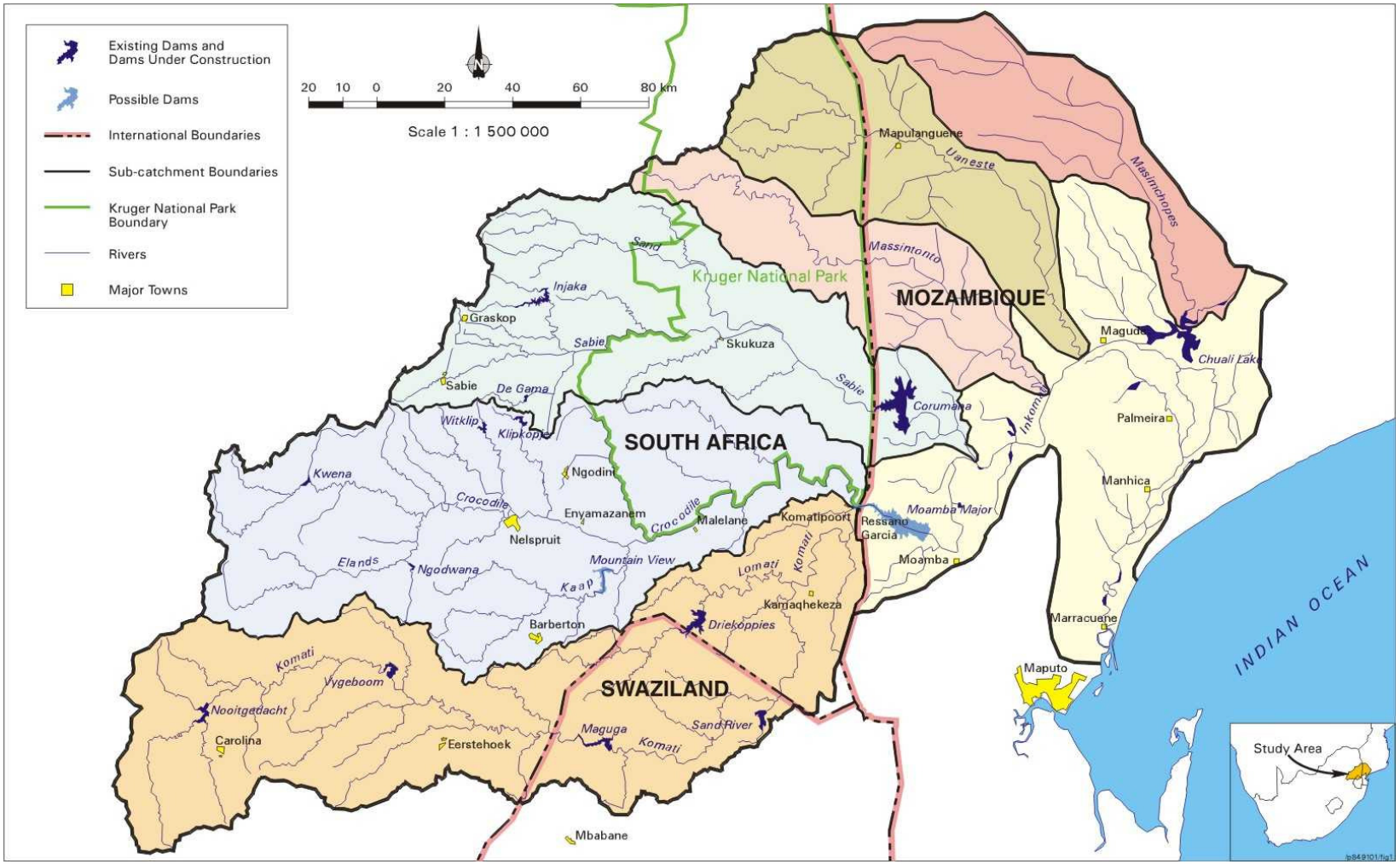
Location of Incomati Basin



CONSULTEC BKS ACRES | JOINT INKOMATI BASIN STUDY | **General Map of the Basin** | **Fig 1**

WATPLAN managing water use

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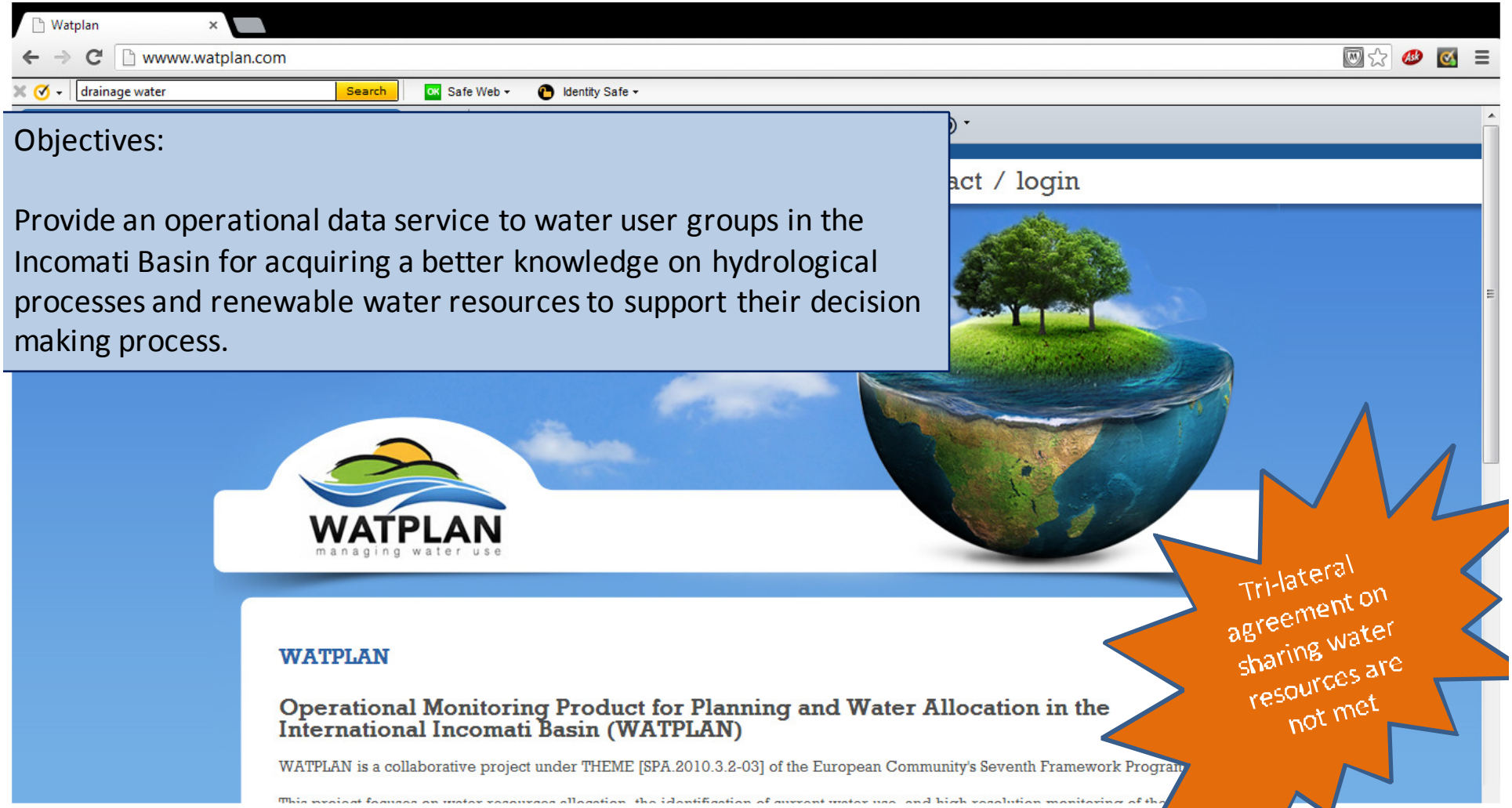
Operational Monitoring Product for Water

