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Applied Systems Analysis
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AUSTRIAN
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Federal Ministry
Republic of Austria
Sustainability and Tourism

Directorate of Water Resources Management
Ministry of Water and Environment
Uganda



EAST AFRICAN COMMUNITY
LAKE VICTORIA
BASIN COMMISSION

One people,
One Destiny

science for global insight

Exercise Day 2



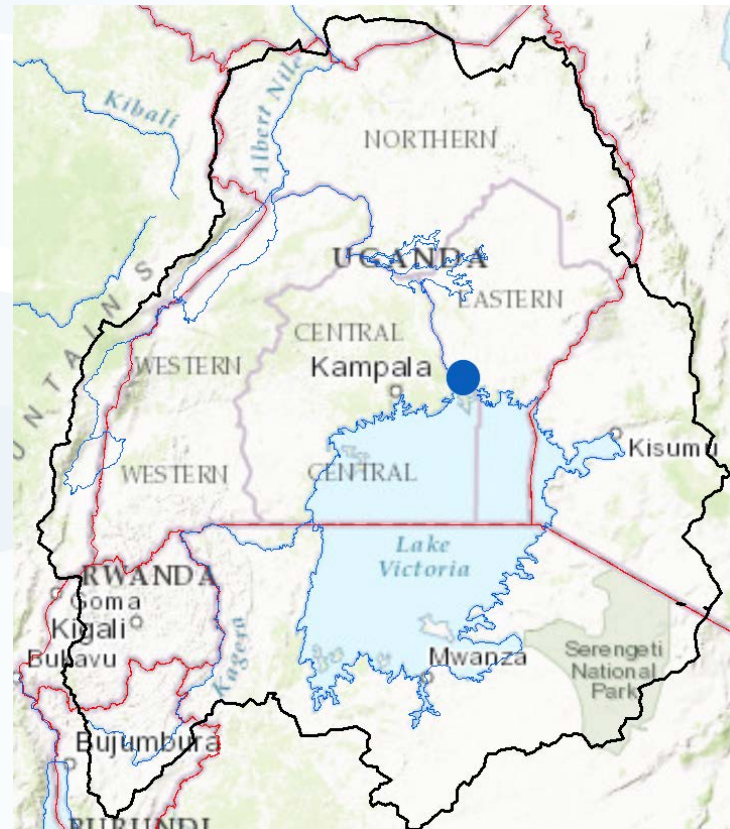
East Africa Future Water Scenarios to 2050
Entebbe, 4 Dec 2018



IIASA, International Institute for Applied Systems Analysis

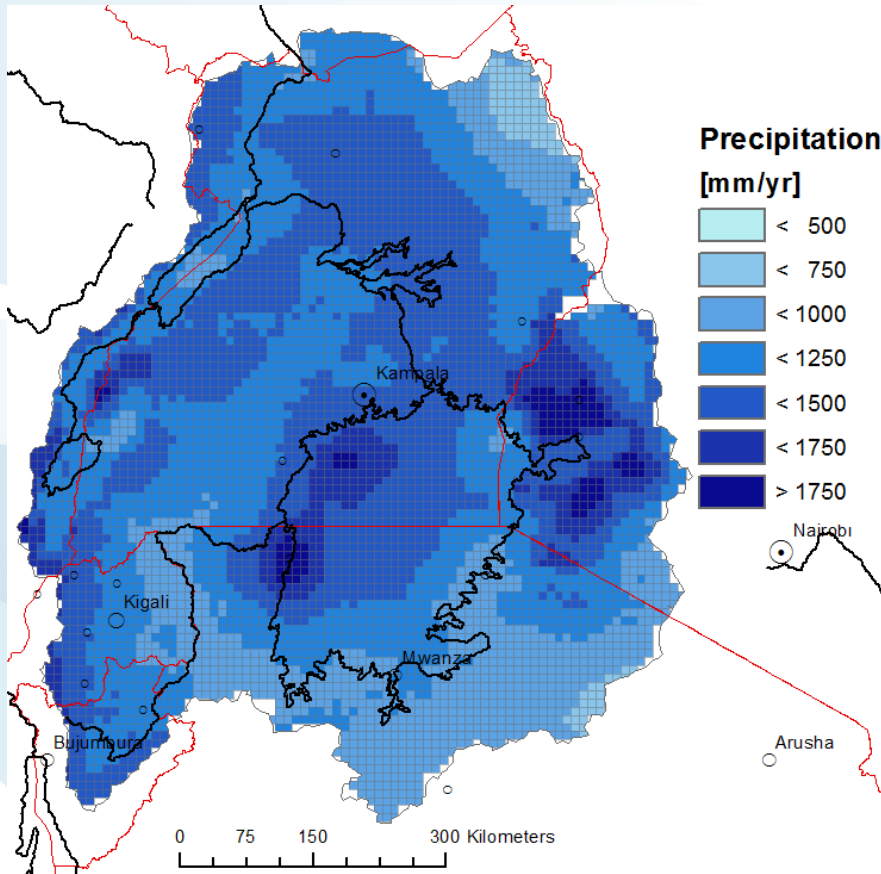


Extended Lake Victoria Basin



CWATM ext. Lake Victoria Basin

Precipitation



Precipitation 2006-2015 -> 2010

Precipitation 2046-2055 -> 2050

Future climate projection:

