Changing Nature of Risk in Sub-Saharan Africa

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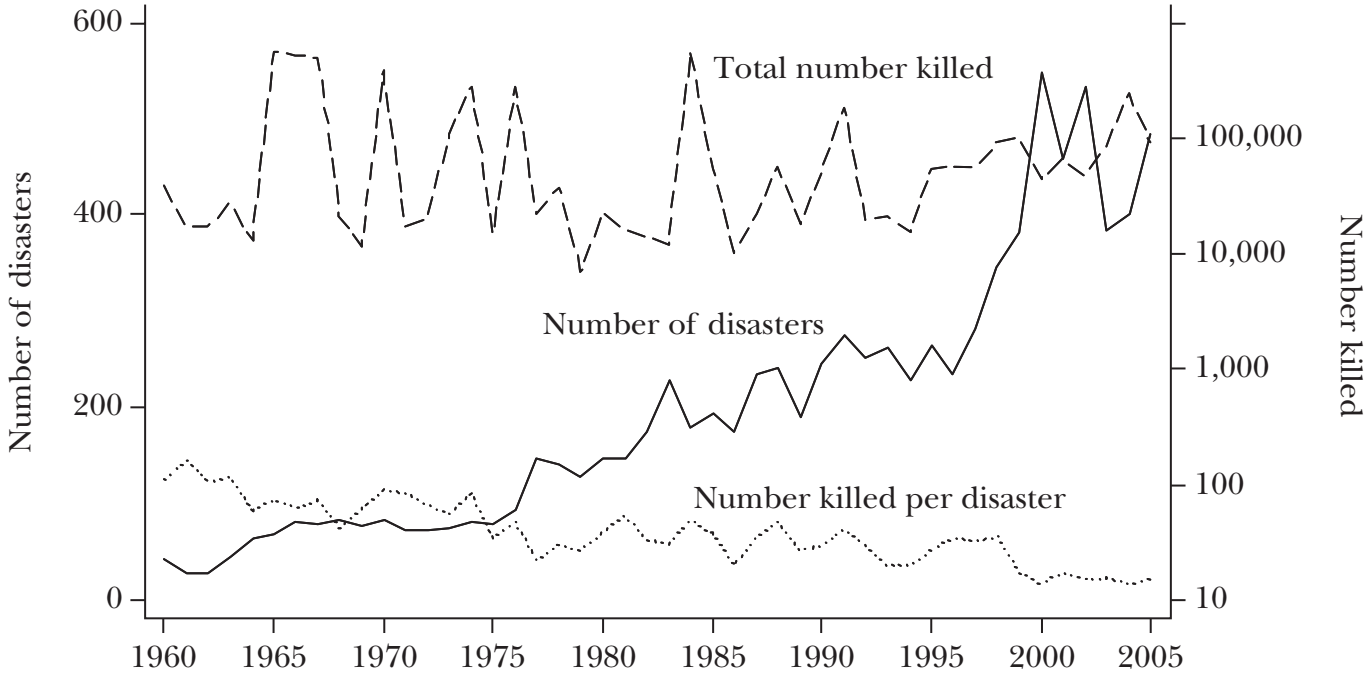
$$Risk = f(Hazard, Exposure, Vulnerability)$$

Strømberg, 2007

Figure 1

Number and Magnitude of Disasters, 1960–2005



Question:

How has the exposure to risk changed since 2000 in Sub-Saharan Africa?

Megatrends in Sub-Saharan Africa

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- Population growth

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- Population growth
- Urbanization

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- Climate change

Megatrends in Sub-Saharan Africa

- Population growth
- Urbanization
- Climate change
- Economic development

Risk factors in Sub-Saharan Africa

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- Drought

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- Drought
- Flood

Risk factors in Sub-Saharan Africa

- Drought
- Flood
- Malaria

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- Drought
- Flood
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- Conflict