Objectives:

Provide an operational data service to water user groups in the Incomati Basin for acquiring a better knowledge on hydrological processes and renewable water resources to support their decision making process.



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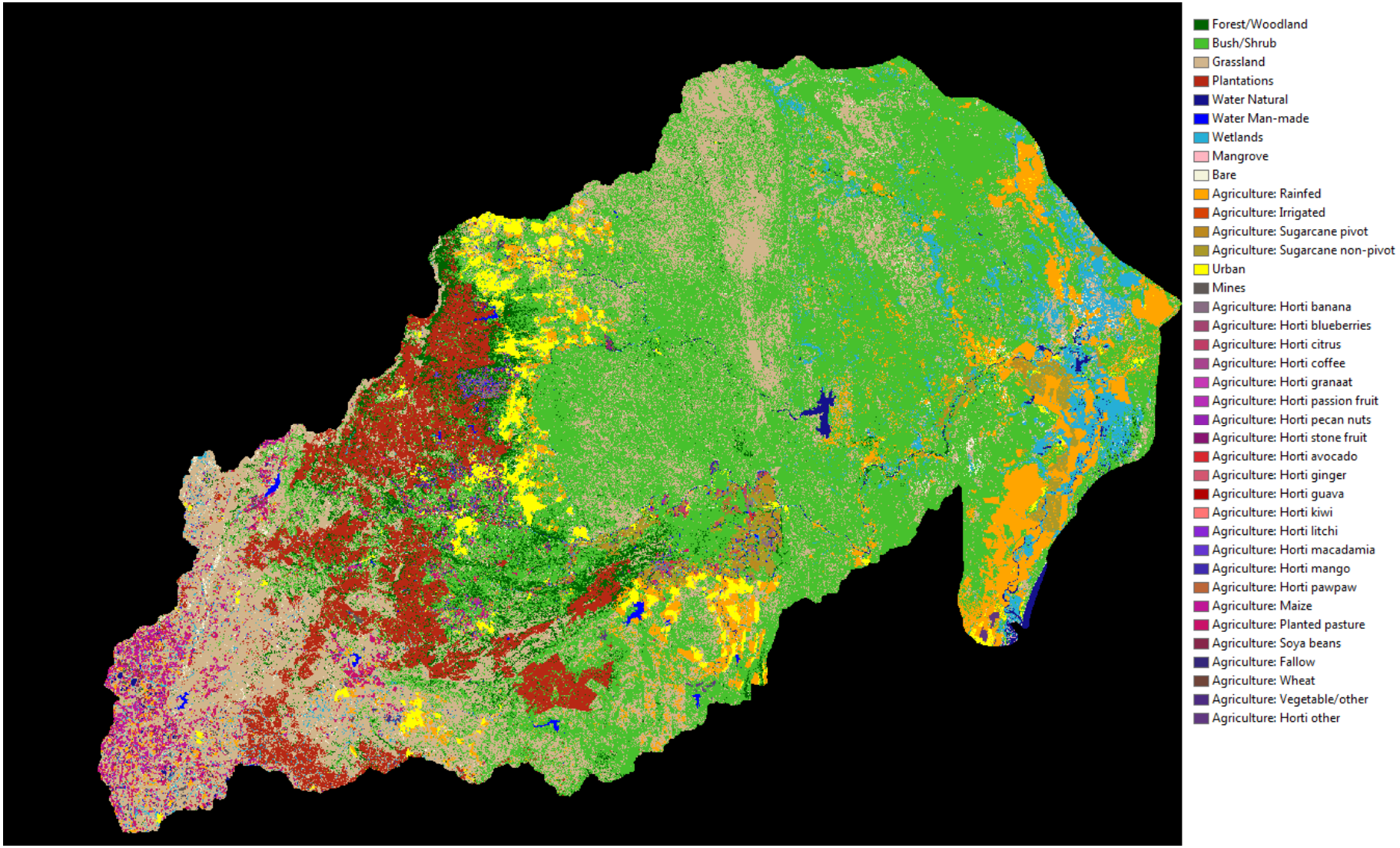
Detailed Land Use Map (40 classes)