HadGEM2-ES 2010-2059

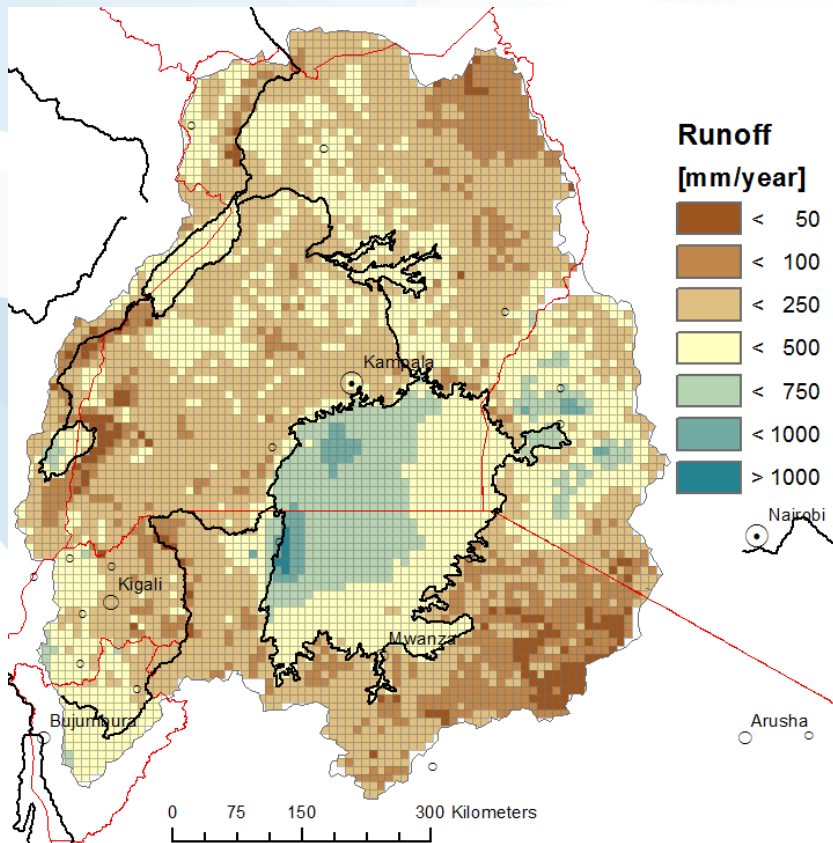
UK Met Office Hadley Centre

MIROC5 2010-2059

Japanese Universities and agencies

CWATM ext. Lake Victoria Basin

Runoff



Runoff 2006-2015 -> 2010

Runoff 2046-2055 -> 2050

Future climate projection:

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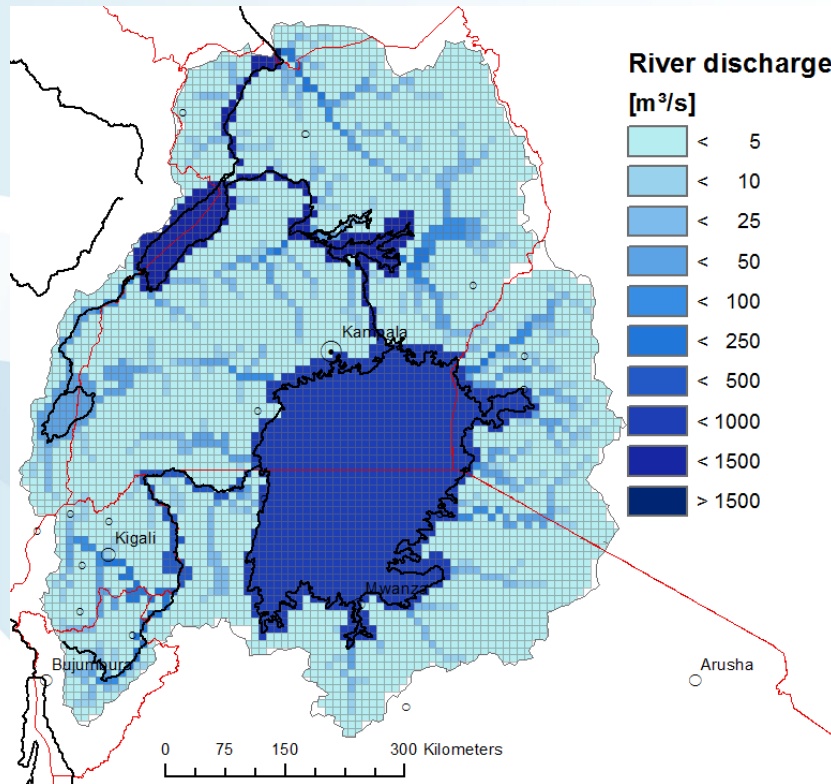
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CWATM ext. Lake Victoria Basin

River discharge



Discharge 2006-2015 -> 2010

Discharge 2046-2055 -> 2050

Future climate projection:

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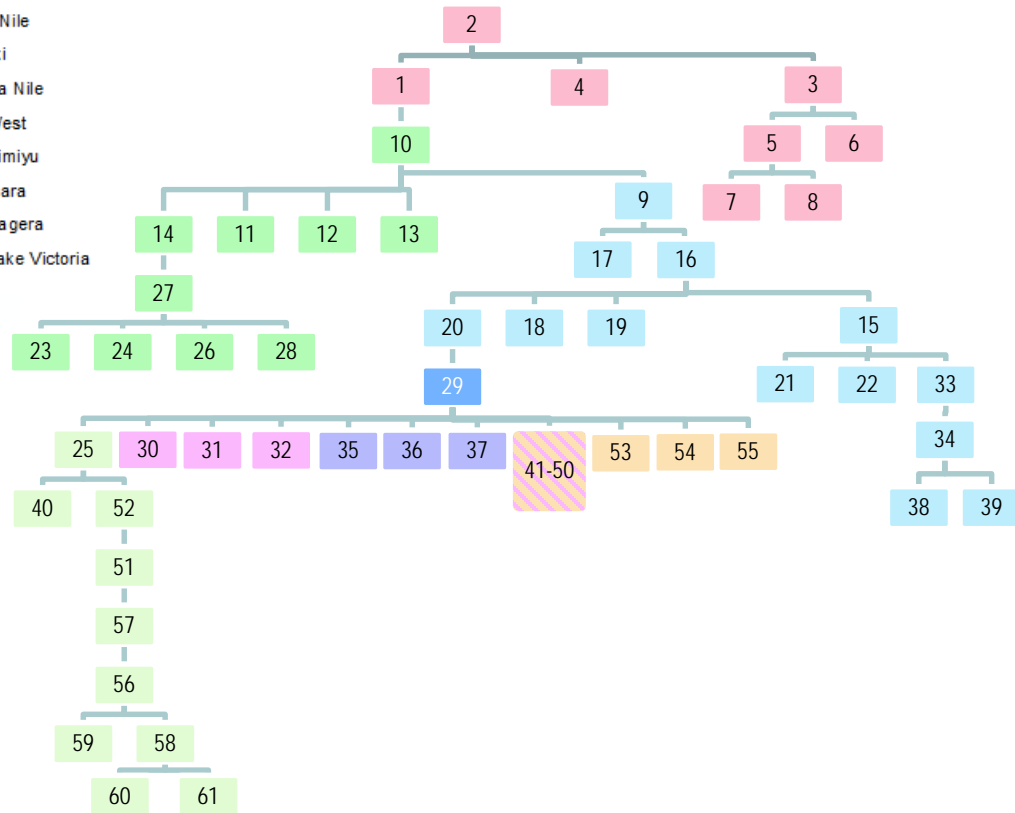
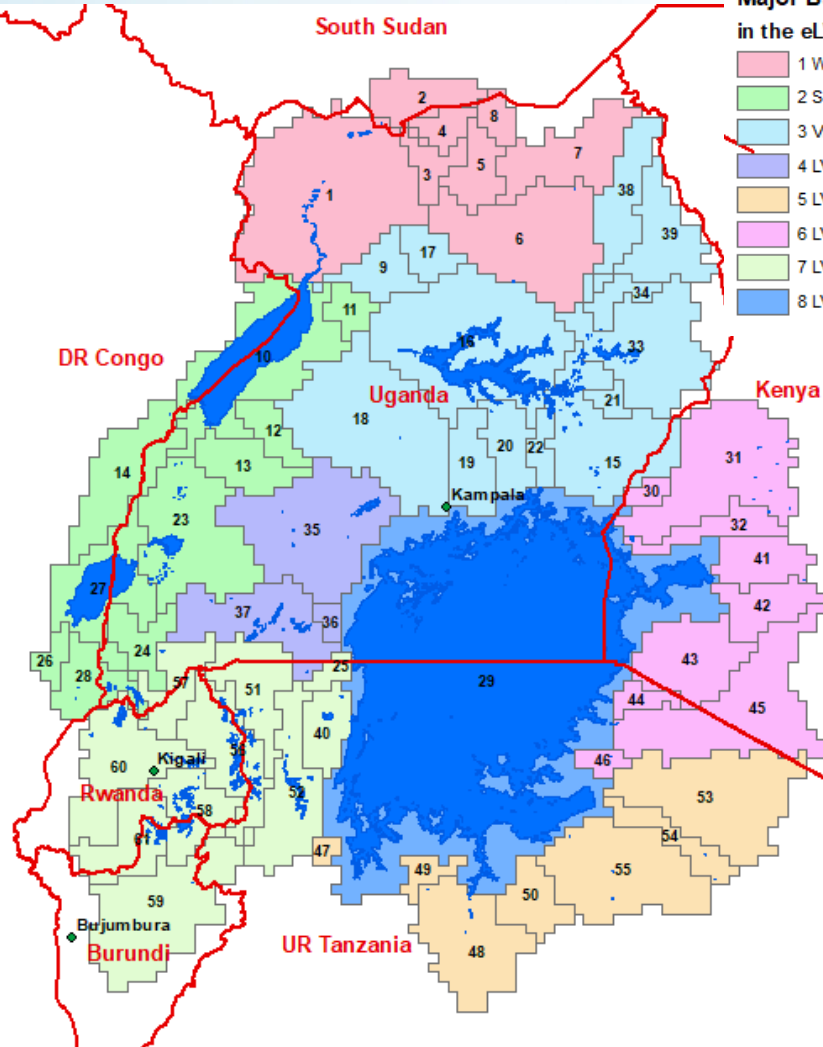
The extended Lake Victoria Basin (eLVB)

