ADAPTATION FUND

Volta Flood and Drought Management

Results For Floods

WORLD METEOROLOGICAL ORGANIZATION

VBA

Global Water Partnership West Africa

cima RESEARCH FOUNDATION

In collaboration with

IVM Institute for Environmental Studies

VU

Multi-Hazard Risk Profile

Scientific Modelling for Probabilistic Risk Assessment

Bring Risk Information closer to Decision Makers and practicioners

Volta Flood and Drought Management

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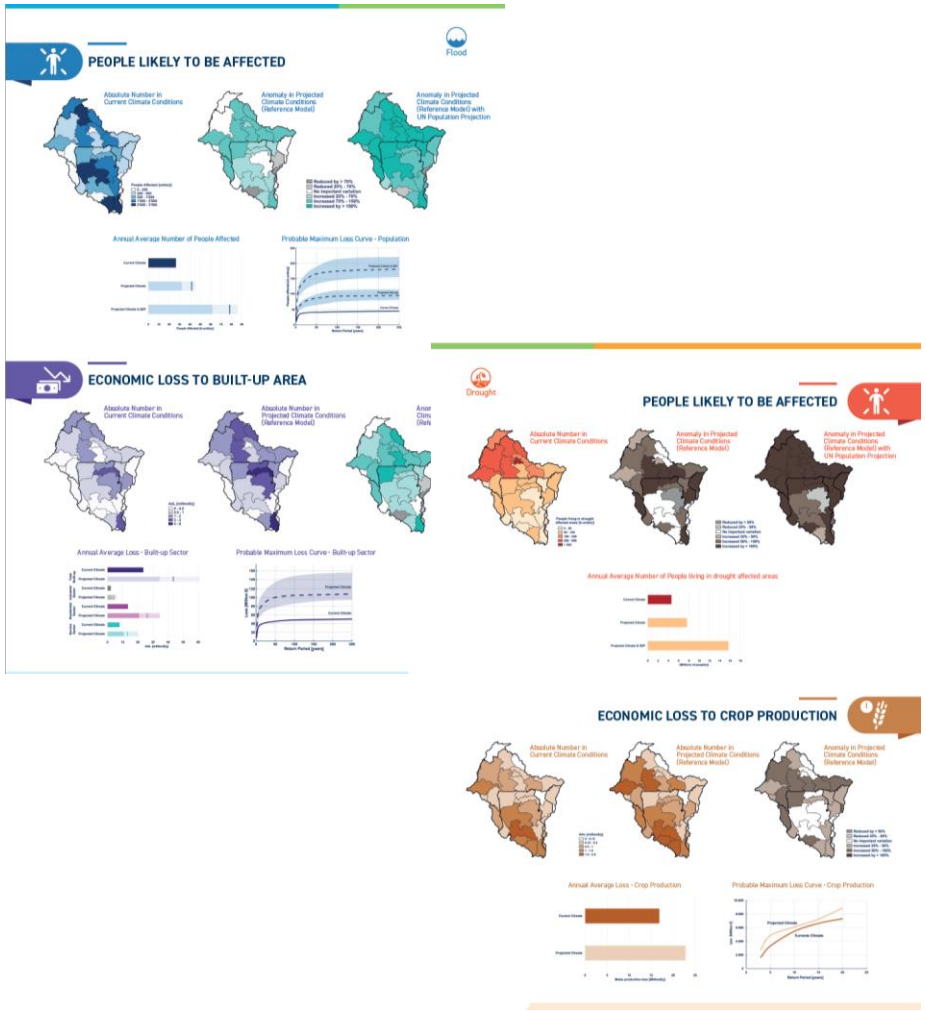
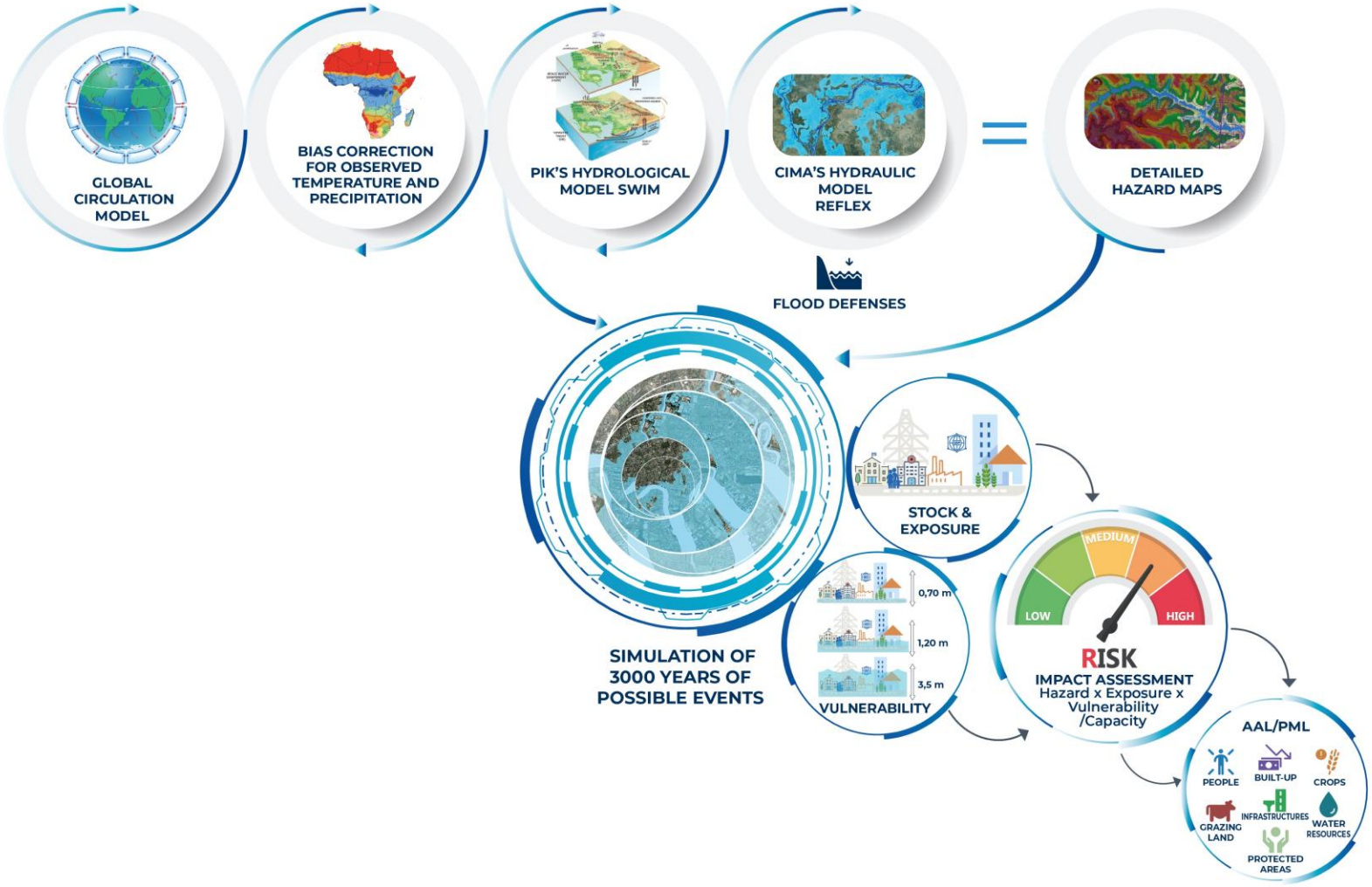
Multi-Hazard Risk Profile

Content

- Methodology of Risk Assessment
- Socio-Economic Outlook
- Climate Outlook
- Regional Risk Results: Average Annual Loss and Probable Maximum Loss Curve
  - Floods
  - Droughts
- National Risk Results
  - Floods
  - Droughts



Methodology



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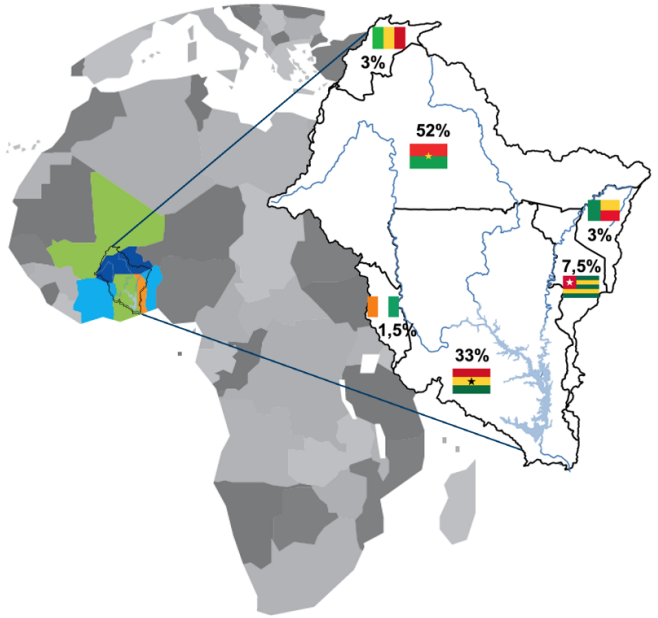
Present conditions and Projections