Approach

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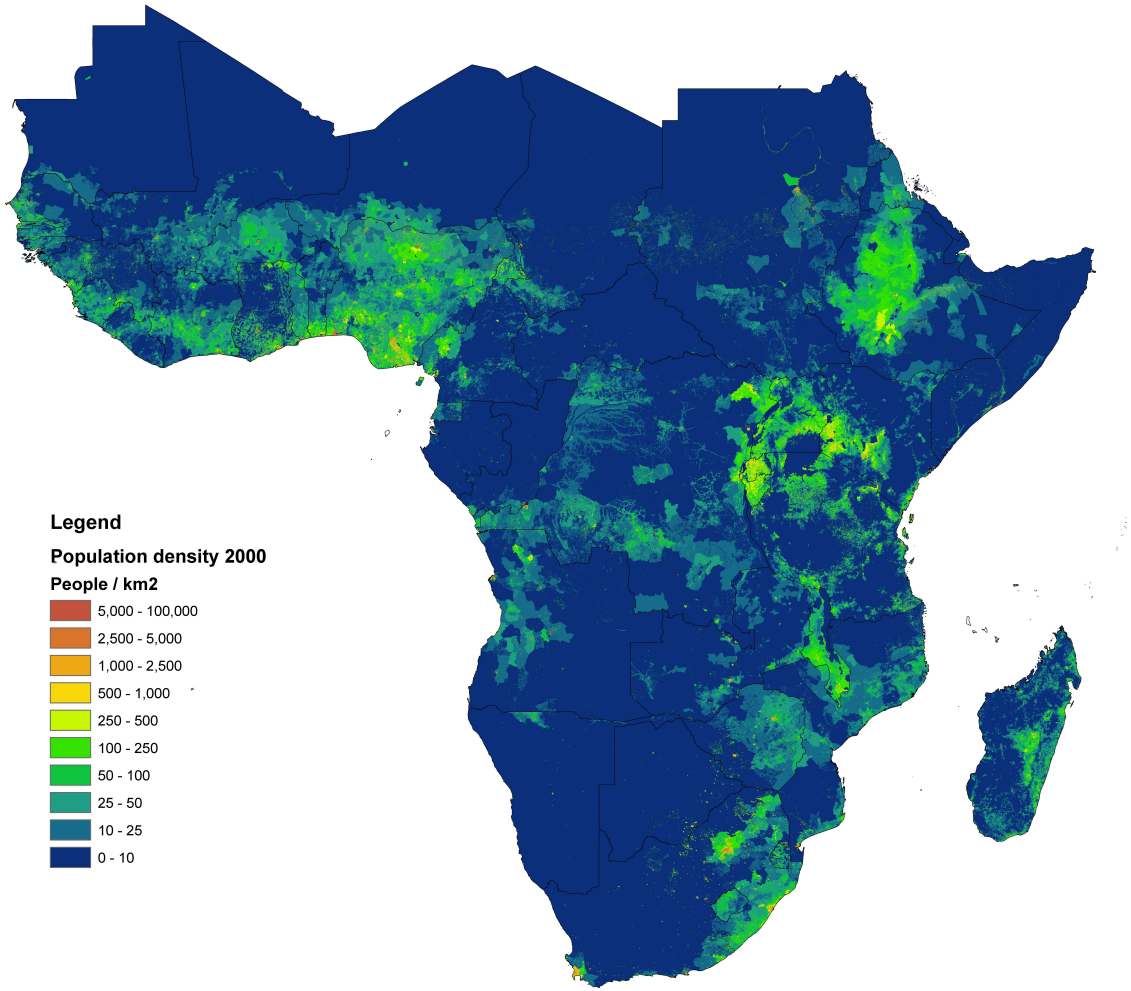
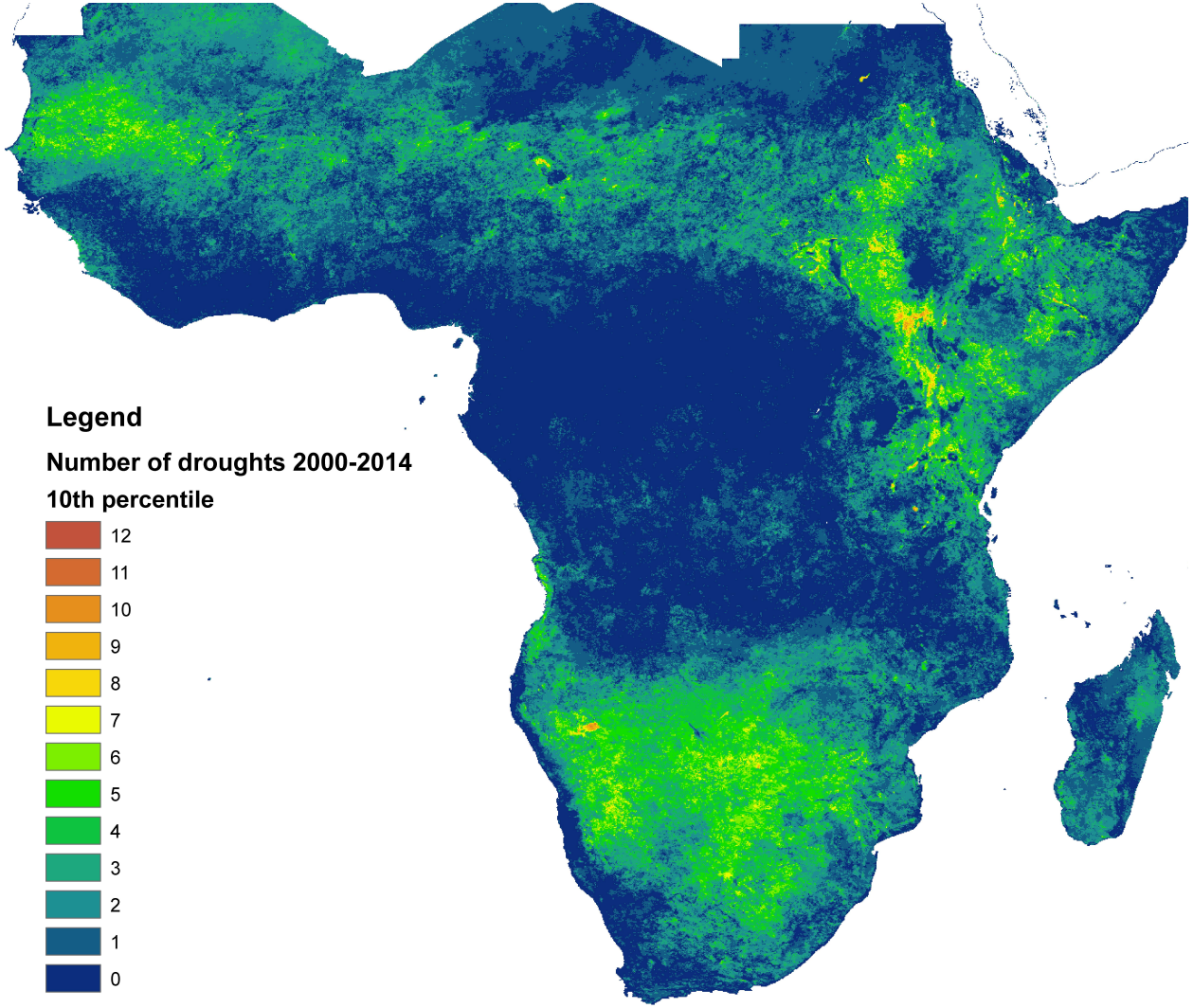
- Geo-spatial overlay analysis of population estimates with 4 types of hazards (or risks): drought, flood, malaria, and conflict.
- Population data available for years 2000, 2005, 2010, and 2015 at 1 km pixel level - in total around 29 mio. pixels each year.
- We define a pixels as being urban in a given year if it has a population of more than 150 and a travelling distance to nearest urban center of less than 1 hour.