The 61 sub-basins of the eLVB and their aggregation to 8 major basin regions

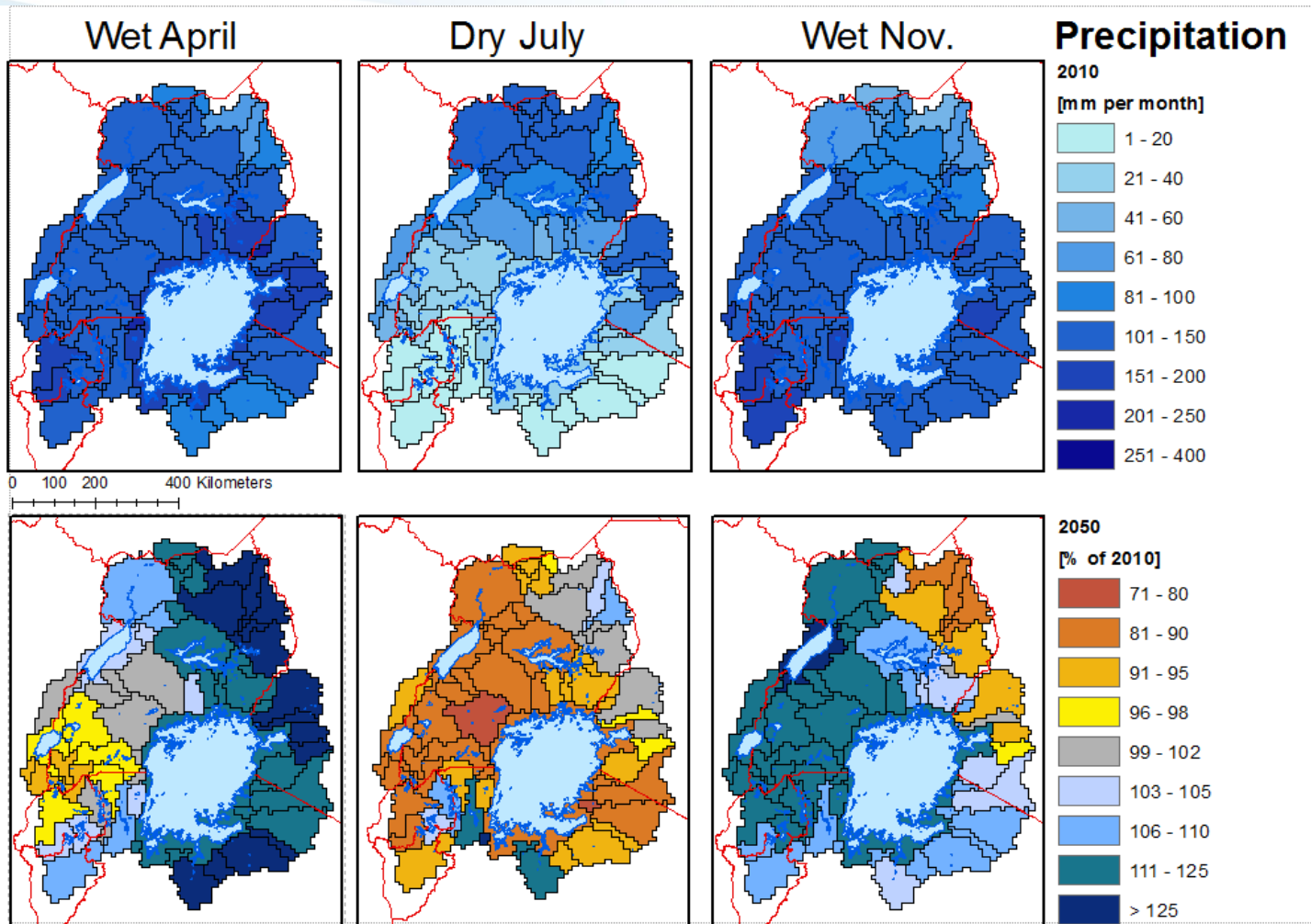
Schematic sub-basin connection map

Major Basin Regions in the eLVB

- 1 White Nile
- 2 Semliki
- 3 Victoria Nile
- 4 LVB West
- 5 LVB Simiyu
- 6 LVB Mara
- 7 LVB Kagera
- 8 LVB Lake Victoria



Precipitation change till 2050



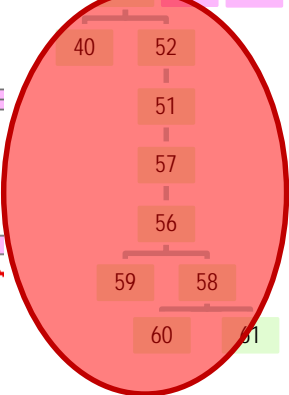
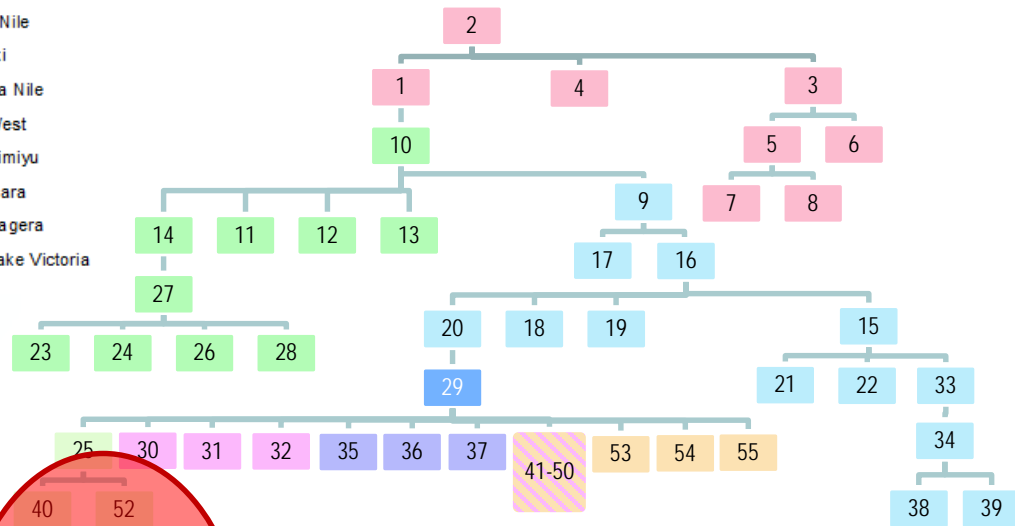
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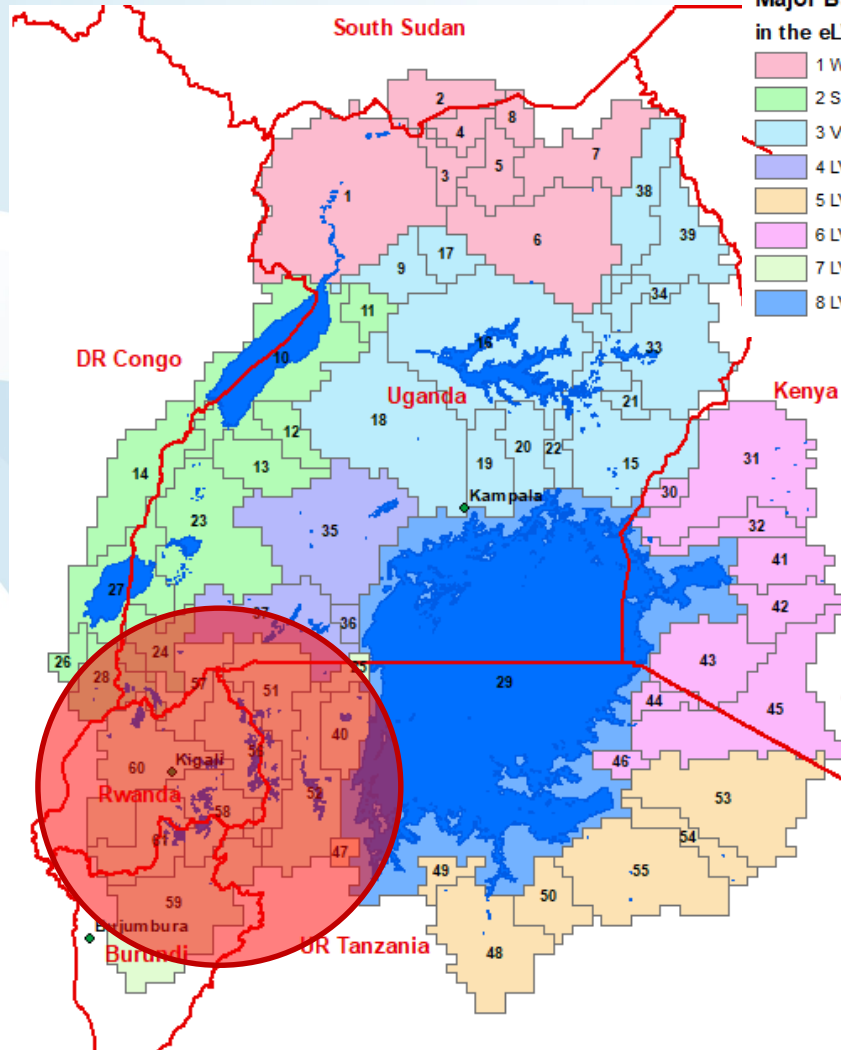
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Group 2
Area: 7 LVB Kagera