WATPLAN

Prepared by Geo Terra Imaging (GT), Pretoria

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Balancing in and out

Income and Expenditures

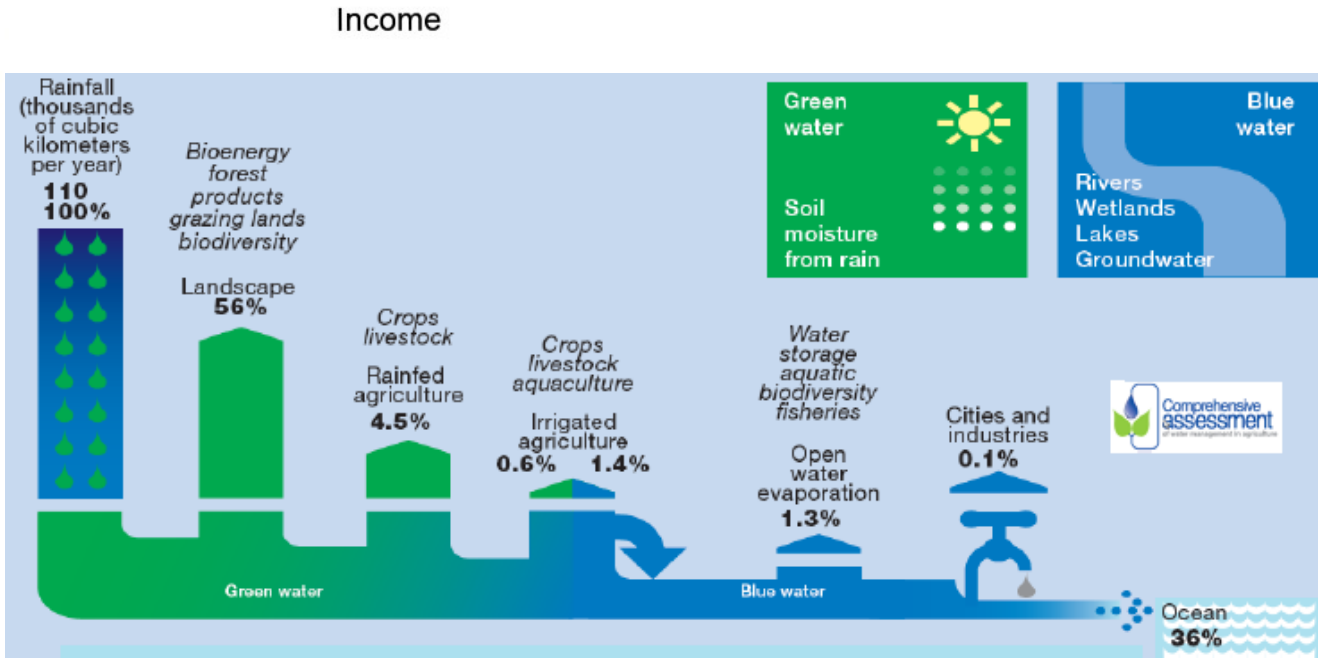
Click and drag the money to determine your income and expenditures

Equation Check

Check to see if you have a savings or are in debt!

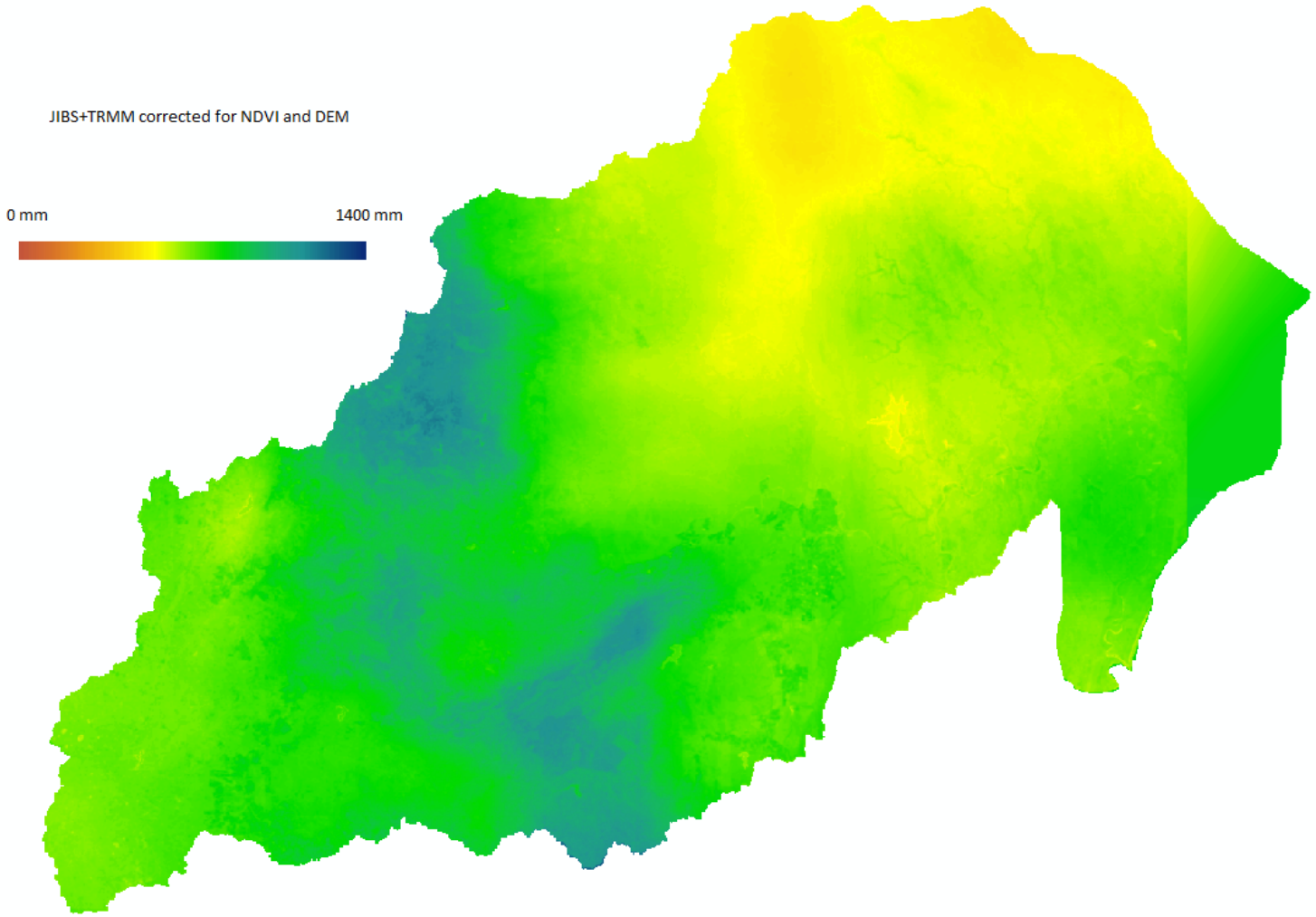
Total Income: $

Total Expenditures: $



" Don't use more than you have "

How much water do we have ?



Downscaling of TRMM rainfall and local calibration: Zheng and Bastiaanssen (2013)