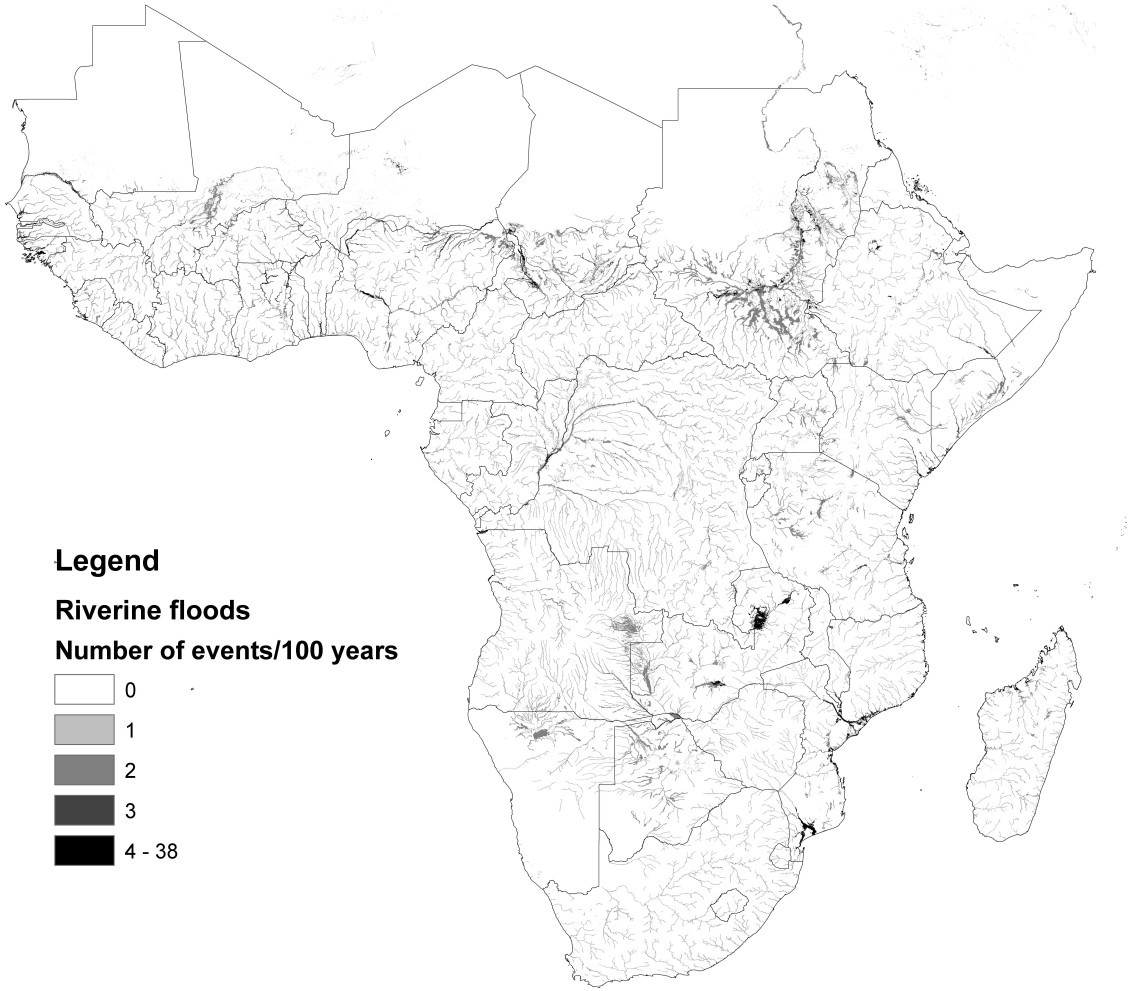
Population


Legend
Population density 2000
People / km2
5,000 - 100,000
2,500 - 5,000
1,000 - 2,500
500 - 1,000
250 - 500
100 - 250
50 - 100
25 - 50
10 - 25
0 - 10