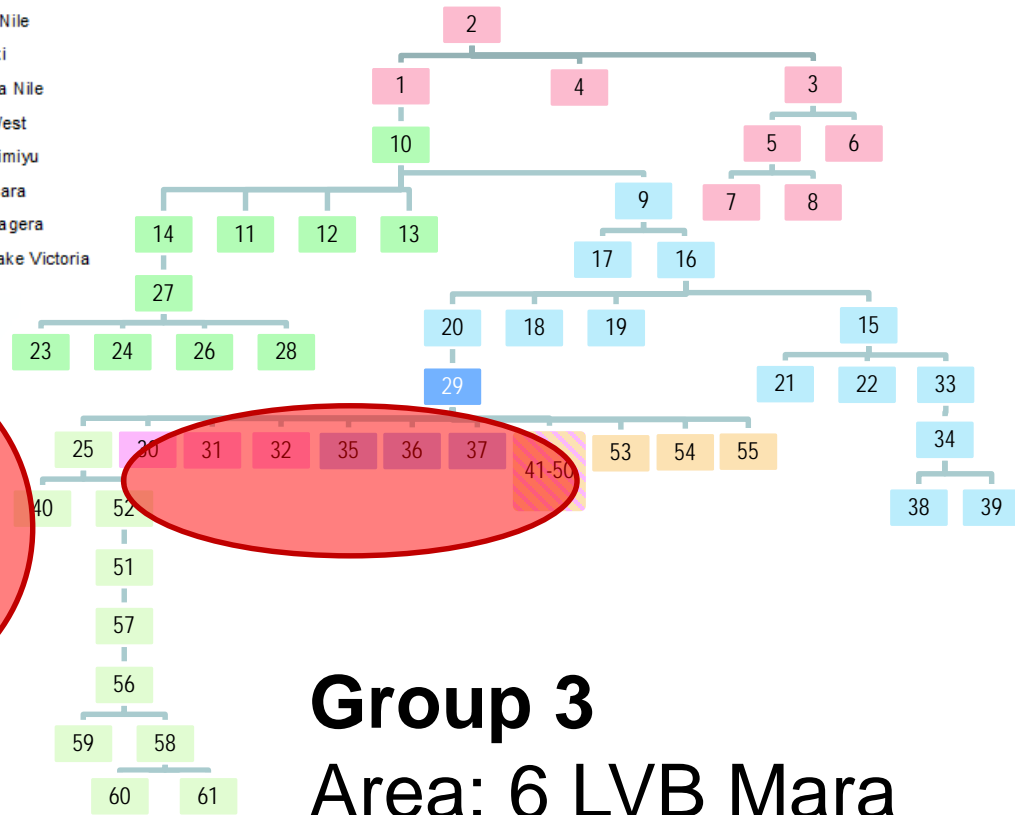
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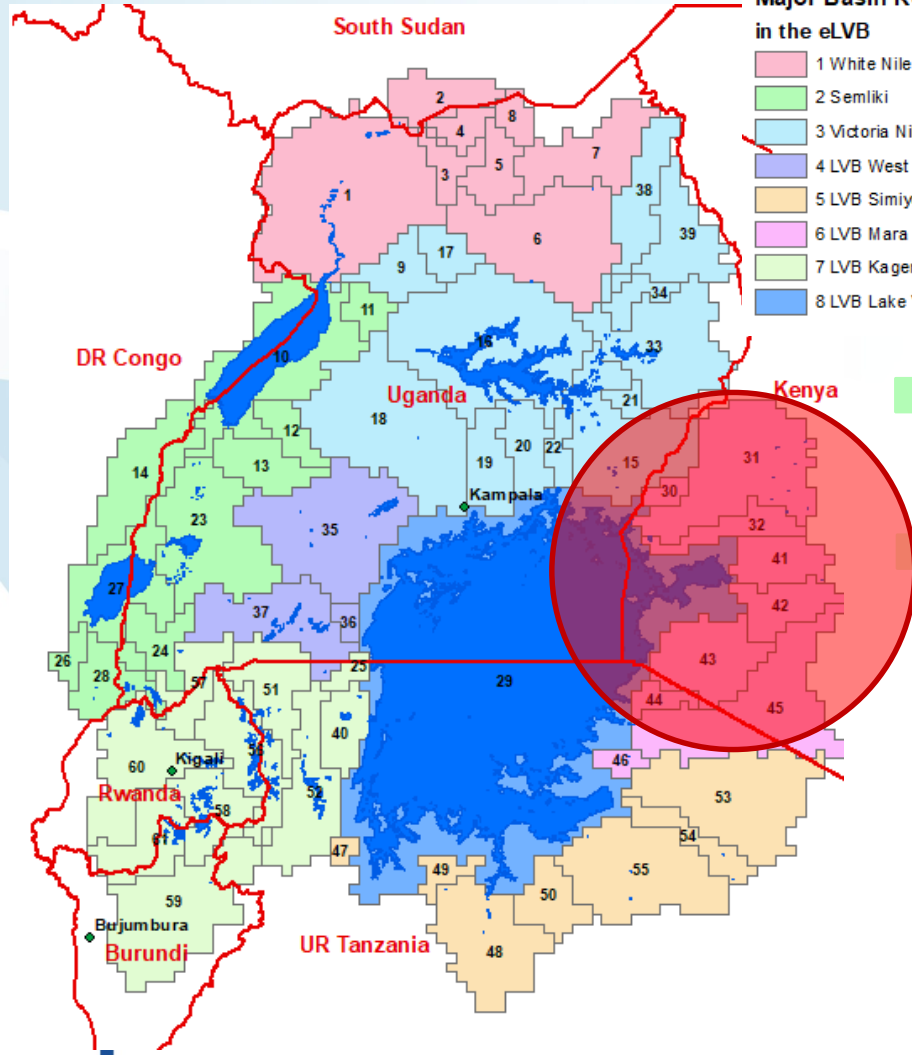