Climate

Time Frame	Climate Projections (RCP 7.0 – Medium emission scenario)
Mid-term Future (2050)	Increase in temperature by 1.7°C Change in precipitation +8%
Far Future (2080)	Increase in temperature by 3°C Change in precipitation +9%

Socio Economic



2016

24

[Million People]

34

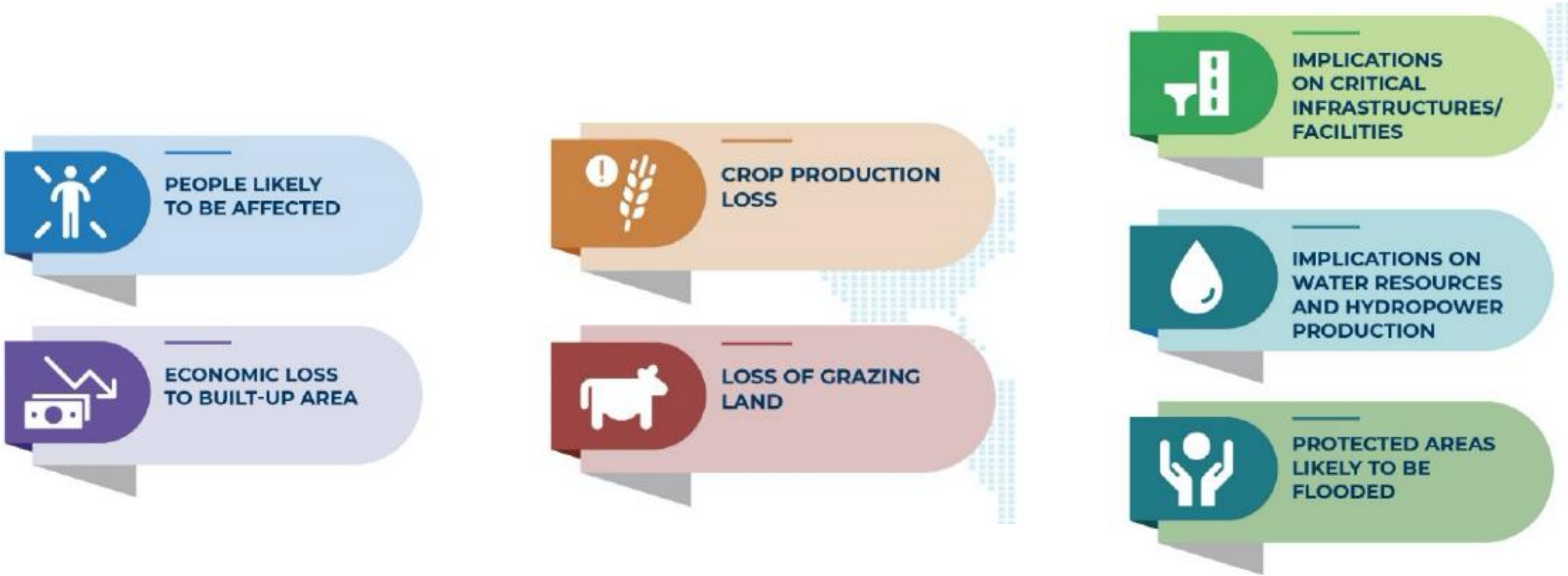
2025 Projection

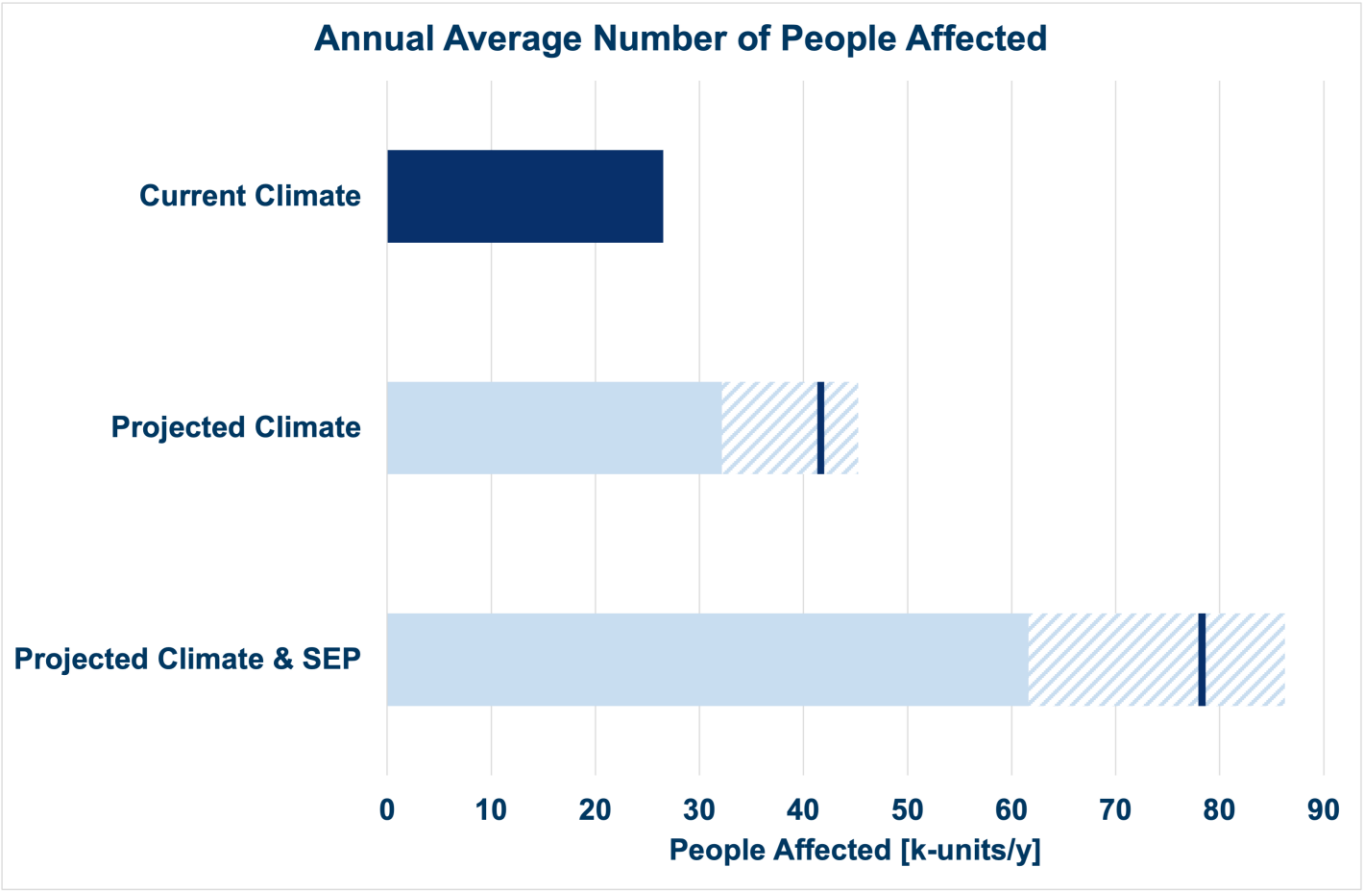
59

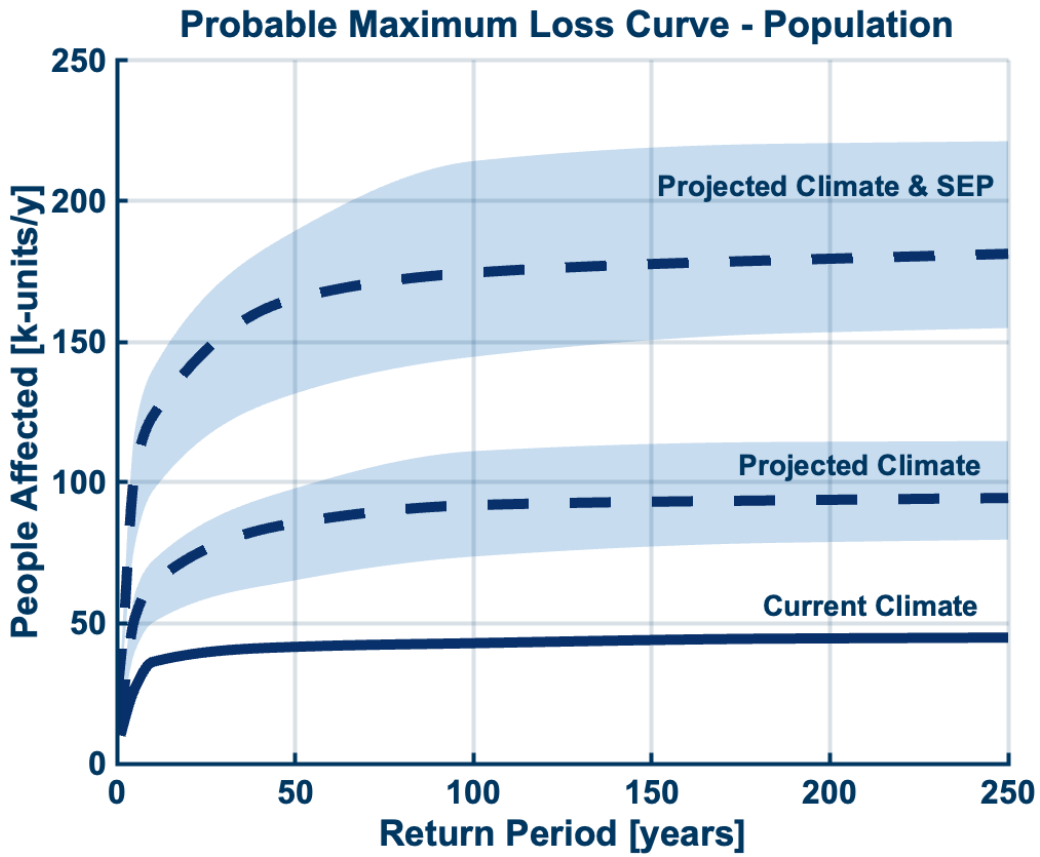
2050 UN Projection

Impacts: population and sectoral losses

FLOODS




Annual Average Number of People Affected
