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Research on Climate Change and Health in SADC region

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Background



- CC phenomenon is now better understood than in 1988 when Intergovernmental Panel on Climate Change (IPCC) was formed
- First report of IPCC formed basis for establishment of United Nations Framework Convention on Climate Change (UNFCCC)
- UNFCCC currently has 189 members
- At its 28th Session, the UNFCCC Subsidiary Body for Scientific and Technological Advice (SBSTA) recognized the role of CC regional centres and networks in enhancing adaptation ; and encouraged the establishment of new networks
- Global and Regional Networks for Climate Change Adaptation are concurrently being established (UNEP)



Background



- Third and fourth IPCC assessments highlighted that Sub-Saharan Africa (SSA) will be affected most because of various reasons including poverty, weak health institutions, conflicts, etc
- But inferences on Africa are based on scanty data and sharing of such information has not happened in a systematic manner
- It is against this background that the Danish institutions and some southern Africa institutions initiated this work as a basis for establishing a NSS network on CC
- Background papers focussing on the impacts of CC on three themes: **health**, water and food security were thus commissioned.



Focus of work carried out



- Assessment of status of human health in Africa and SADC in particular, in the context of CC
- Highlighting knowledge on linkages of CC and Health
- Mapping of institutions working on CC and Health within SADC
- Assessing the extent to which work on CC is being done in comparison to other sectors like water and agriculture
- Identifying knowledge gaps opportunities for scientists and policy makers to work together



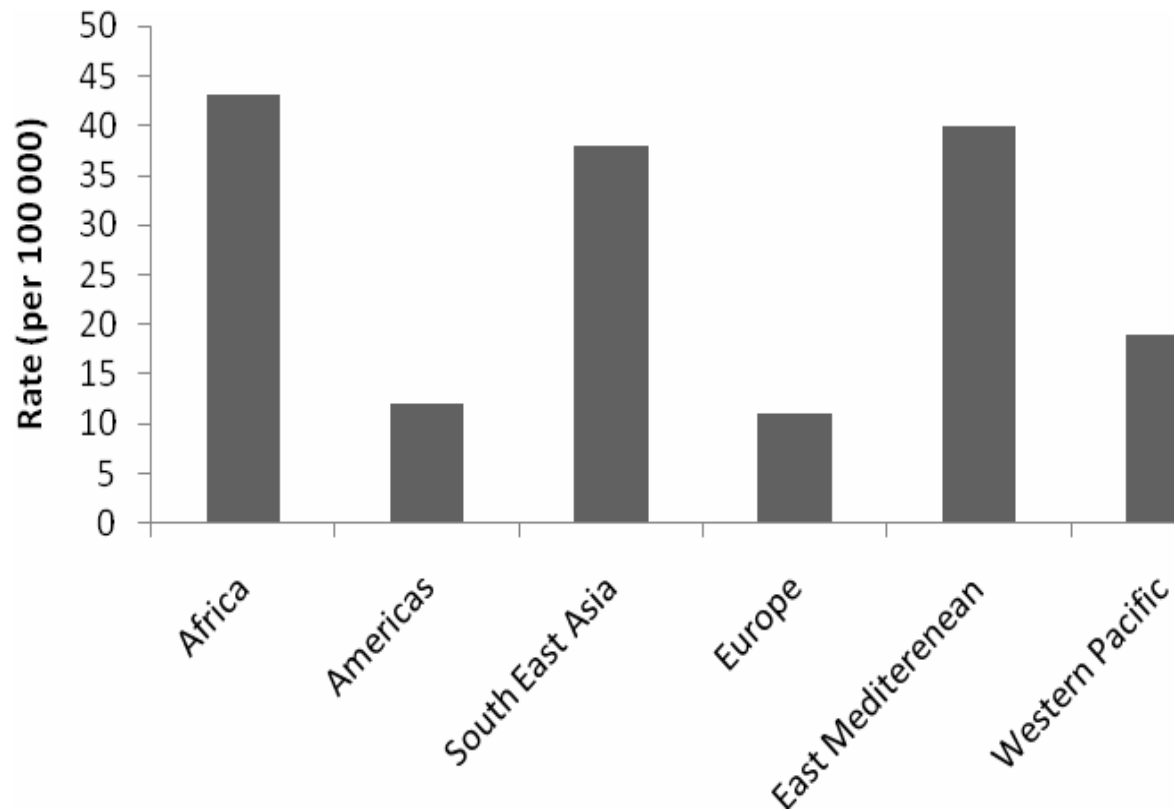
Burden of diseases in DALYS for the African Region