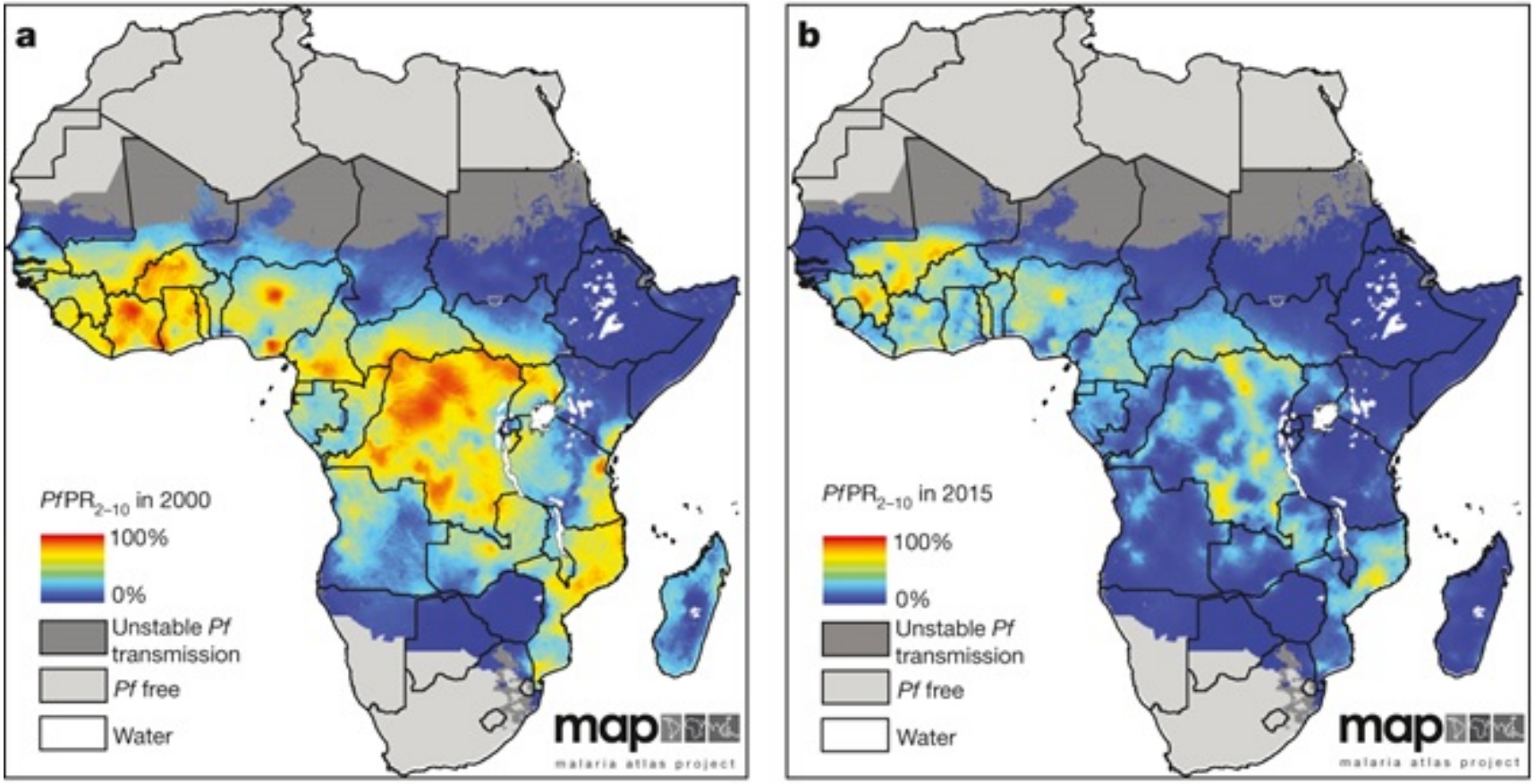
Drought hazard



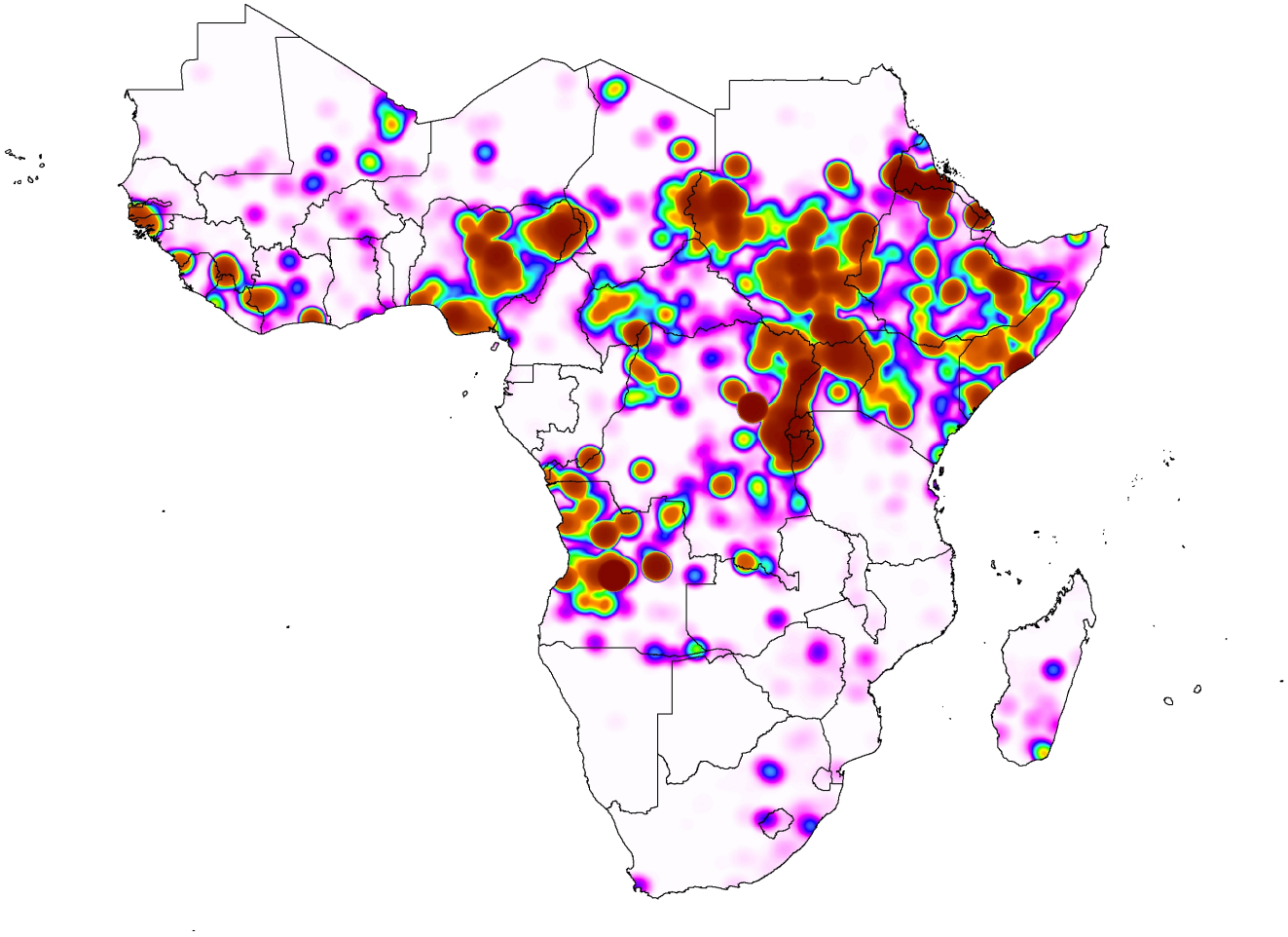