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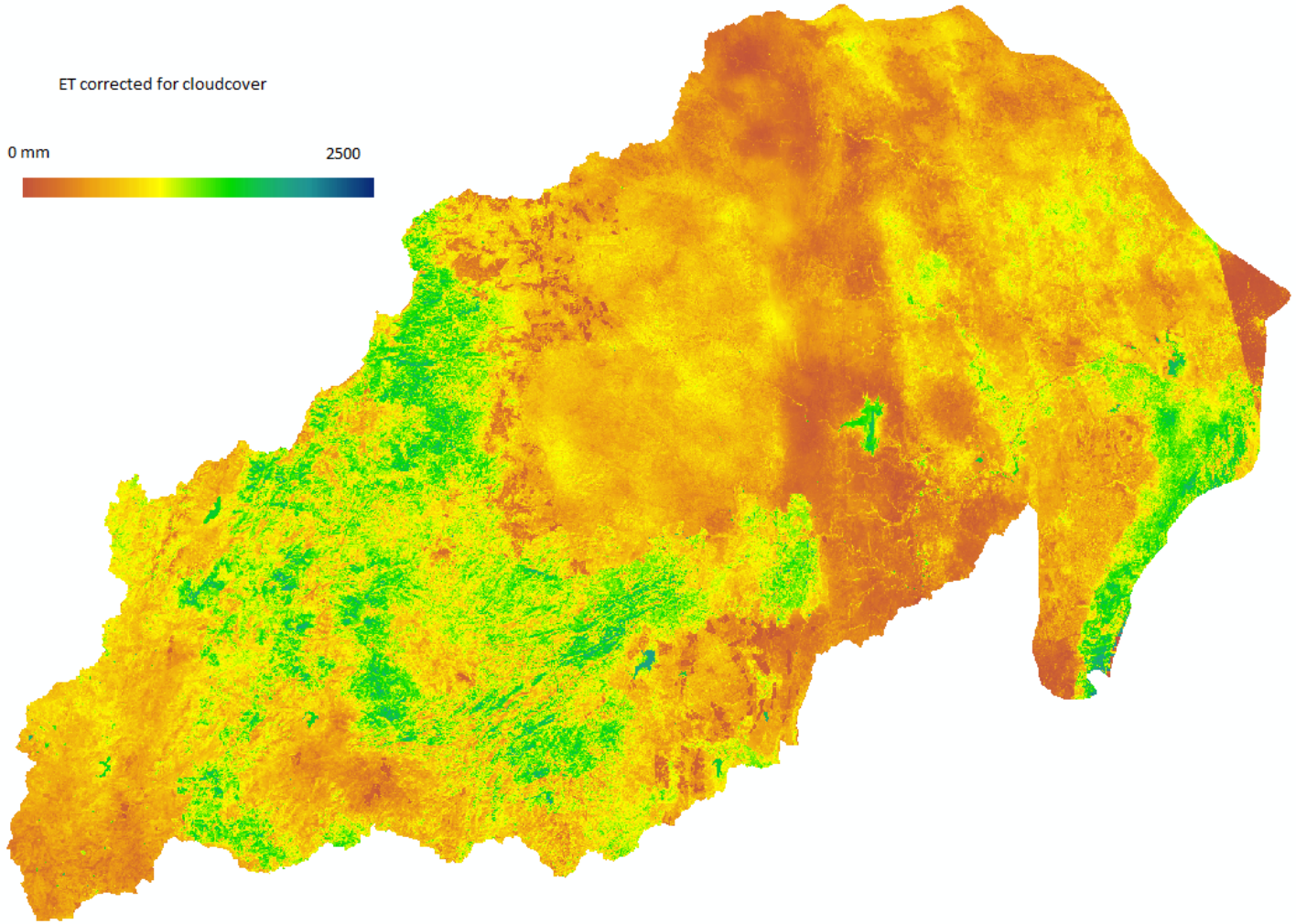
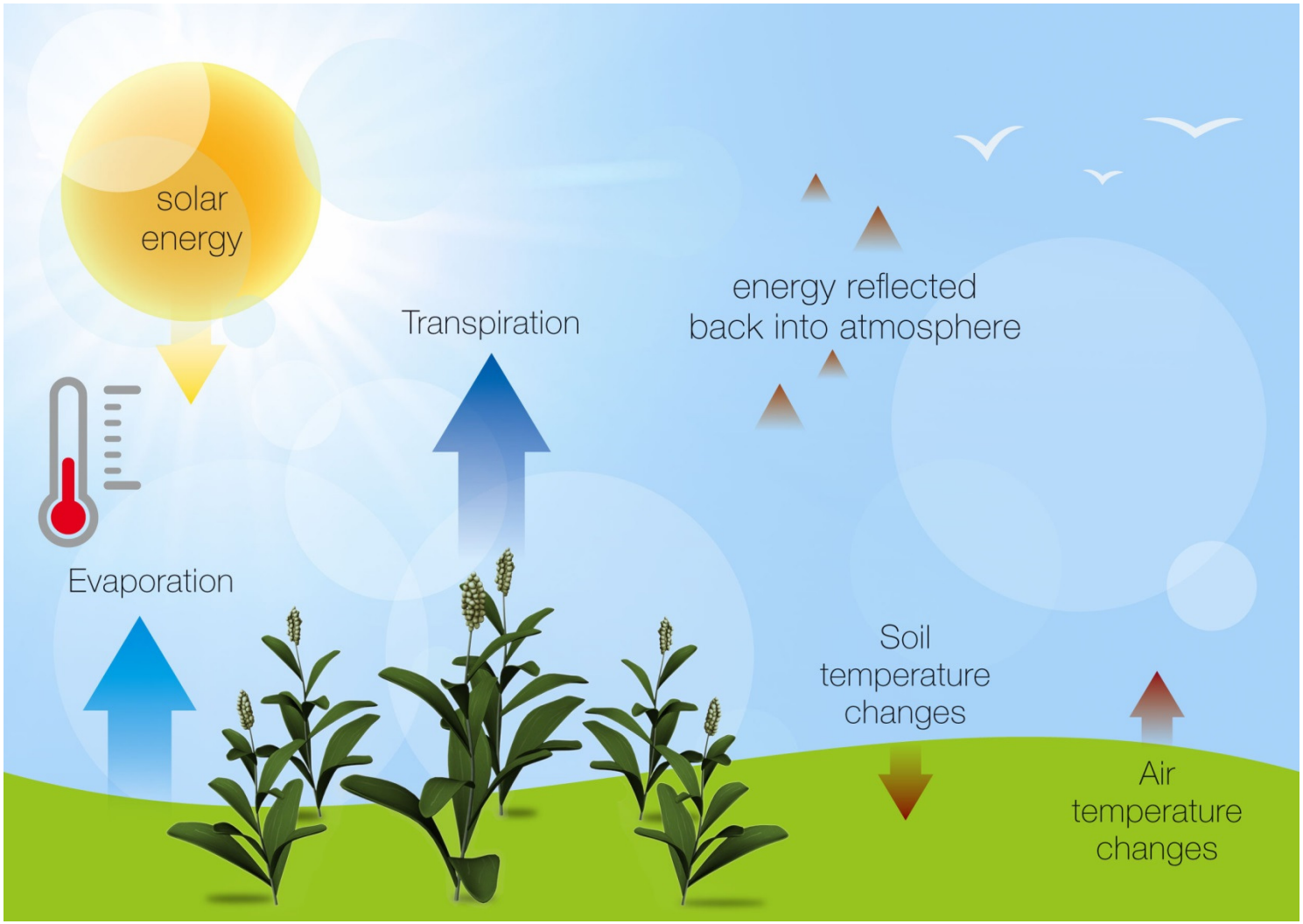
How much water do we consume ?