Disease	Mortality stratum	
	High child, high adult (000)	High child, very high adult (000)
AIDS	14 620	49 343
Malaria	20 070	20 785
Respiratory infections	18 976	16 619
Perinatal conditions	10 869	10485
Diarroea	11 548	11 689



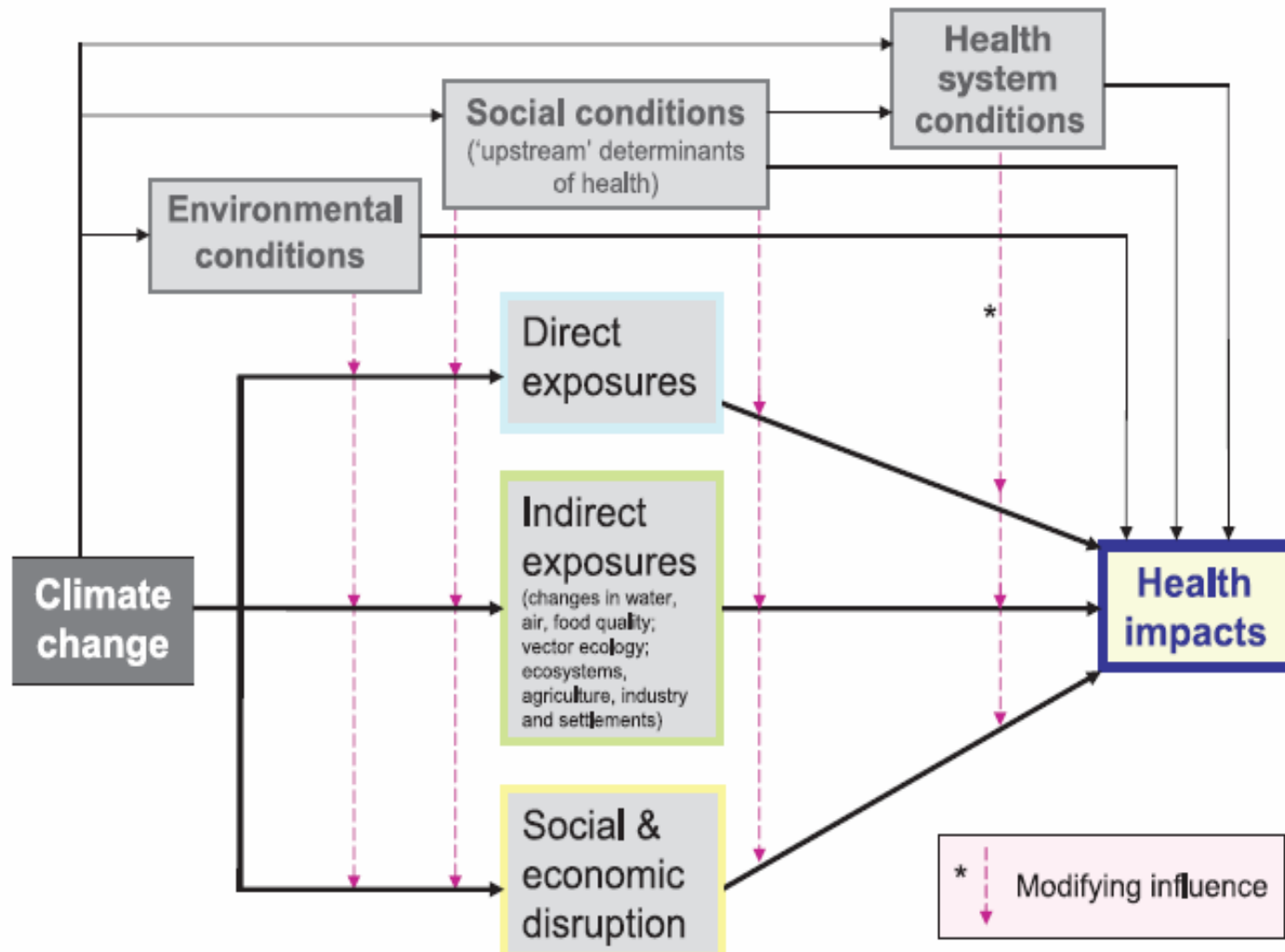
Neonatal mortality rates (per 100 000) for WHO regions