Current Climate
Projected Climate
Projected Climate & SEP
0
10
20
30
40
50
60
70
80
90
People Affected [k-units/y]


Probable Maximum Loss Curve - Population
250
200
150
100
50
0
People Affected [k-units/y]
Projected Climate & SEP
Projected Climate
Current Climate
0
50
100
150
200
250
Return Period [years]

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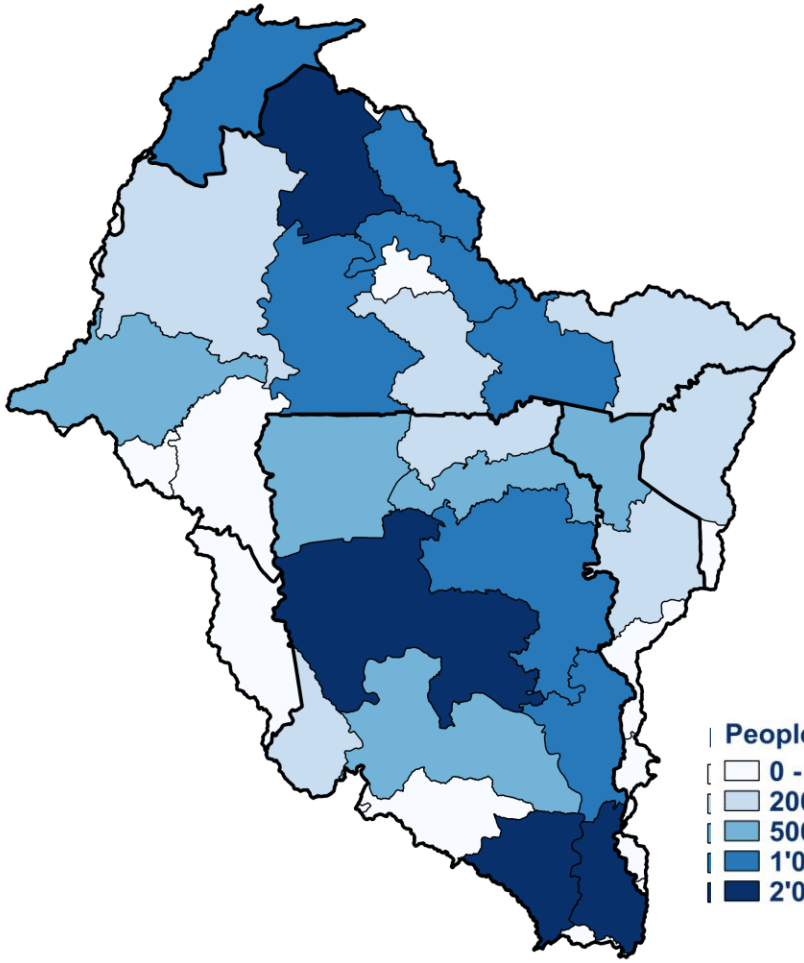
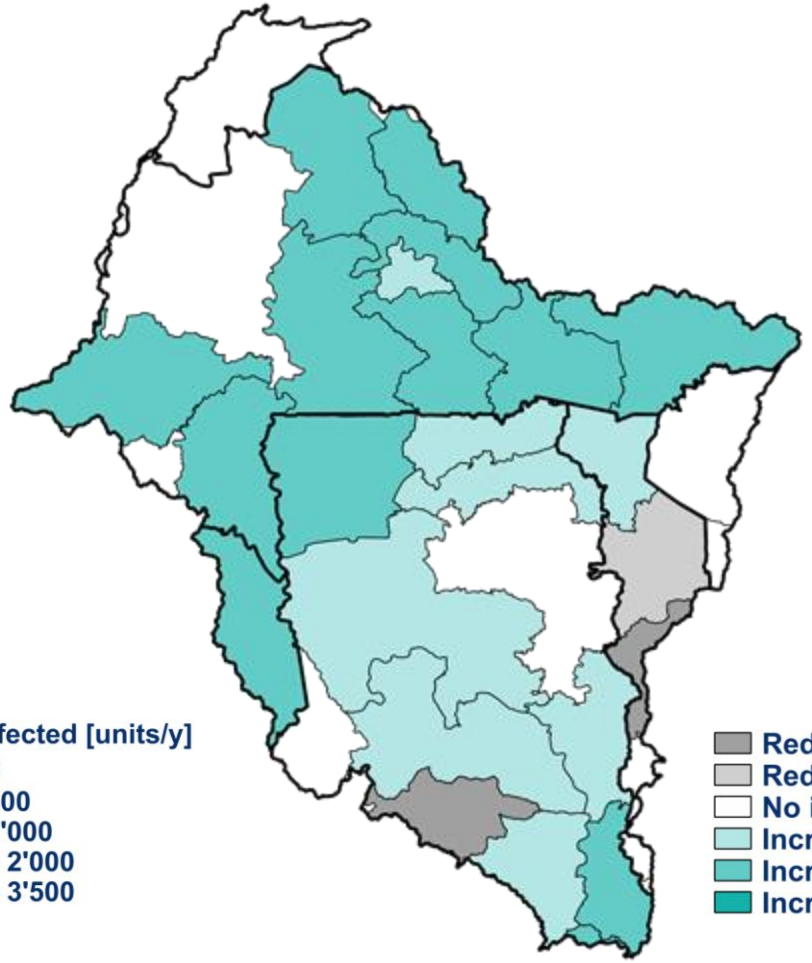
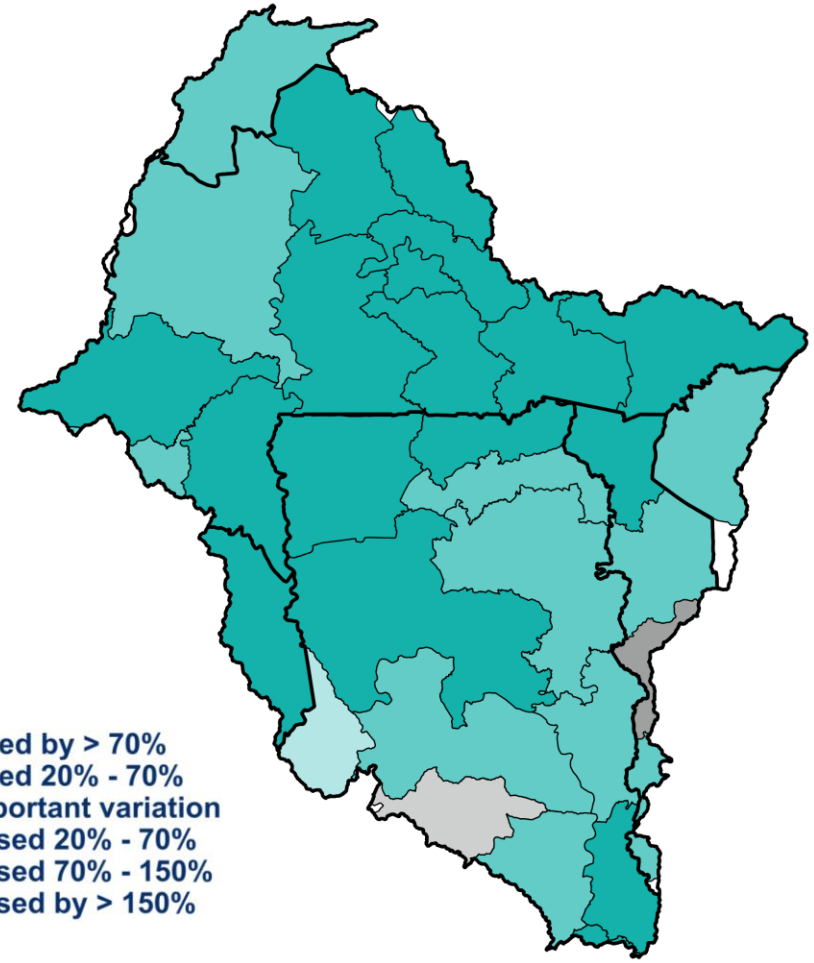
Absolute Number in Current Climate Conditions