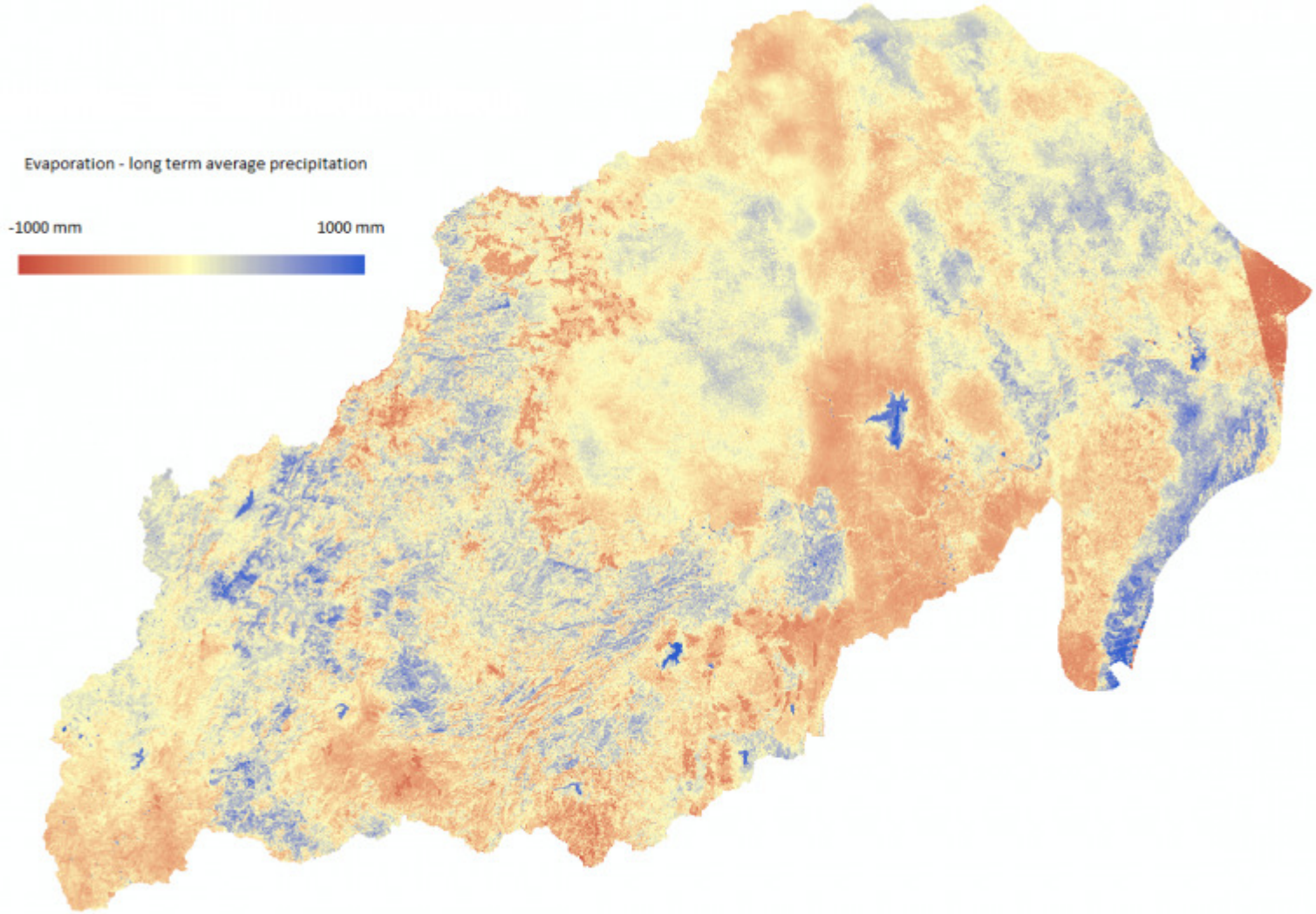


Weekly actual evapotranspiration data (20 m x 20 m)

Surface energy balance



Balancing IN and OUT



Red areas generate runoff; blue areas withdraw water from river and aquifers

Water production &consumption sheet

'Landclass'	Water volume (Mm3)
'Plantations'	-583
'Forest/Woodland'	-313
water'	-153
'Agriculture: Sugarcane non-pivot'	-149
'Wetlands'	-114
Horticulture'	-45
'Agriculture: Sugarcane pivot'	-35
'Agriculture: Irrigated'	-3
'Mangrove'	-3
TOTAL WITHDRAWALS	**-1398**
'Mines'	5
Agriculture: other'	27
'Bare'	44
'Agriculture: Maize'	47
'Agriculture: Planted pasture'	66
'Agriculture: Rainfed'	351
'Urban'	438
'Bush/Shrub'	977
'Grassland'	1208
TOTAL RENEWABLE RESOURCES	**3164**

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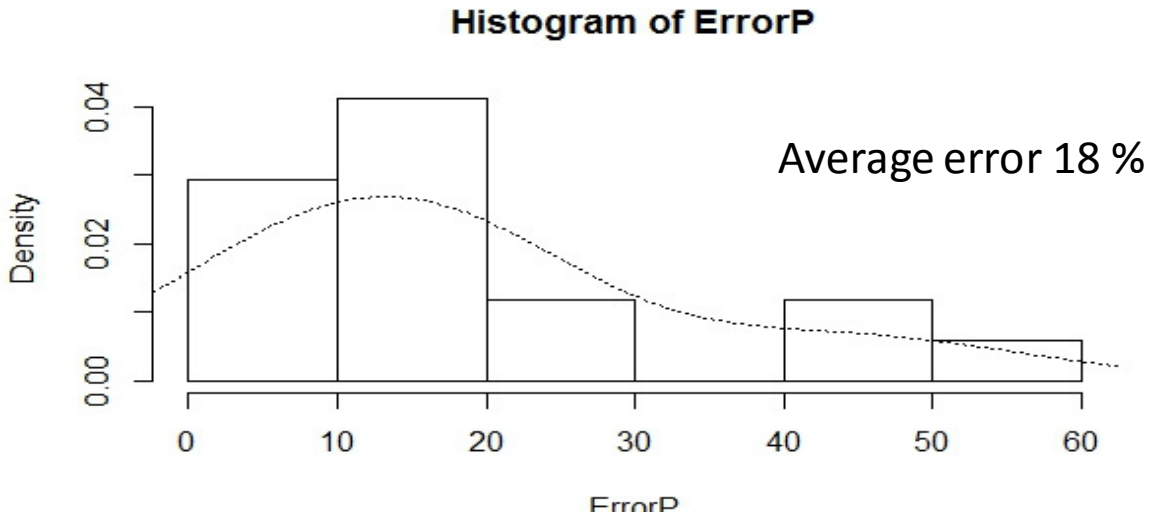
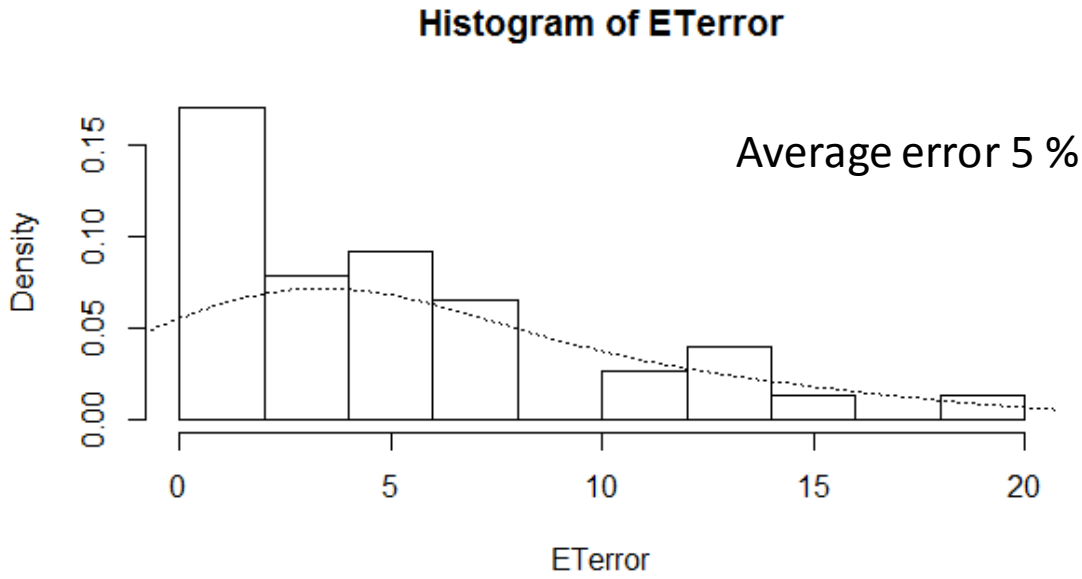
Errors in remotely sensed water balances