Source: Adopted from World Health Report of 2008



How climate change may impact on health (IPCC FAR, 2008)

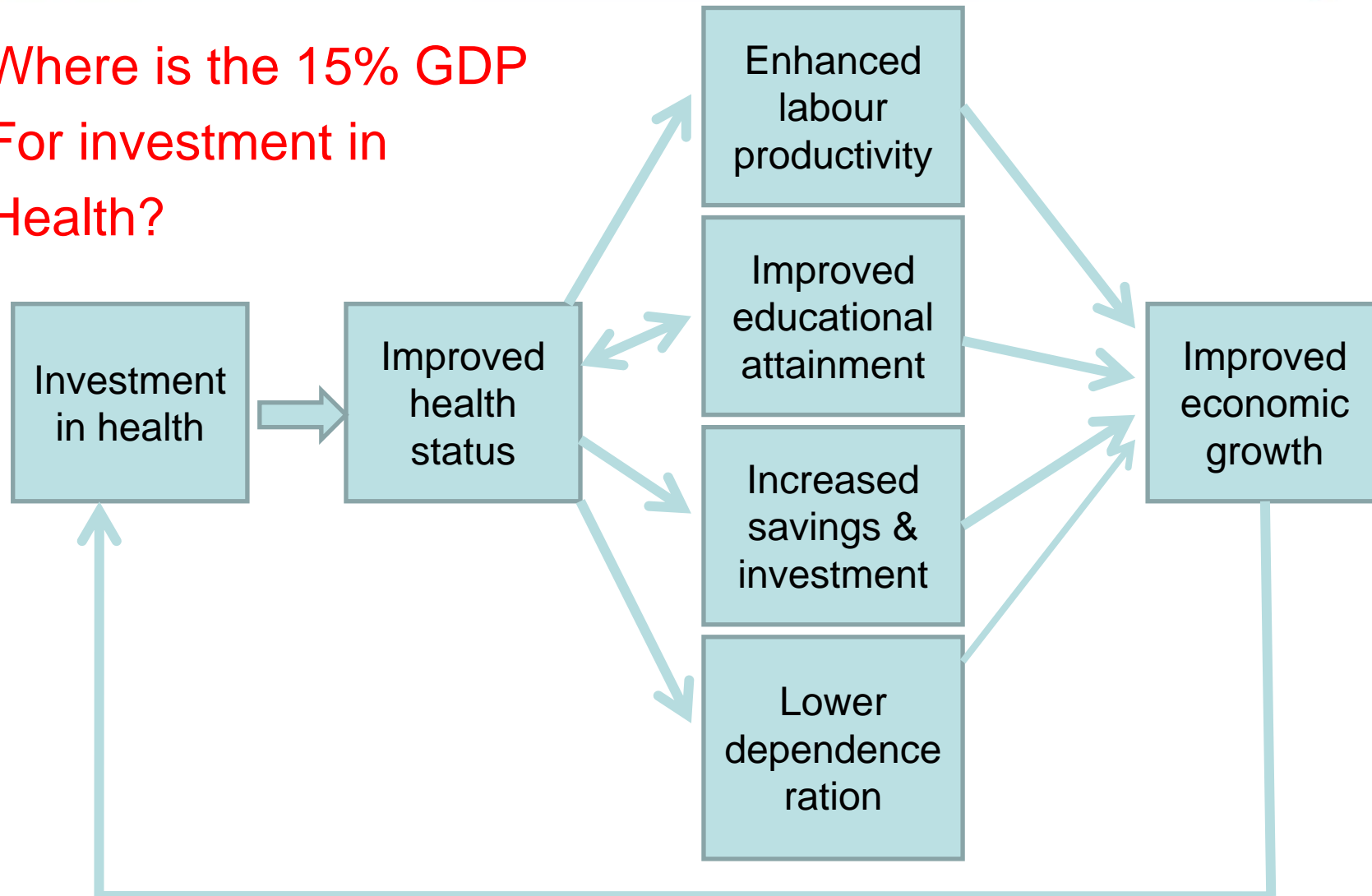




Investment in health as a driver of economic growth *(Adopted from Saunders et al)*



Where is the 15% GDP
For investment in
Health?