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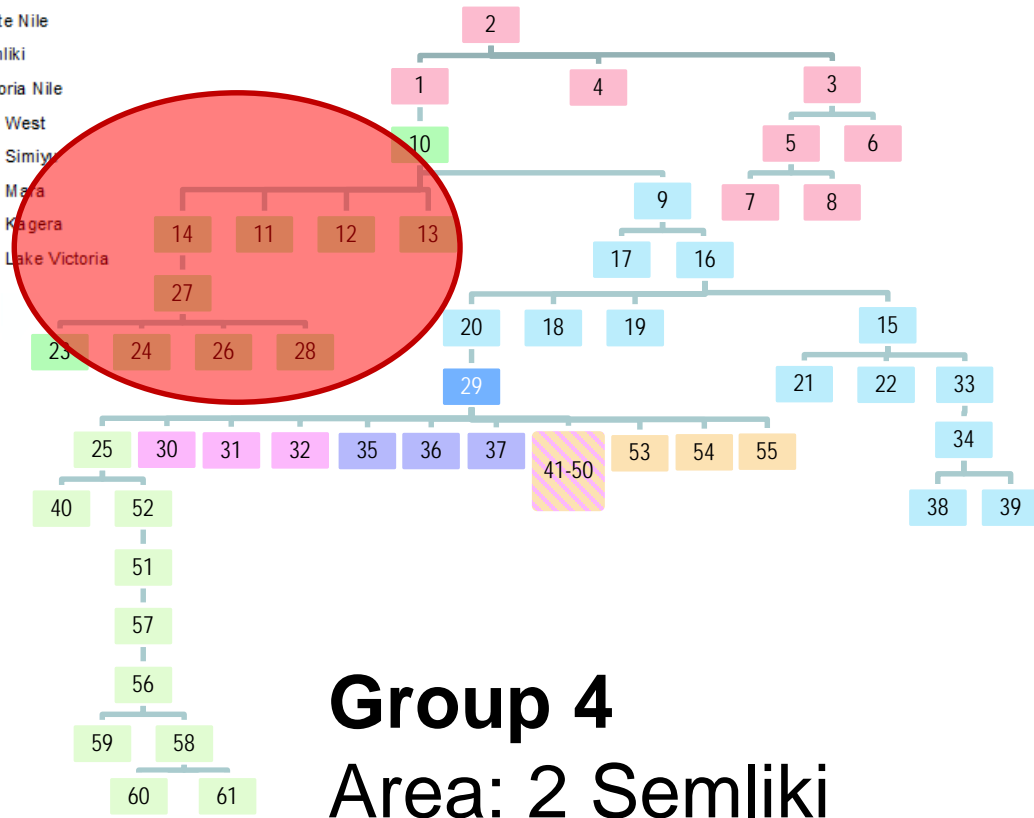
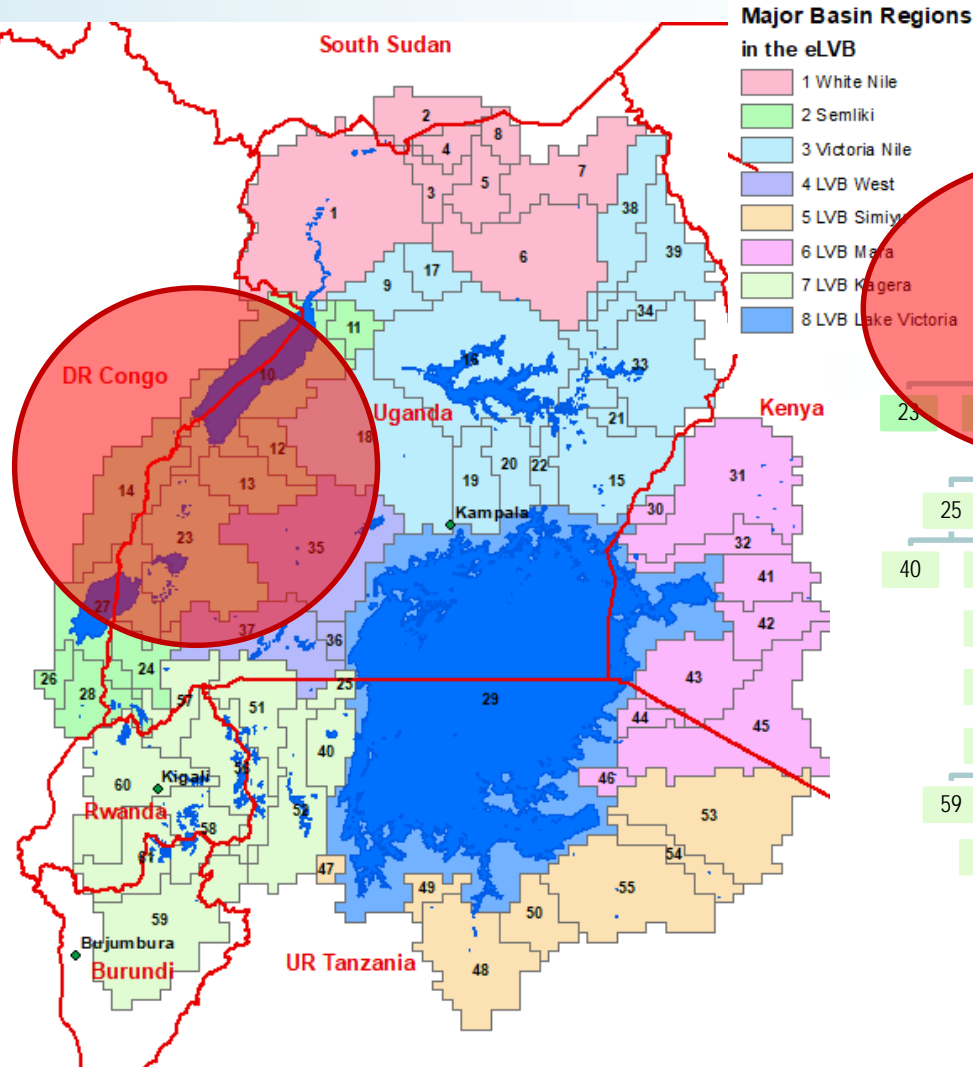
Group 3
Area: 6 LVB Mara