Absolute Number in Projected Climate Conditions (Reference Model)



Anomaly in Projected Climate Conditions (Reference Model) with UN Population Projection



Task 1: Reading Results for Population Affected pag. 14

Select a region and analyze

- Average number of affected people, compare with figures at basin or national level (pag. 31)
- affected people under future climate condition and socio-economic projections
- PML curves

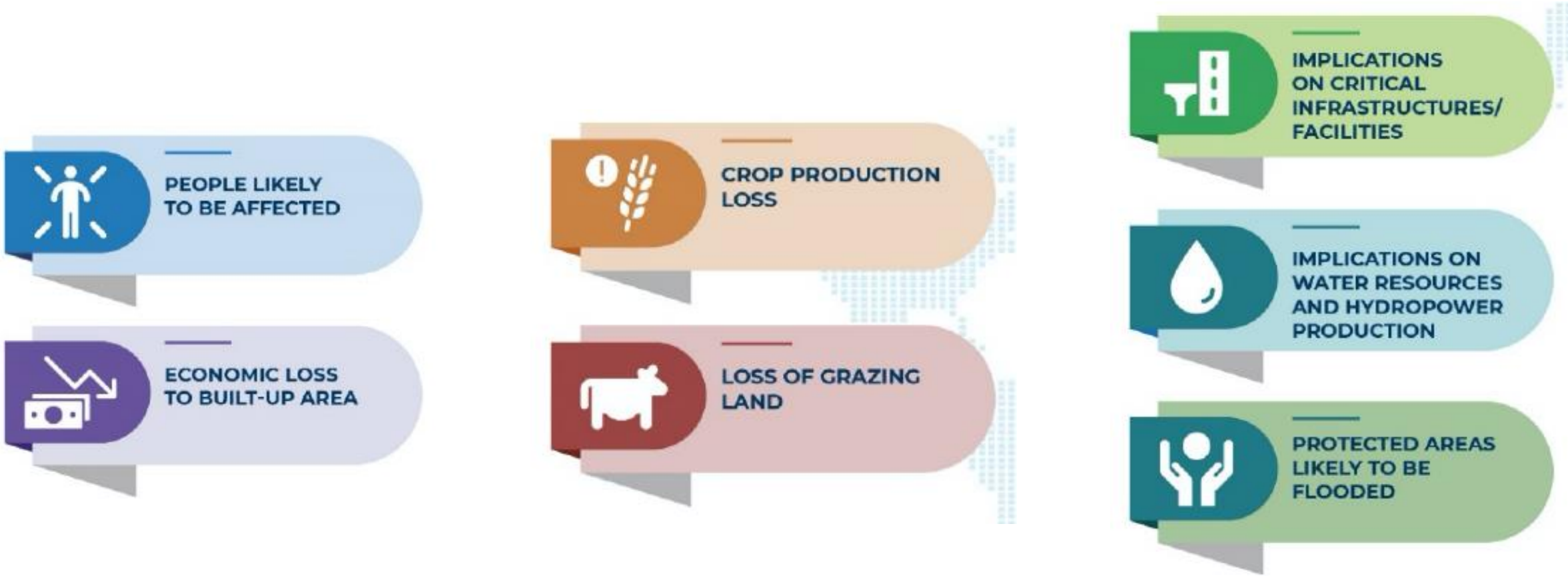
Tasks:

- write over a flipchart 3 key messages for the selected region
- review the existing key messages for the River Basin

Time: 20 min

Impacts: population and sectoral losses

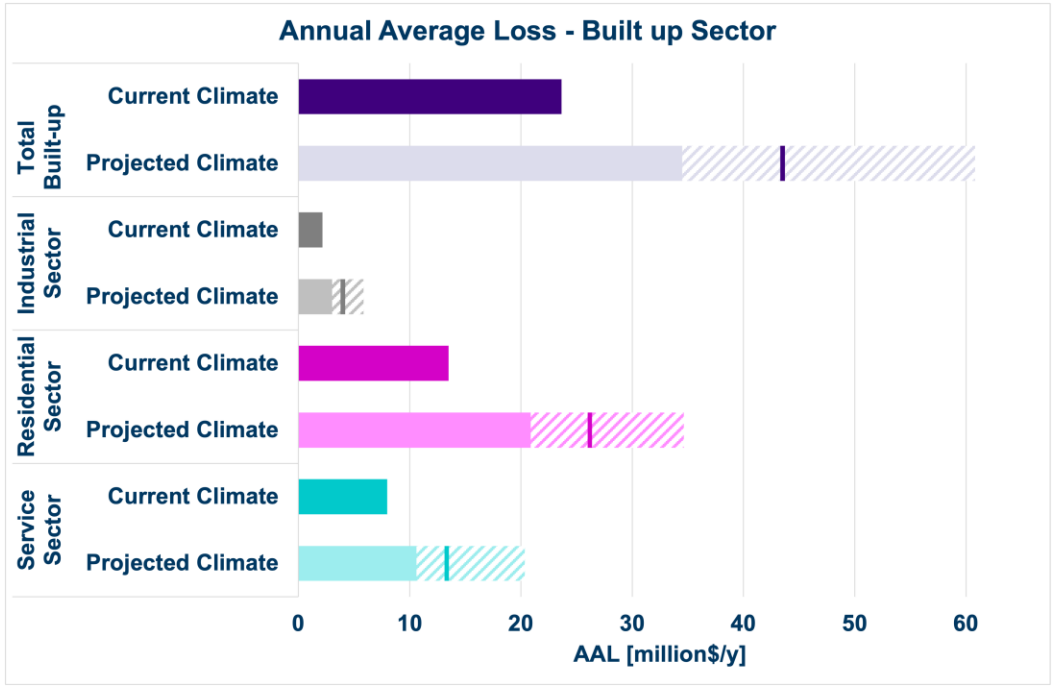
FLOODS



Economic loss – Built-up sector pag. 15-16

ECONOMIC LOSS TO BUILT-UP AREA

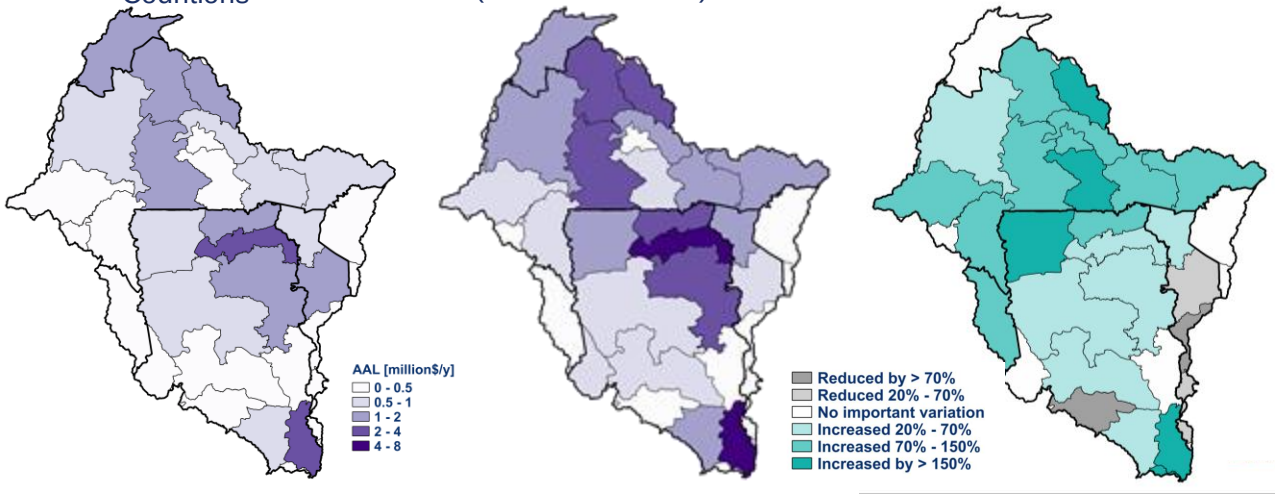
- AAL and PML in USD millions
- AAL with sub-sector details