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Demographic indicators for 2004 in SADC



Year	Life expectancy at birth	Adult literacy	HDI	Under five CMR/1000	IMR/1000	MMR/100000
Mauritius	72.4	84.4	0.80	15	14	22
South Africa	47.0	82.4	0.65	67	54	150
Swaziland	31.3	79.6	0.50	156	108	230
Namibia	47.2	85.0	0.63	63	47	270
Botswana	34.9	81.2	0.57	116	84	330
Lesotho	35.2	82.2	0.49	82	61	n.a.
Zimbabwe	36.6	n.a.	0.49	129	79	700
Kenya	47.5	73.6	0.49	120	79	410
DRC	43.5	67.2	0.39	205	129	1300
Madagascar	55.6	70.7	0.51	123	76	470
Zambia	37.7	68.0	0.41	182	102	730
Tanzania	45.9	69.4	0.43	126	78	580
Uganda	46.4	66.8	0.44	138	80	510
Malawi	39.8	64.1	0.39	175	110	1100
Angola	41.0	67.4	0.44	260	154	n.a
Mozambique	41.6	n.a	0.39	152	104	410

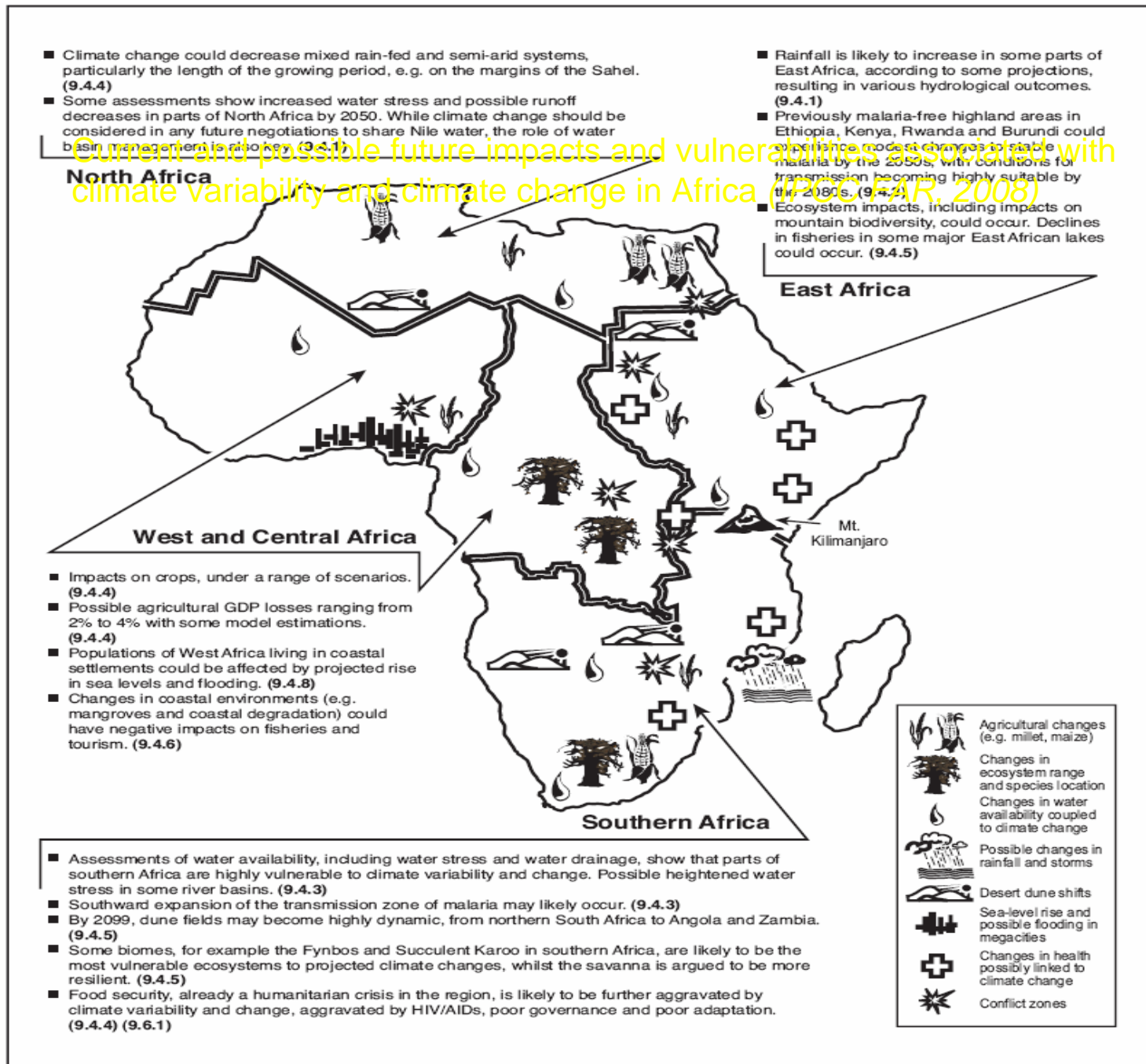


Figure 9.5. Examples of current and possible future impacts and vulnerabilities associated with climate variability and climate change for Africa (for details see sections highlighted in bold). Note that these are indications of possible change and are based on models that currently have recognised limitations.

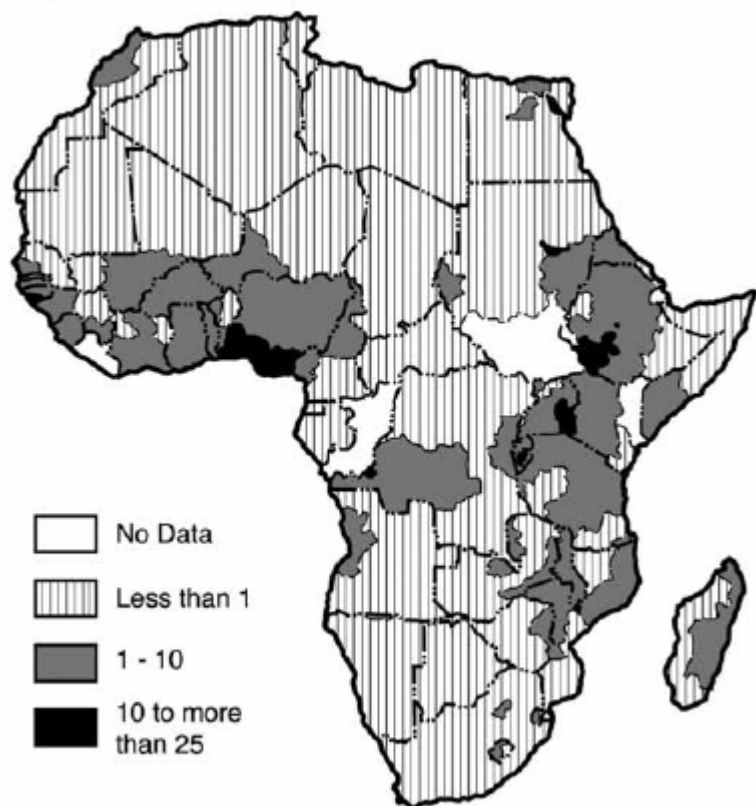


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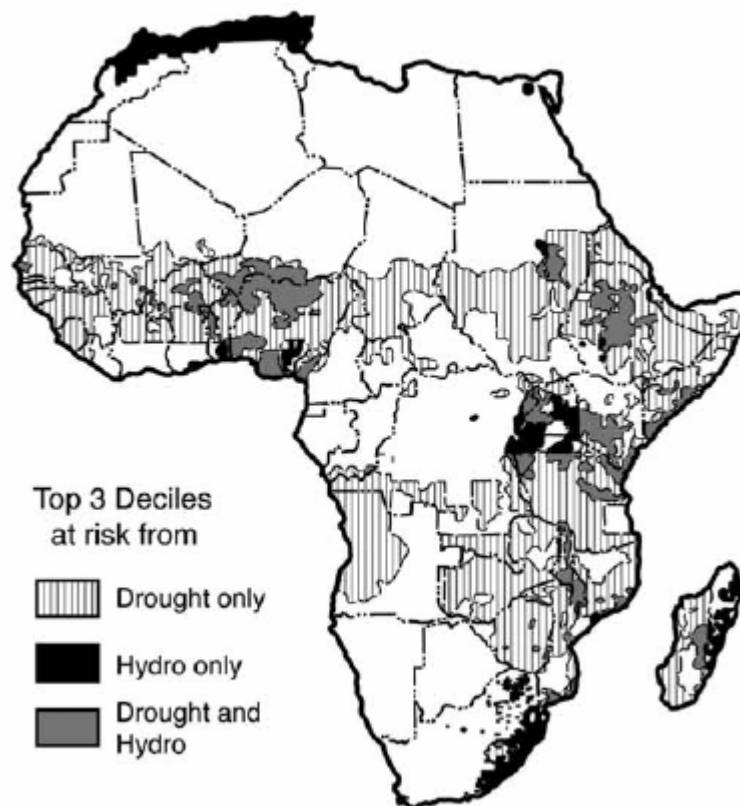
Examples of current 'hotspots' or risk areas for Africa (IPCC FAR, 2008)