Flood hazard



Malaria risk

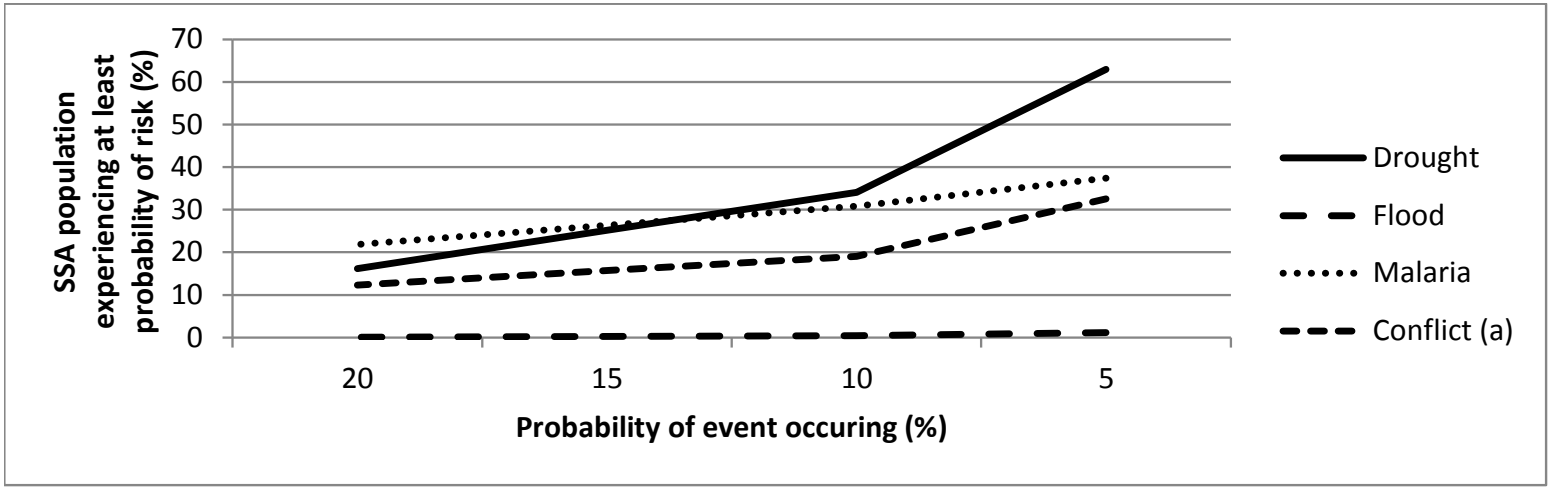


Conflict risk