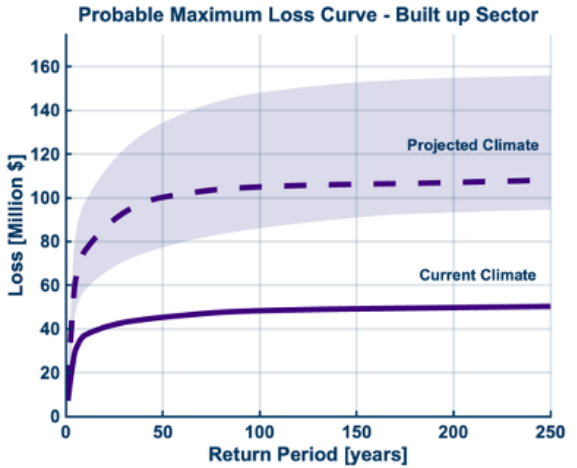


Absolute Number in Current Climate Codntions

Absolute Number in Projected Climate Conditions (Reference Model)

Anomaly in Projected Climate Conditions (Reference Model)

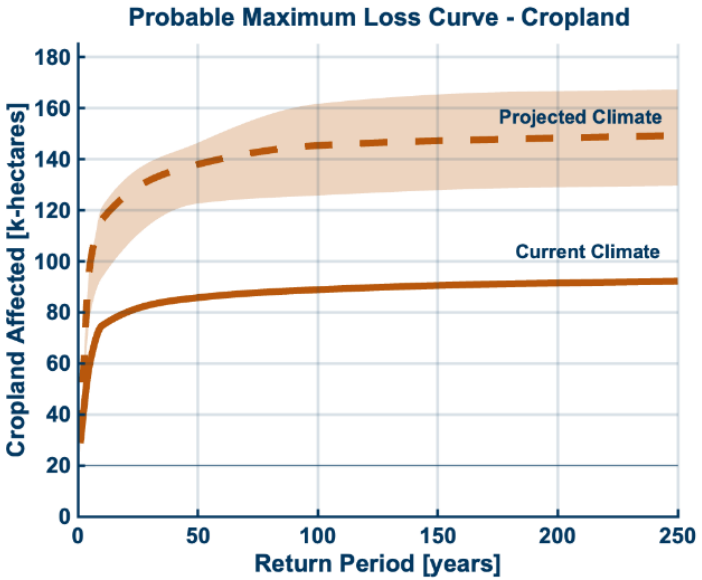




Crop production loss pag. 17

CROP PRODUCTION LOSS

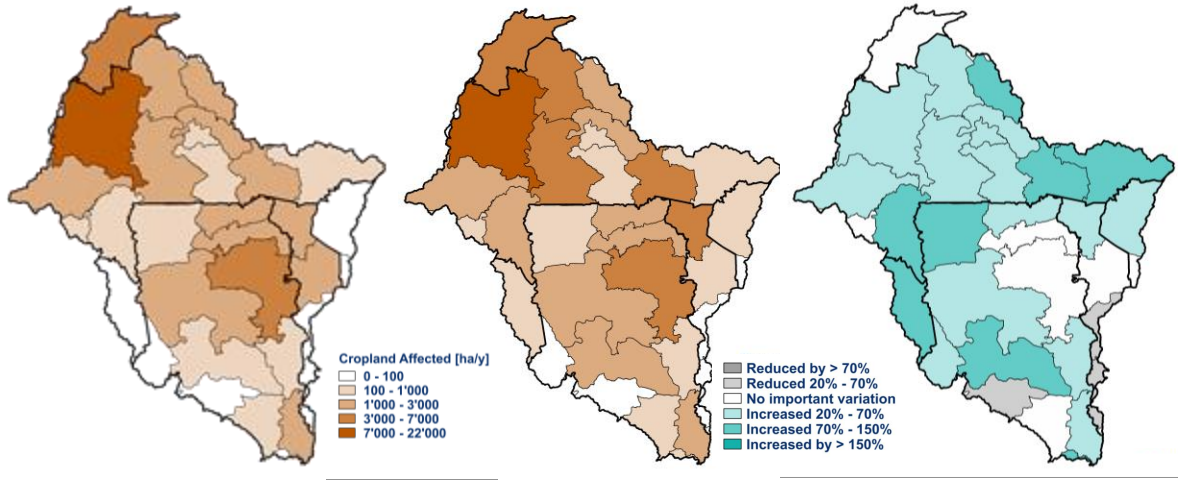
- AAL in hectares of cropland
- PML in thousands of hectares of cropland

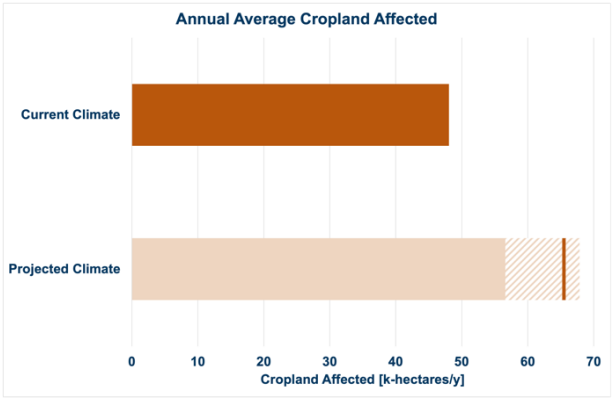


Absolute Number in Current Climate Codntions

Absolute Number in Projected Climate Conditions (Reference Model)

Anomaly in Projected Climate Conditions (Reference Model)