(a) Underweight Children per square kilometre



(b) High Mortality Risk

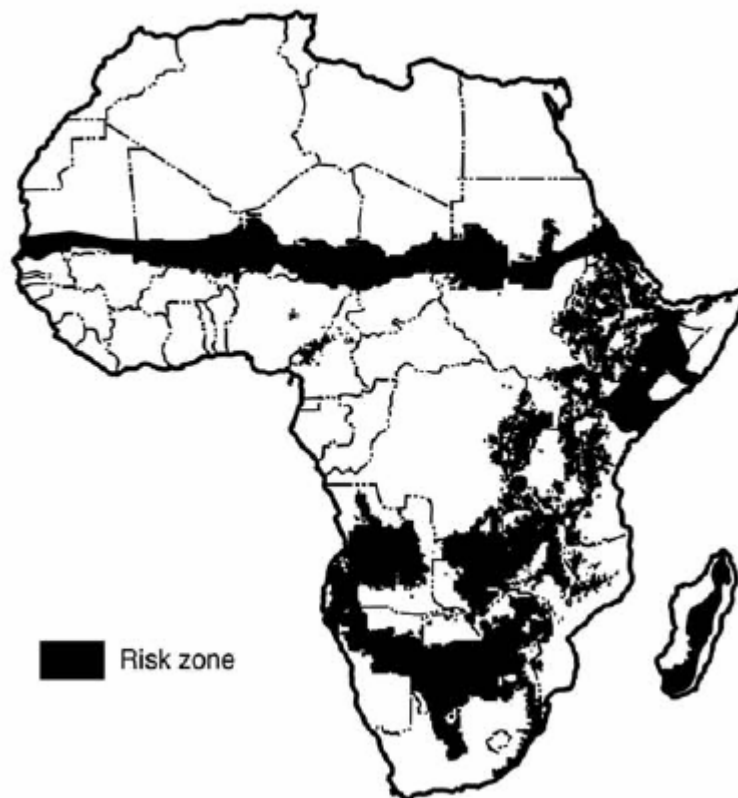




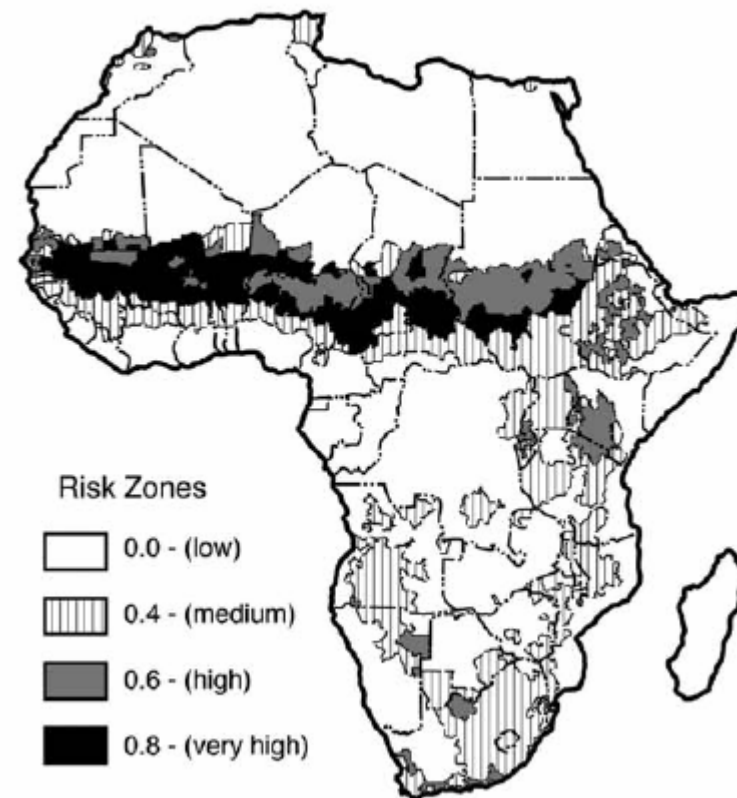
Examples of current 'hotspots' or risk areas for Africa (IPCC FAR, 2008)



(c) Epidemic Malaria



(d) Epidemic Meningitis





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Multiple problems for African region



What do schistosomes need?