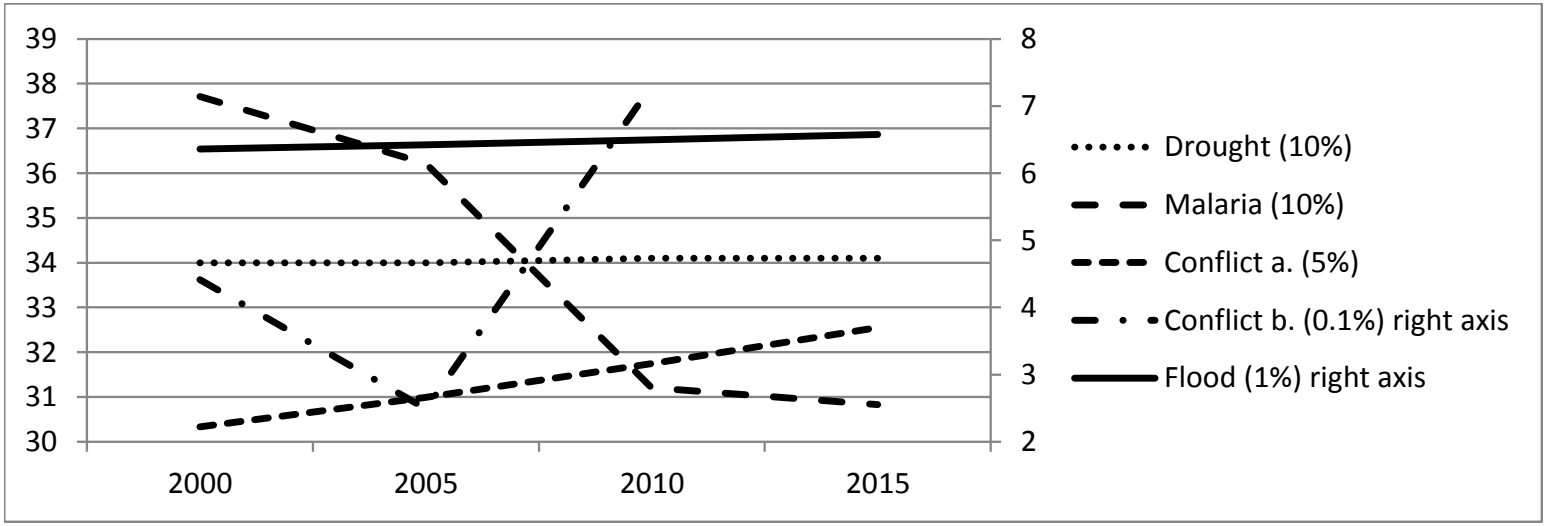
Results

Figure 7: Distribution of key risks in 2015.