The extended Lake Victoria Basin (eLVB)

The 61 sub-basins of the eLVB and their aggregation to 8 major basin regions

Schematic sub-basin connection map



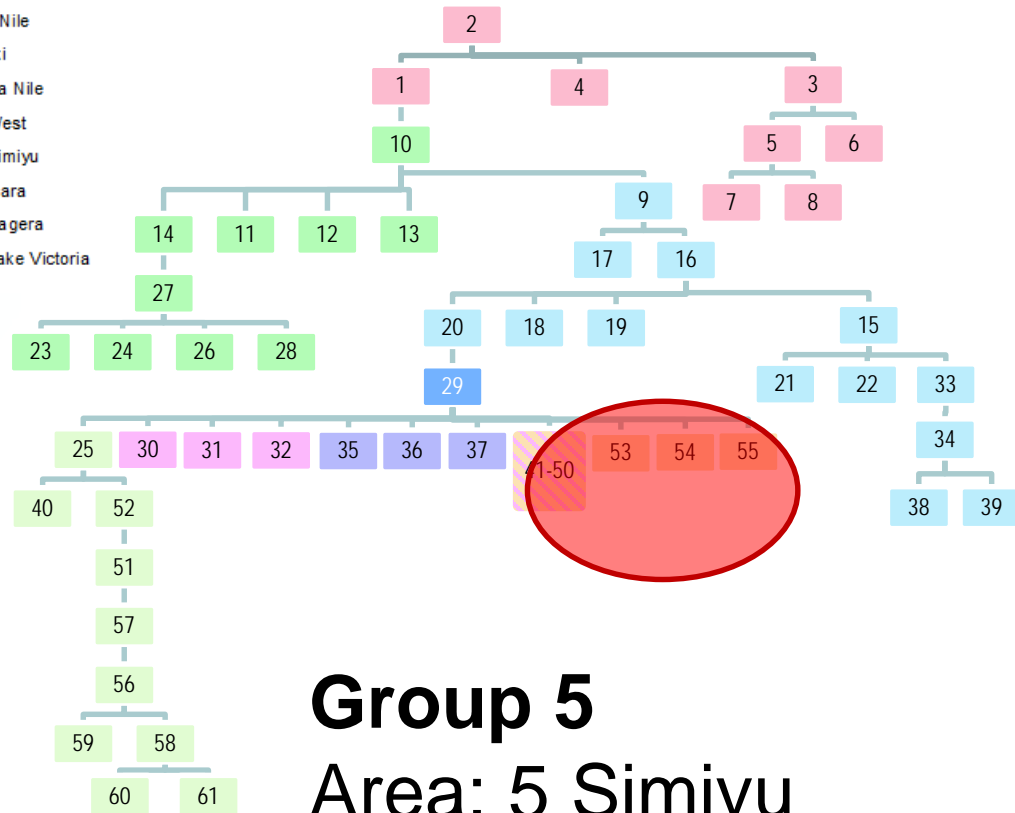
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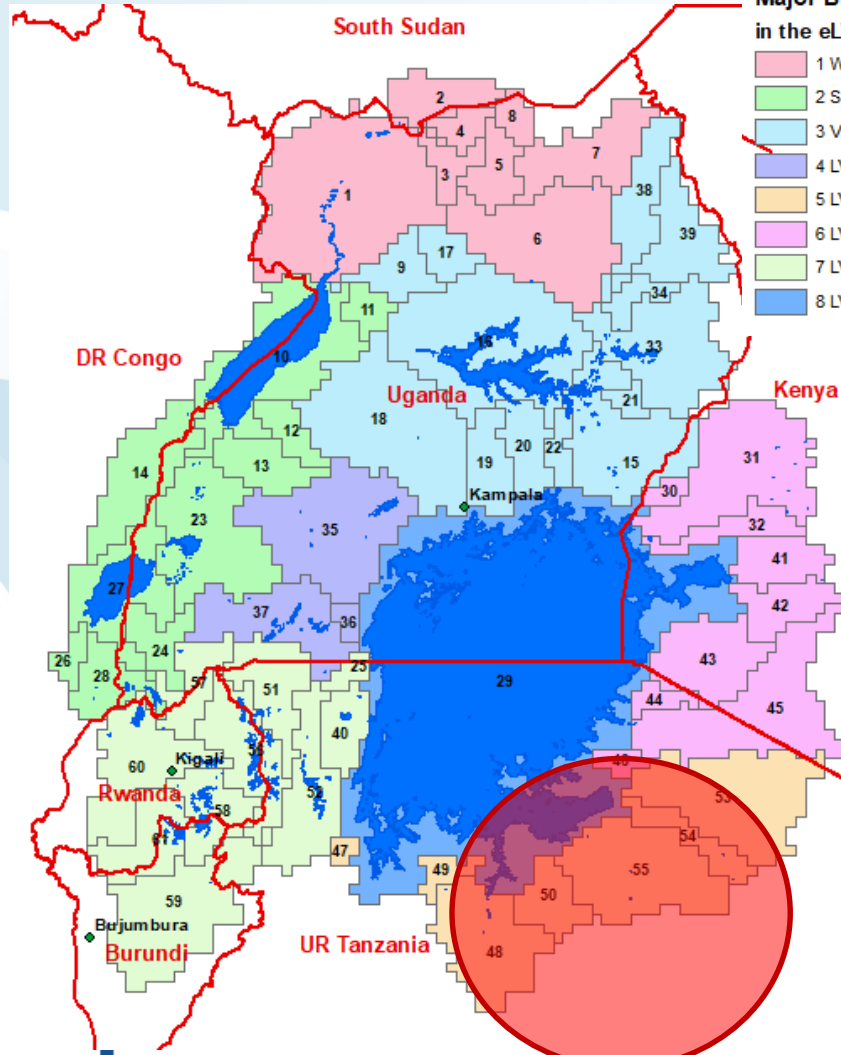
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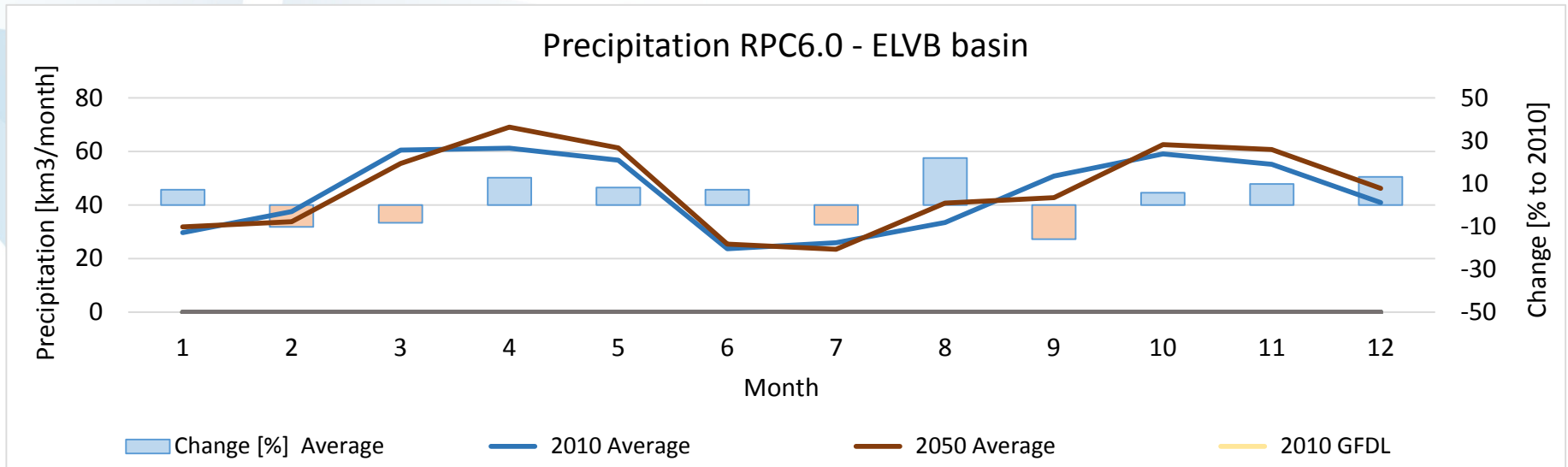
Group 5
Area: 5 Simiyu



Precipitation change

Excel file: 1_Precipitation.xlsx

Total catchment at Laropi (Northern Uganda):
Basin No. 2
But also for all other 61 sub-basins



Some questions to explore....

- You will find:
 - 2 different climate scenarios (RCP2.6, RCP6.0)
 - 2 different General Circulation Model result (HadGEM, MIROC)
 - ~ 10 sub-basins to look at (depending on the group)
- Find a rapporteur for your group

Overall questions:

- How does the variable (e.g. rainfall, discharge, cost) change?
- What can be reported to the “policy” groups

Some questions to explore....

Detail question:

- What kind of change do you see comparing 2010 to 2050
 - Is the yearly amount changing?
 - Is the pattern over the year changing
 - What does this mean for agriculture, livestock, irrigation, etc.
- Are there differences in the group of sub-basins?
 - Show some sub-basins different behaviour?
 - What does this mean for agriculture etc.

Some questions to explore

- Does the water availability change in future?
 - Due to climate change
 - Due to land use change
 - Due to climate, land use, socio-economic change (scenario)
- How does the water regime change?
 - Annual change of rainfall, runoff, river discharge
 - Seasonal change
- Interacting with socio-economic data and models for further analysis and testing adaptation/mitigation measures