- Fresh water
- Tropical climate
- Intermediate host-specific snail
- Lack of sanitation

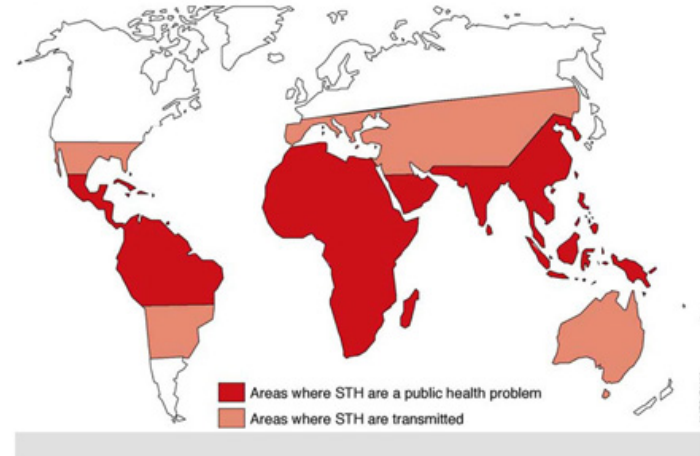
What do STHs need?

- Humid soil
- Tropical climate
- Lack of sanitation

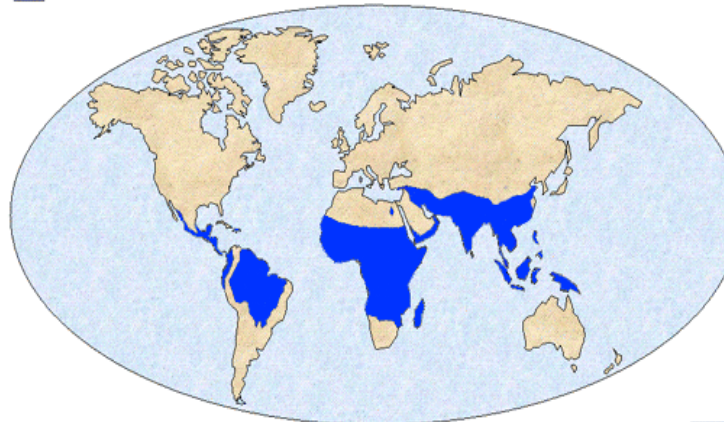
Global distribution of schistosomiasis



Global distribution of soil-transmitted helminth infections











Distribution of Malaria





Extreme events in different regions showing numbers



	1980s			1990s		
	Events	Killed	Affected	Events	Killed	Affected
Africa	243 	417 	1 37.8	247 	10 	104.3
Eastern Europe	66	2	0.1	150	5	12.4
Eastern Mediterranean	94	162	17.8	139	14	36.1
Latin America and Caribbean	265	12	54.1	298	59	30.7
South East Asia	342	54	850.5	286	458	427.4
Western Pacific	375	36	273.1	381	48	1 199.8
Developed	563 	10 	2.8	577 	6 	40.8
Total	1 848	692	1 336	2 078	601	1 851



Vector borne diseases likely to be impacted on by climate change (*WHO, 1997*)



Disease	Likelihood of change	Vector	Present distribution	People at risk (millions)
Malaria	+++	Mosquito	Tropics/subtropics	2020
Schistosomiasis	++	Water snail	Tropics/subtropics	600
Leishmaniasis	++	Phlebotomine sandfly	Asia/southern Europe/Africa/Americas	350
Chagas disease	+	Triatomine bug	Central and South America	100
Sleeping sickness	+	Tsetse fly	Tropical Africa	55
Lymphatic filariasis	+	Mosquito	Tropics/subtropics	1100
Dengue	++	Mosquito	All tropical countries	2500-30000
Onchocerciasis	+	Blackfly	Africa/Latin America	120
Yellow fever	+	Mosquito	Tropical South America and Africa	-
Dracunculiasis (Guinea worm)	?	Crustacean (copepod)	South Asia/Arabian peninsula/Central-West Africa	100