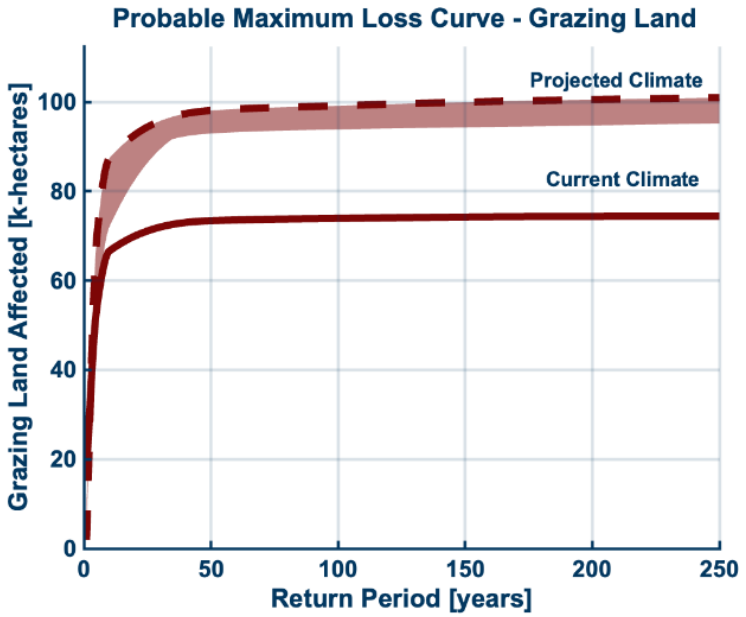




Loss of grazing land pag. 17

LOSS OF GRAZING LAND

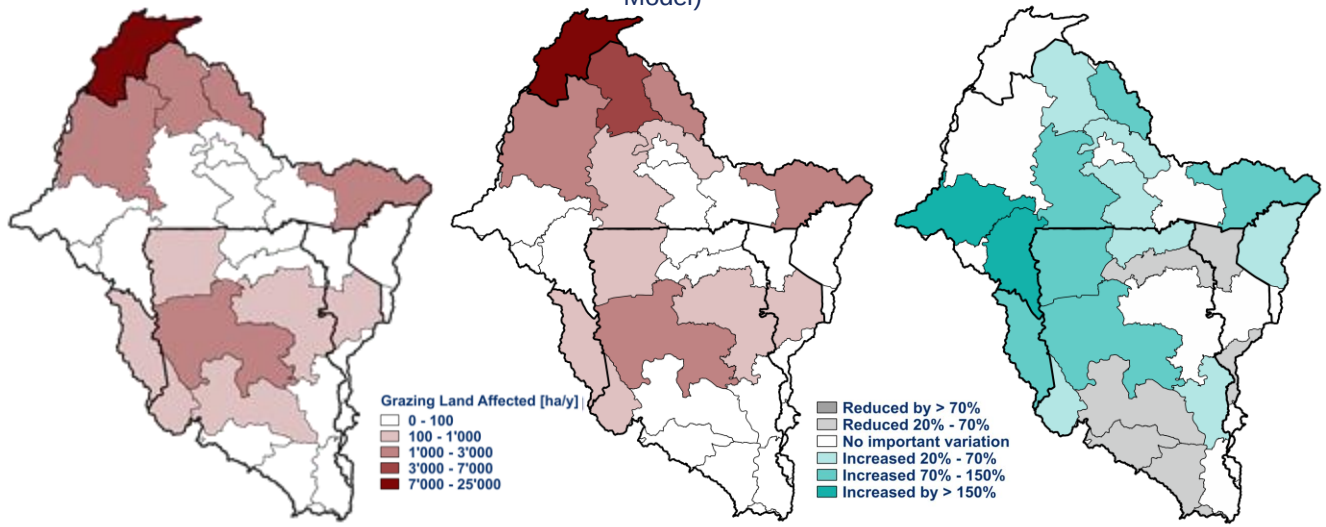
- AAL in hectares of grazing land
- PML in thousands of hectares of grazing land

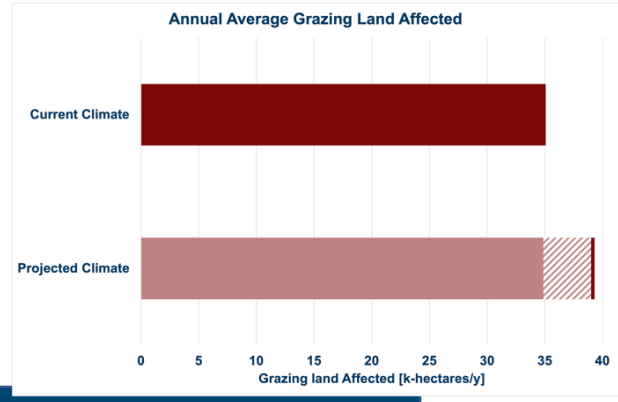


Absolute Number in Current Climate Conditions

Absolute Number in Projected Climate Conditions (Reference Model)

Anomaly in Projected Climate Conditions (Reference Model)

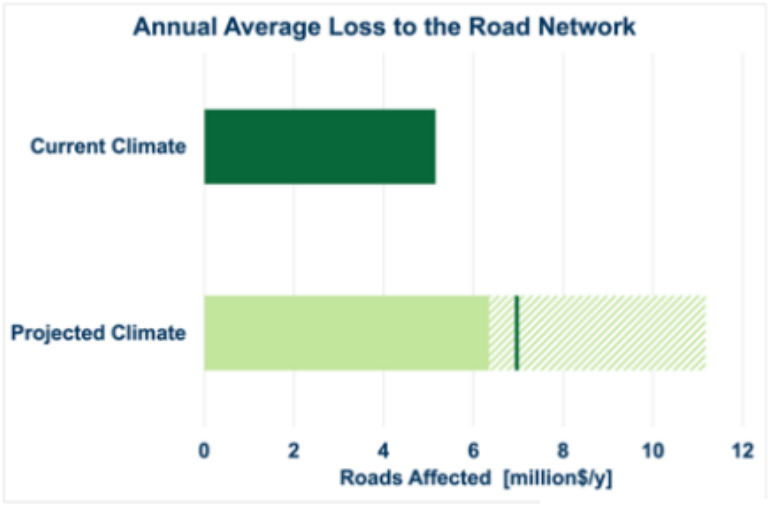


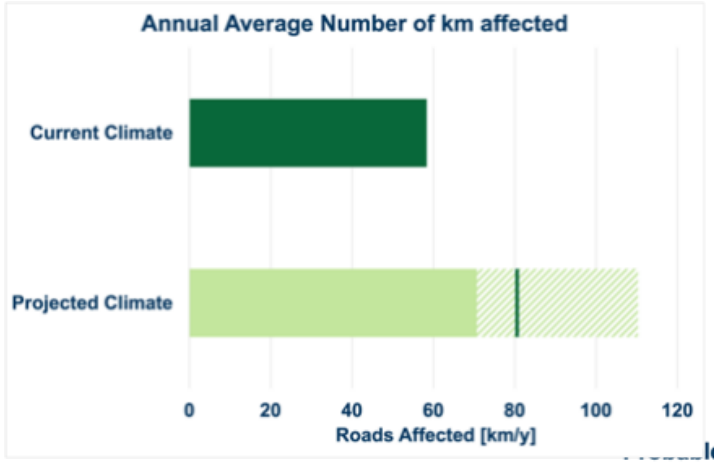


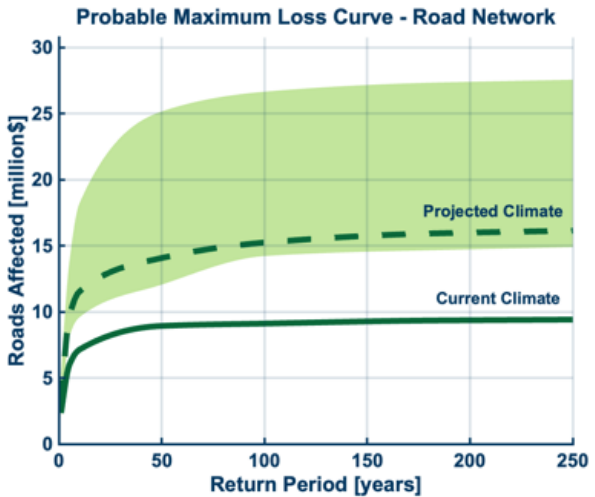
Implications on roads - pag. 18

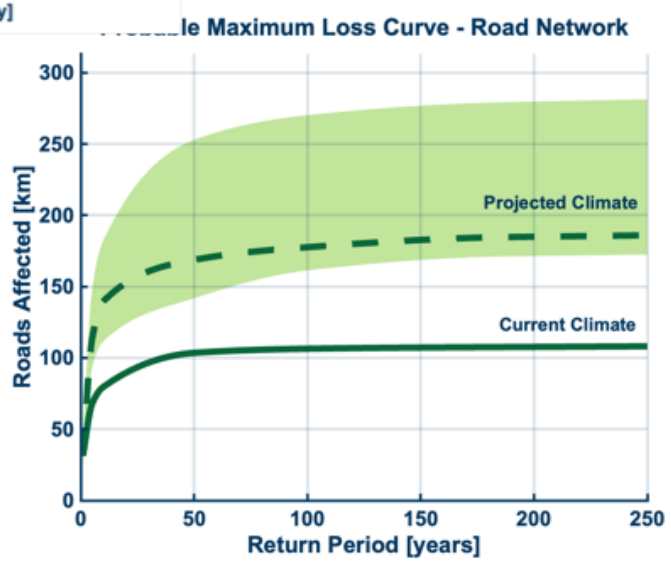
IMPLICATIONS ON CRITICAL INFRASTRUCTURES/ FACILITIES

- AAL and PML in km of roads (right) and $ (left)