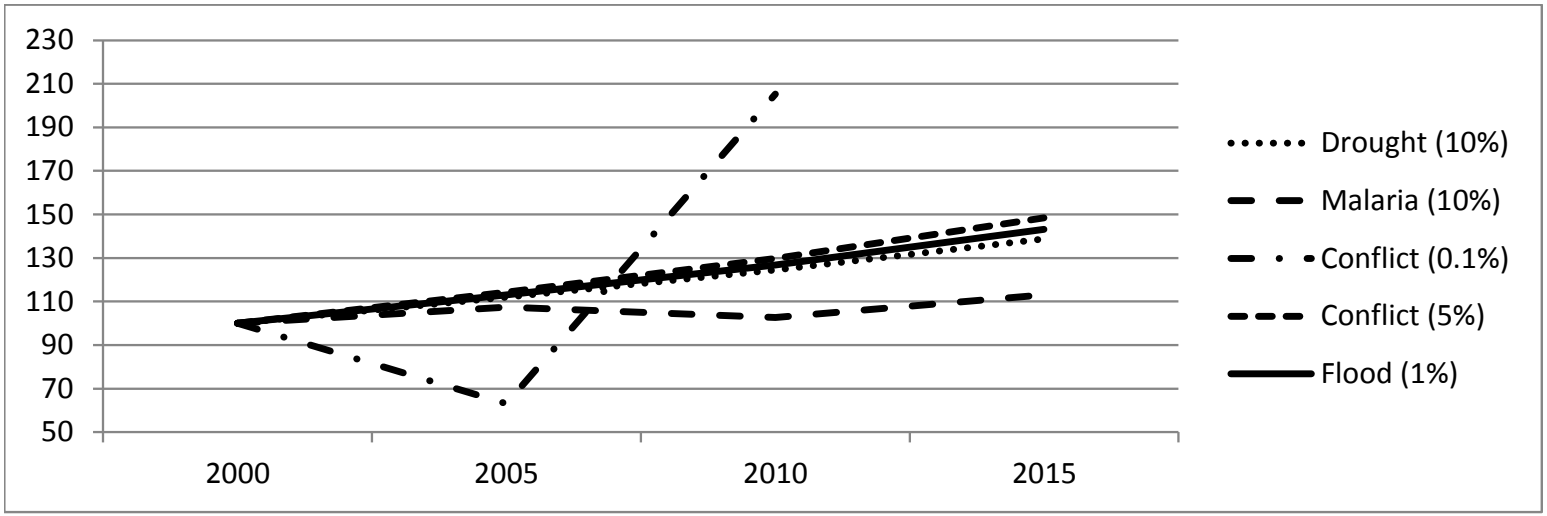
Results

Figure 8: Exposure to different hazards, population shares



Results

Figure 9: Development over time in number of exposed people, index 2000=100



Results

Table 4: Correlations between various hazard types

	Urban	Drought	Flood	Conflict	Malaria
Urban	1.000				
Drought	-0.068	1.000			
Flood	0.086	0.022	1.000		
Conflict	0.409	-0.082	0.005	1.000	
Malaria	-0.016	0.047	-0.008	0.001	1.000

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- The **number** of people exposed to drought, flood, and conflict has increased about 40-50 percent whereas the number of people exposed to malaria has increased about 10 percent.
- A main driving force for the development in exposure to the selected hazards is urbanization. Cities are often located near coasts or rivers, associated with higher risk of floods, lower risk of drought. Malaria is less widespread in cities whereas risk of being close to a conflict increases.

Thank You