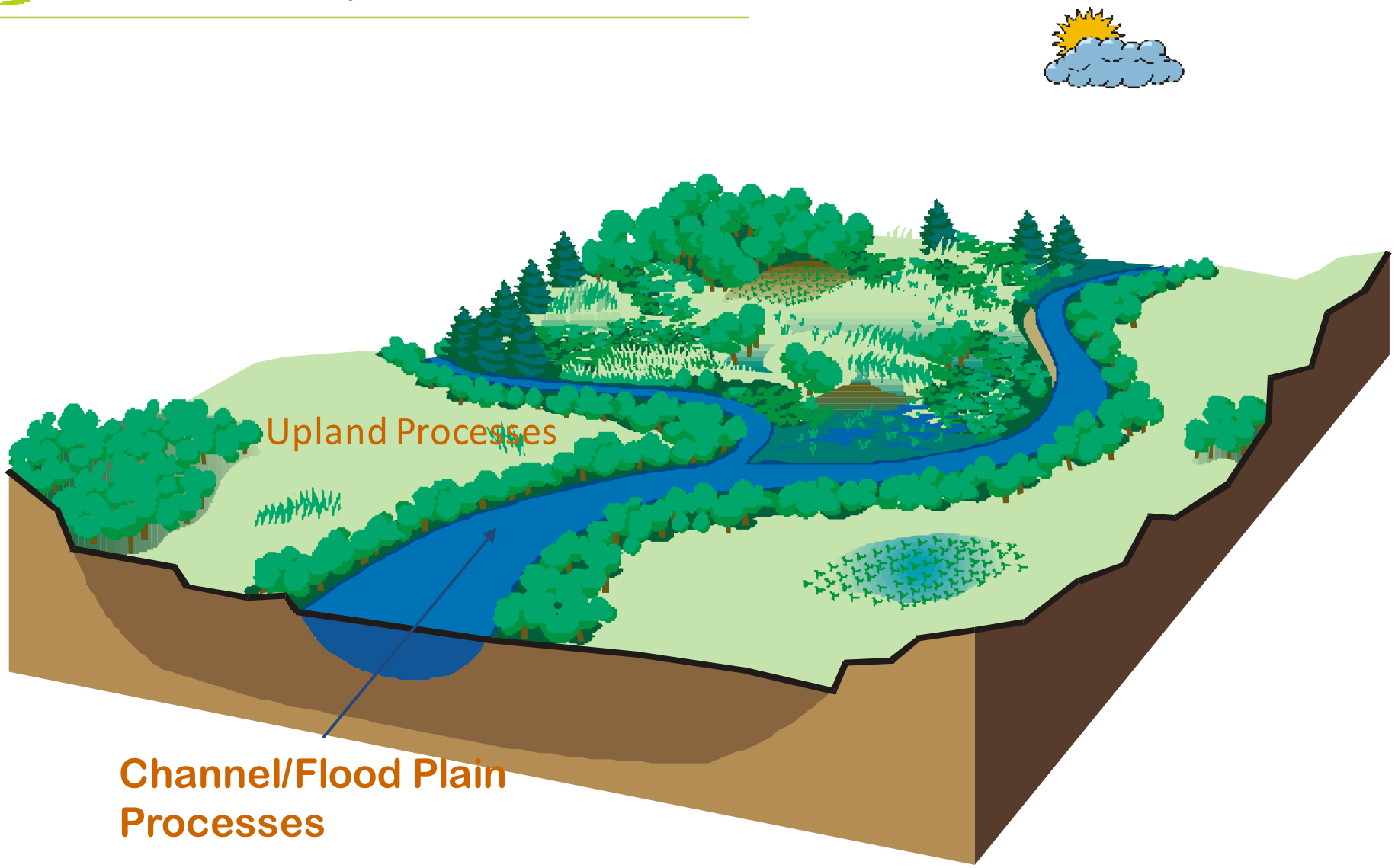
Average error 18 %



Average error 5 %

Karimi and Bastiaanssen, 2013 (in prep)

Develop APPs !