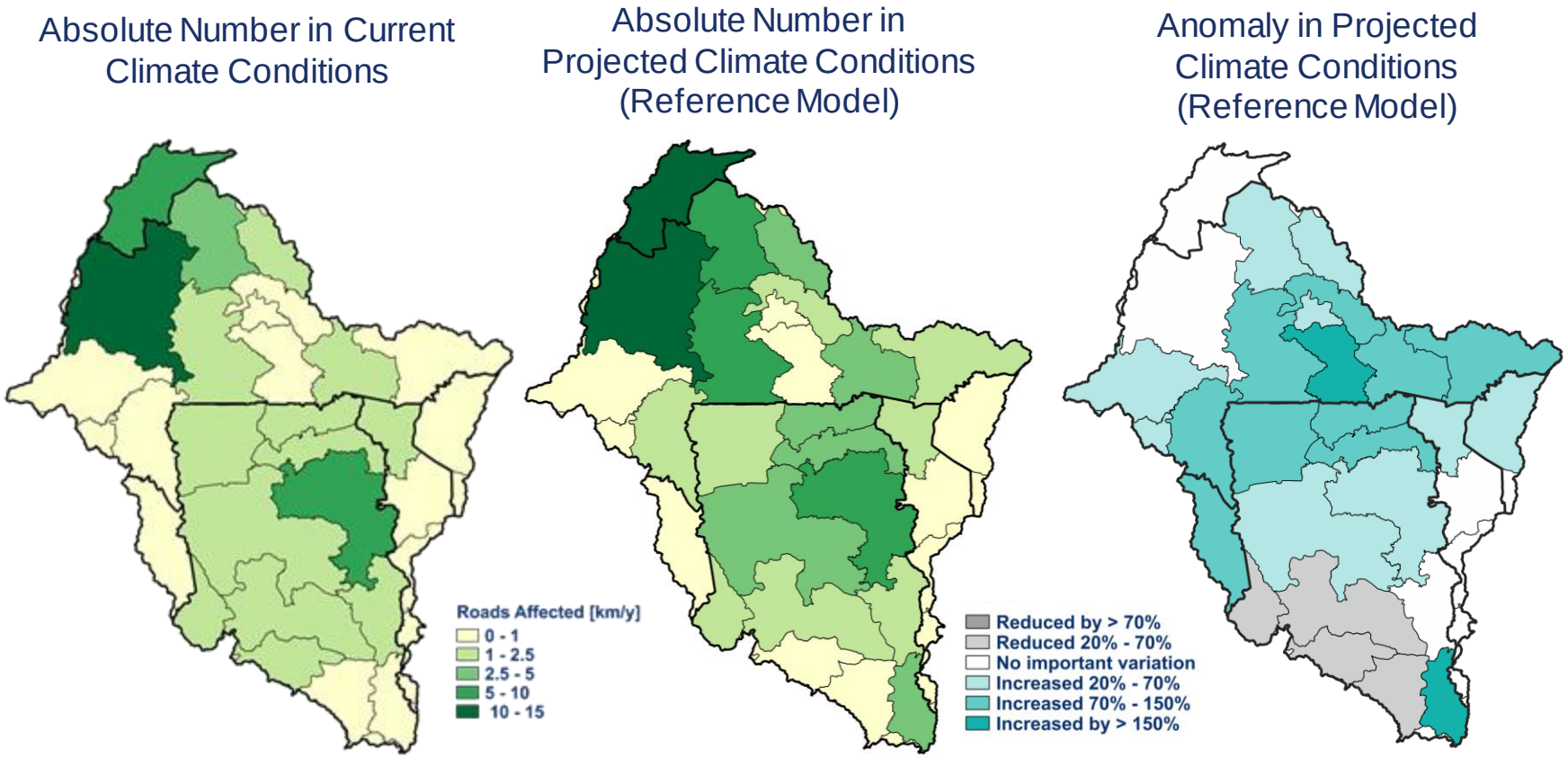




Implications on roads - pag. 18

IMPLICATIONS ON CRITICAL INFRASTRUCTURES/ FACILITIES

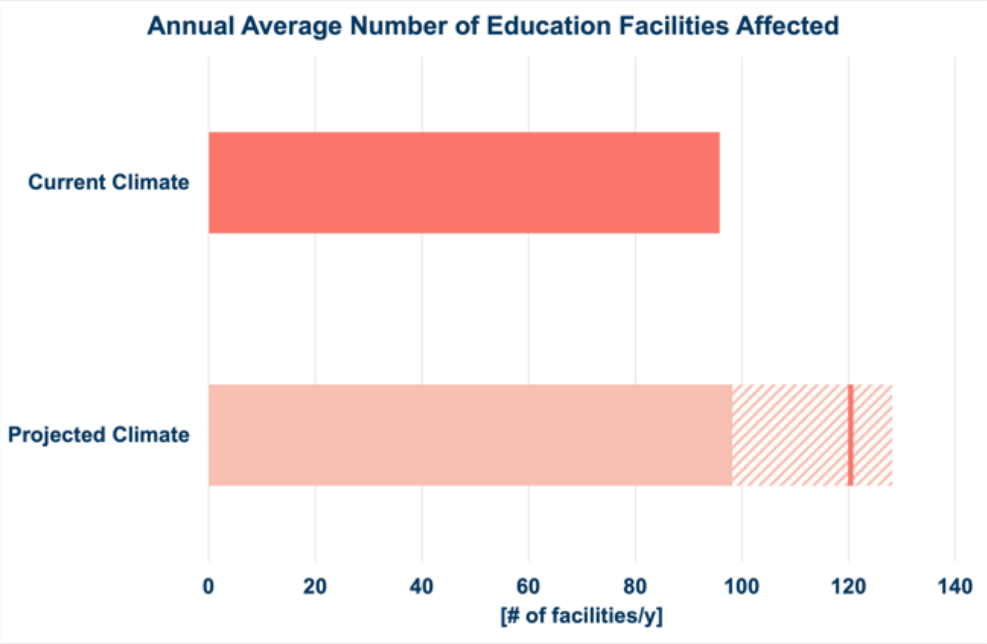
- Spatial distribution of AAL in km of roads

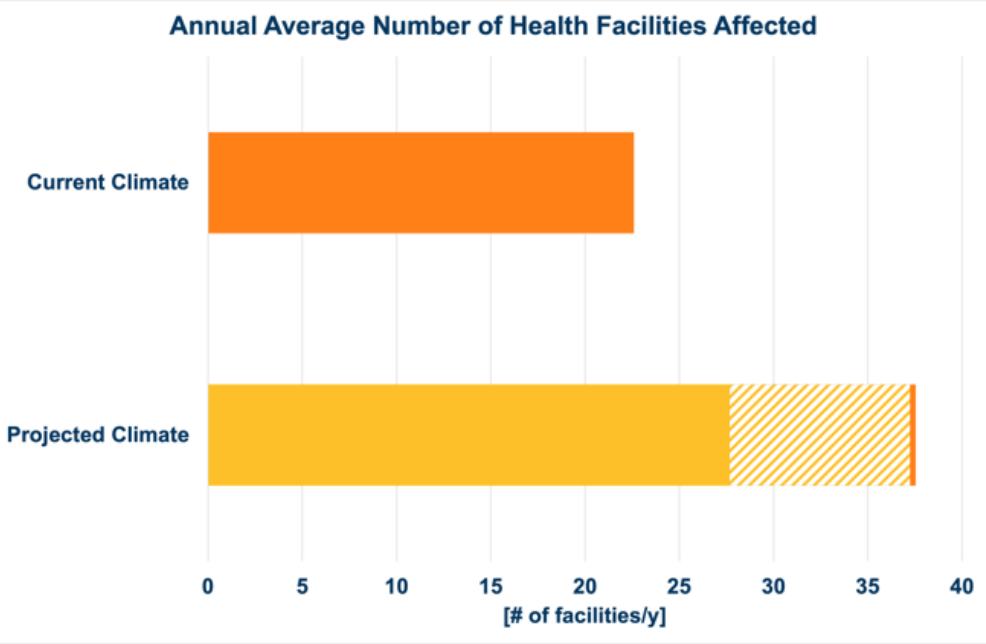


Implications on education and health facilities - pag. 19

IMPLICATIONS ON CRITICAL INFRASTRUCTURES/ FACILITIES

- No significative info for spatial distribution of AAL and PML
- AAL in number of facilities
- Need for updated and more precise information about facilities' location

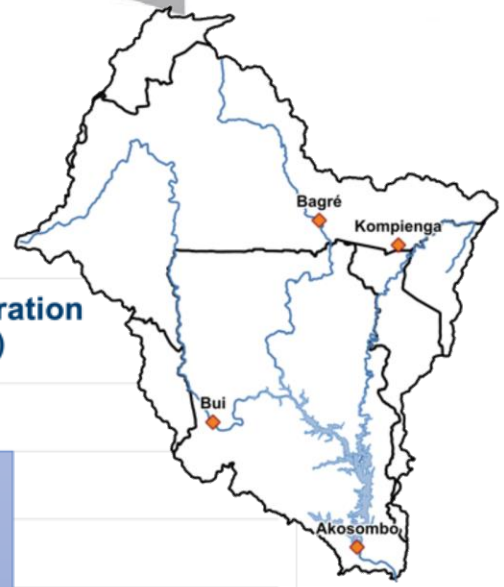


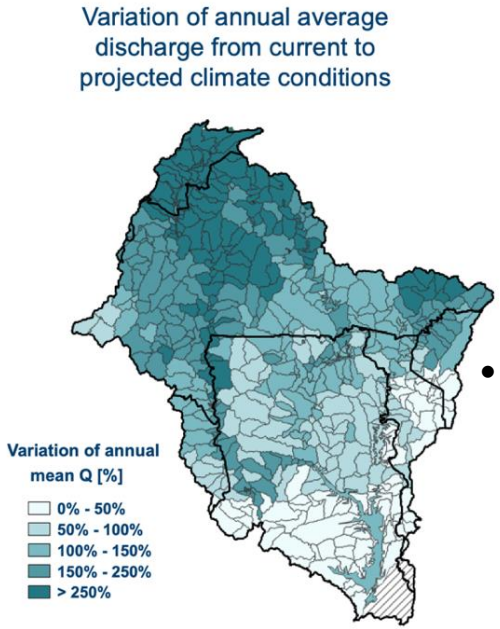


Implications on water resources and hydropower - pag. 20

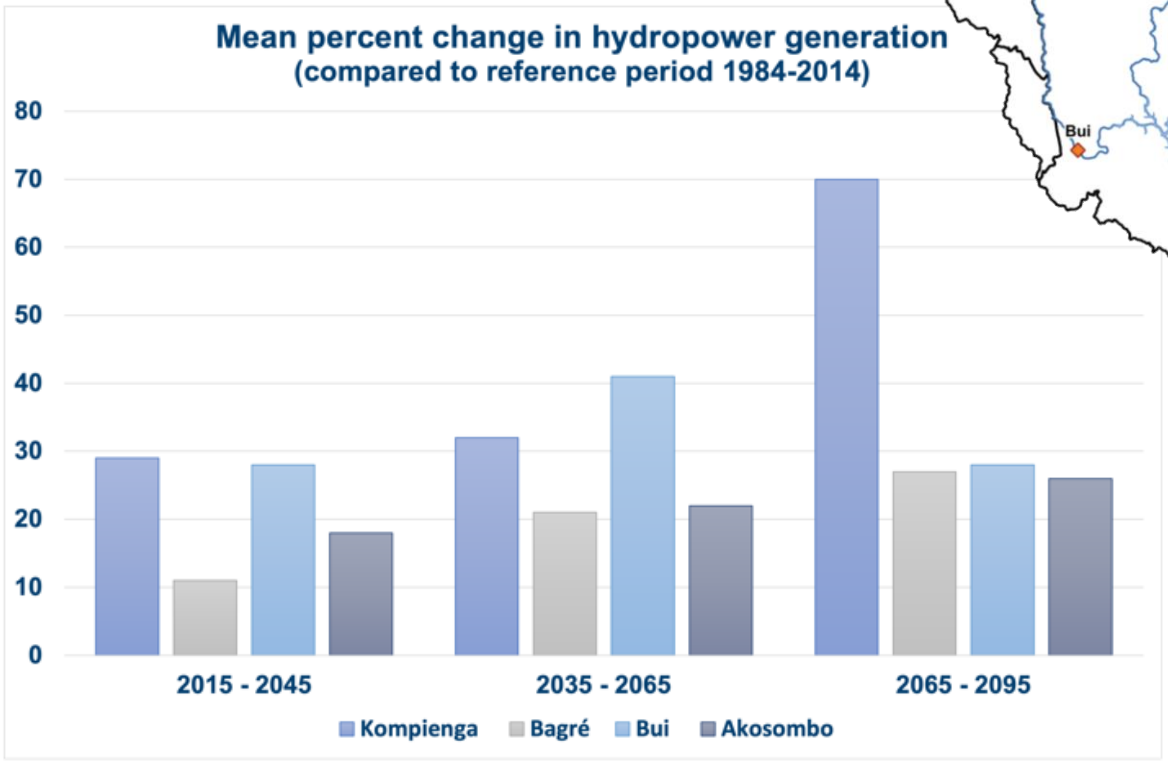
IMPLICATIONS ON WATER RESOURCES AND HYDROPOWER PRODUCTION

- Analysis made on the results of hydrological modelling
- NO AAL or PML
- hydropower potential in terms of % change in future periods compared to ref. historical period





- Water availability expressed in terms of % variation of the annual mean discharge at sub-basin level



Protected Areas likely to be flooded - pag. 21

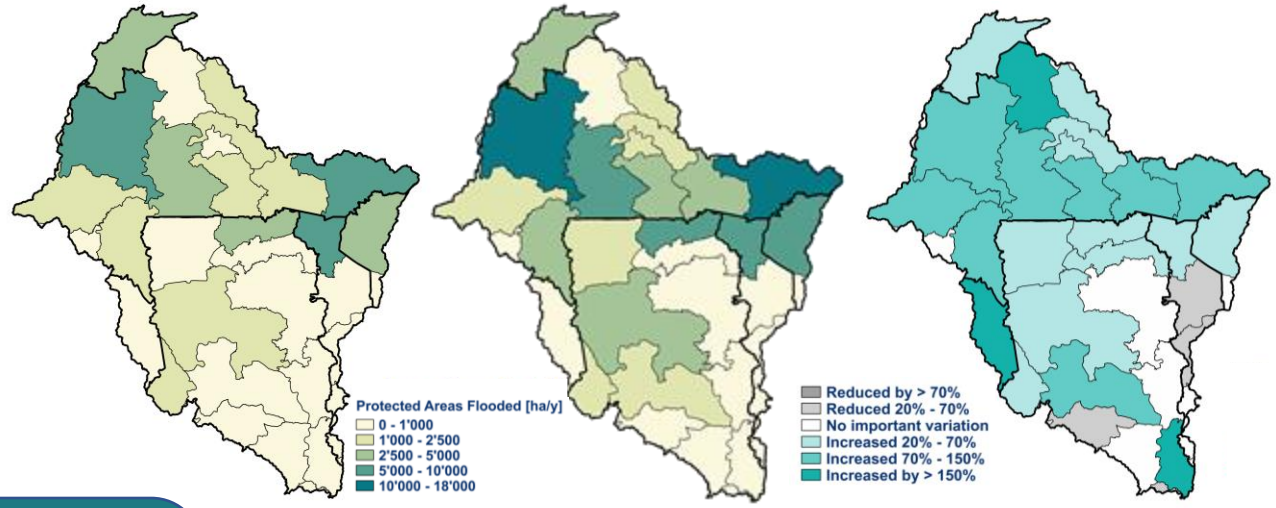
PROTECTED AREAS LIKELY TO BE FLOODED

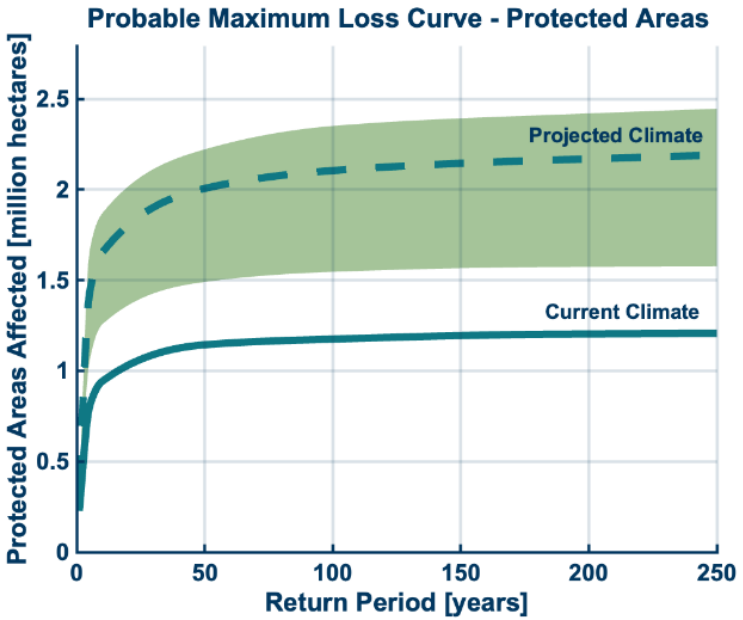
- Spatial distribution of AAL in hectares
- AAL in thousands of hectares
- PML in millions of hectares

Absolute Number in Current Climate Codntions

Absolute Number in Projected Climate Conditions (Reference Model)

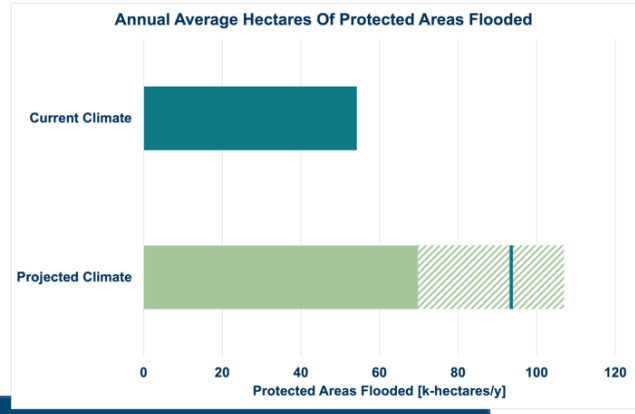
Anomaly in Projected Climate Conditions (Reference Model)





FLOODED vs AFFECTED

Do floods have always affect protected areas?



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Thanks!

marco.massabo@cimafoundation.org
anna.mapelli@cimafoundation.org