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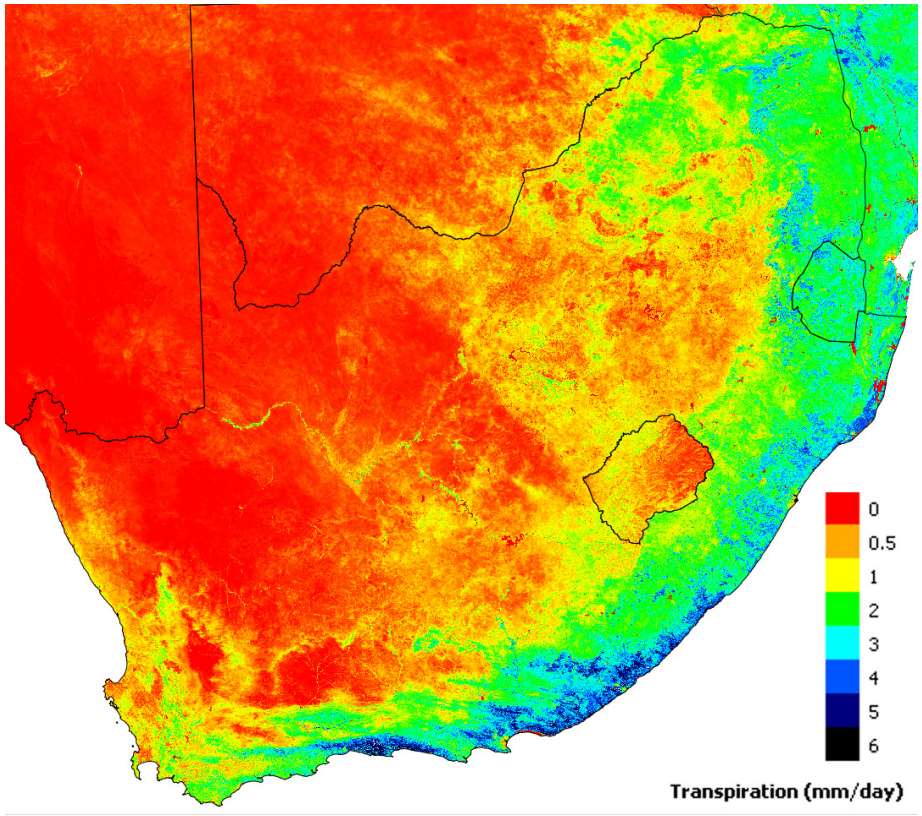
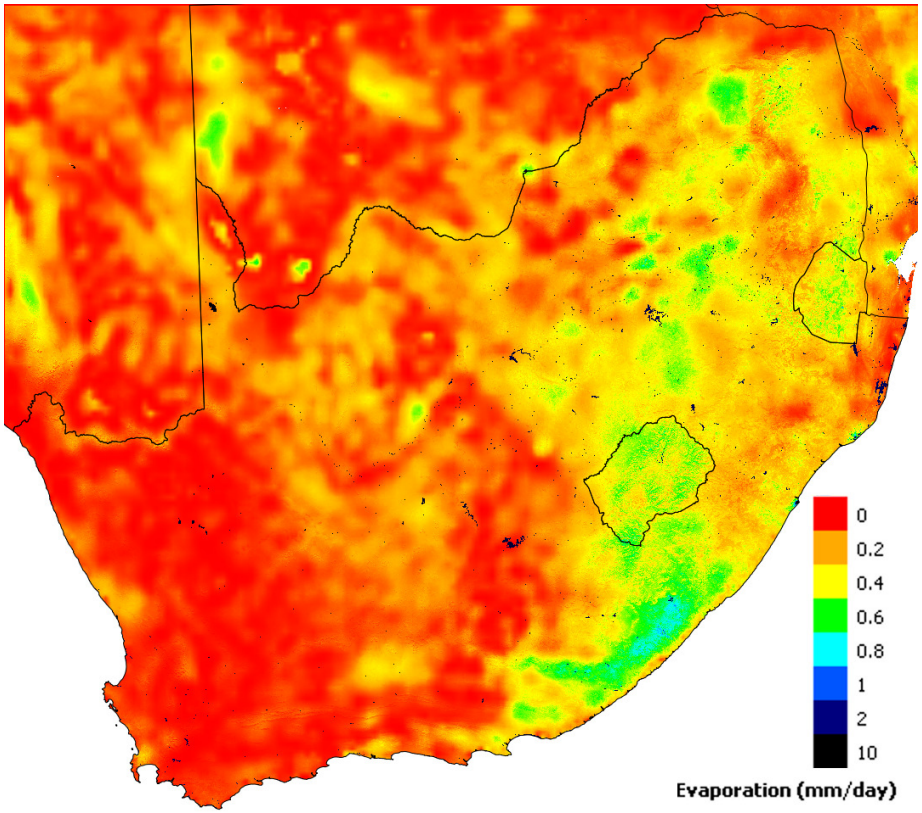
Towards first step in operational services

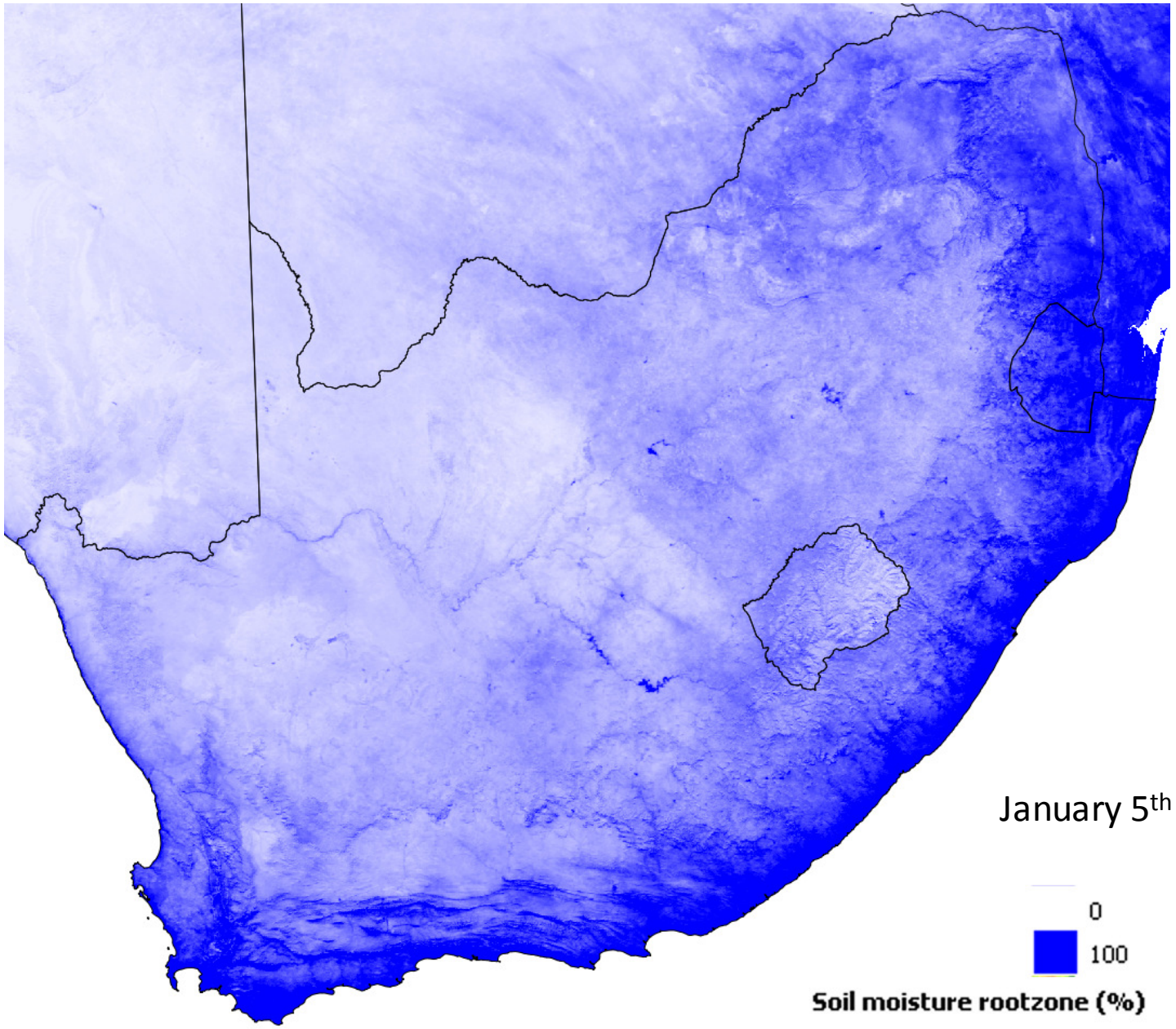
Transpiration & evaporation separated



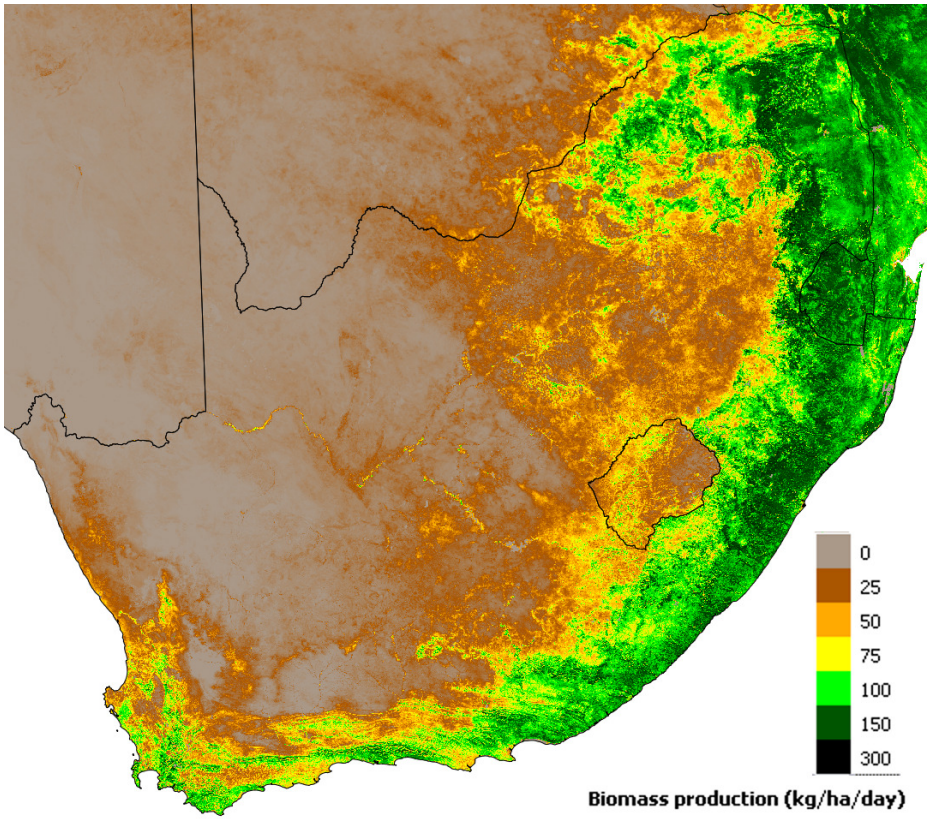


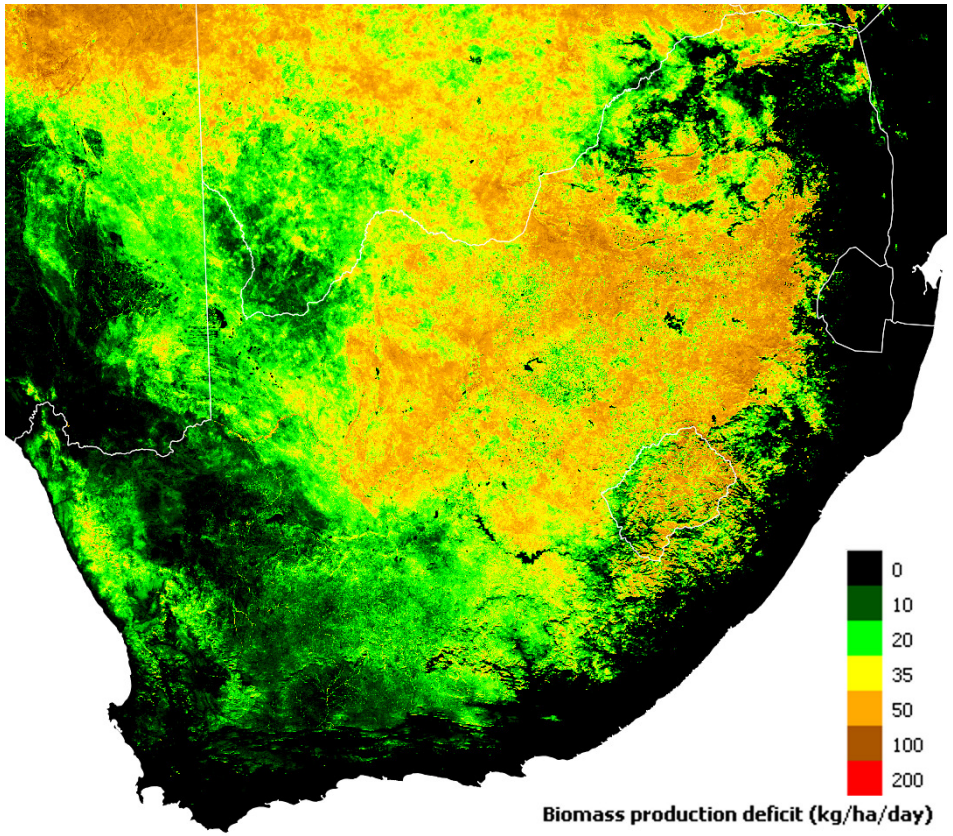
January 5th (2013)

Soil moisture at 375 m. Rootzone !



Biomass production and impact of soil moisture





January 5th (2013)

Conclusions

- A considerable list of spatial data components for water and climate services can be established from EO data
- Operational data streams in Africa appeared to be feasible and doable; recipient organizations continue after FP7
- Development of APPs are the key for solutions
- Some key applications should be related to renewable water resources, water allocation, withdrawals and water accounting
- An operational system is in place for Africa, Lesotho, Swaziland and Mozambique (250 m x 250 m; daily)
- Upscaling to other countries is feasible

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Thank you !