+++ = most likely, ++ = likely, + = less likely, ? = uncertain



Mapping Template



Country	Institutions	Theme of activities	Description of activities	Funding arrangements	Implementation context: Programme, network, in
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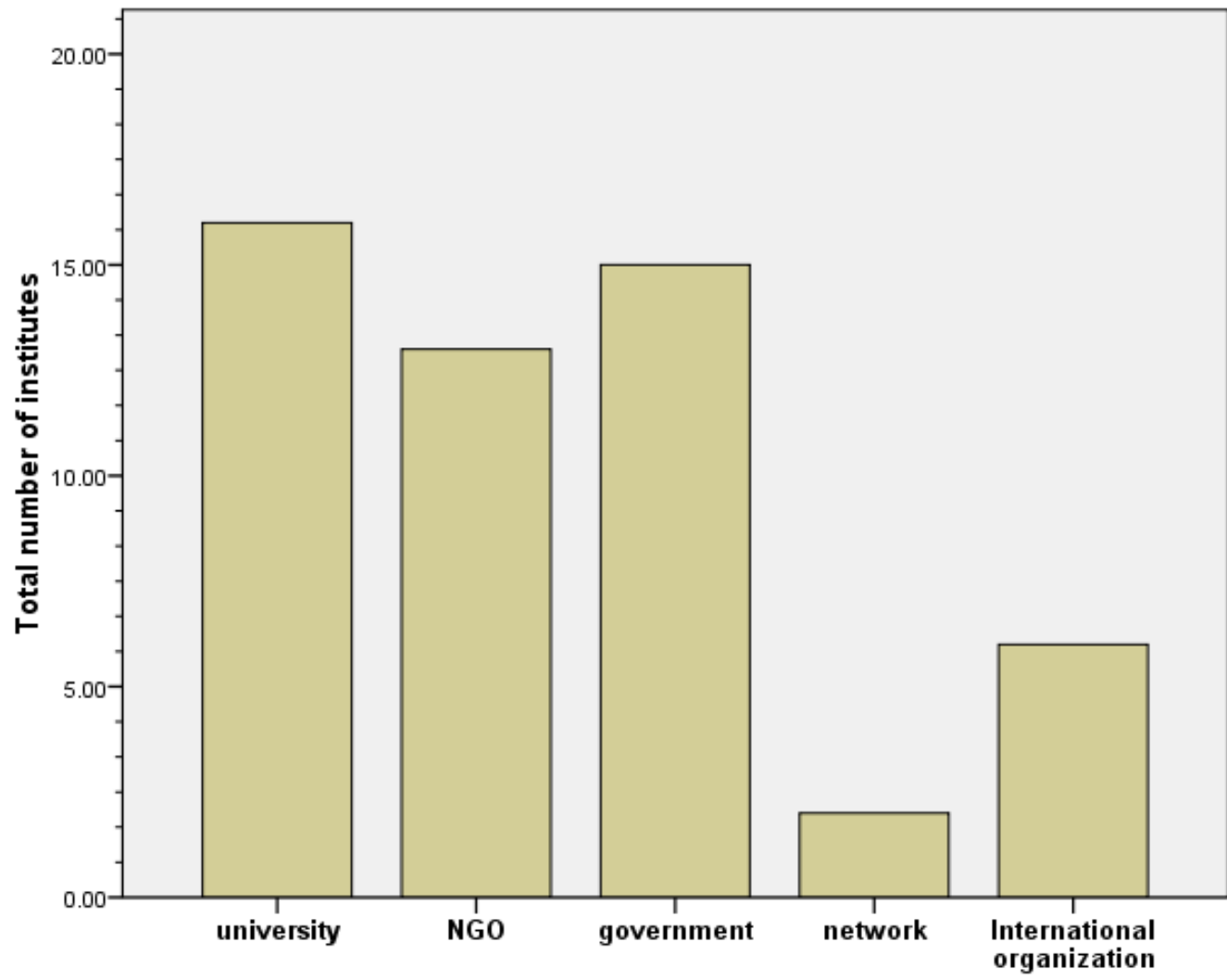
Number of references quoted in the IPCC FAR Africa chapter



Theme	Number of projects	% number of projects
Climate change and Health outside SADC	11 (9.1)	9.0
Climate change and health in SADC	6	5.0
Climate change general	104	86.0
Total	121	100

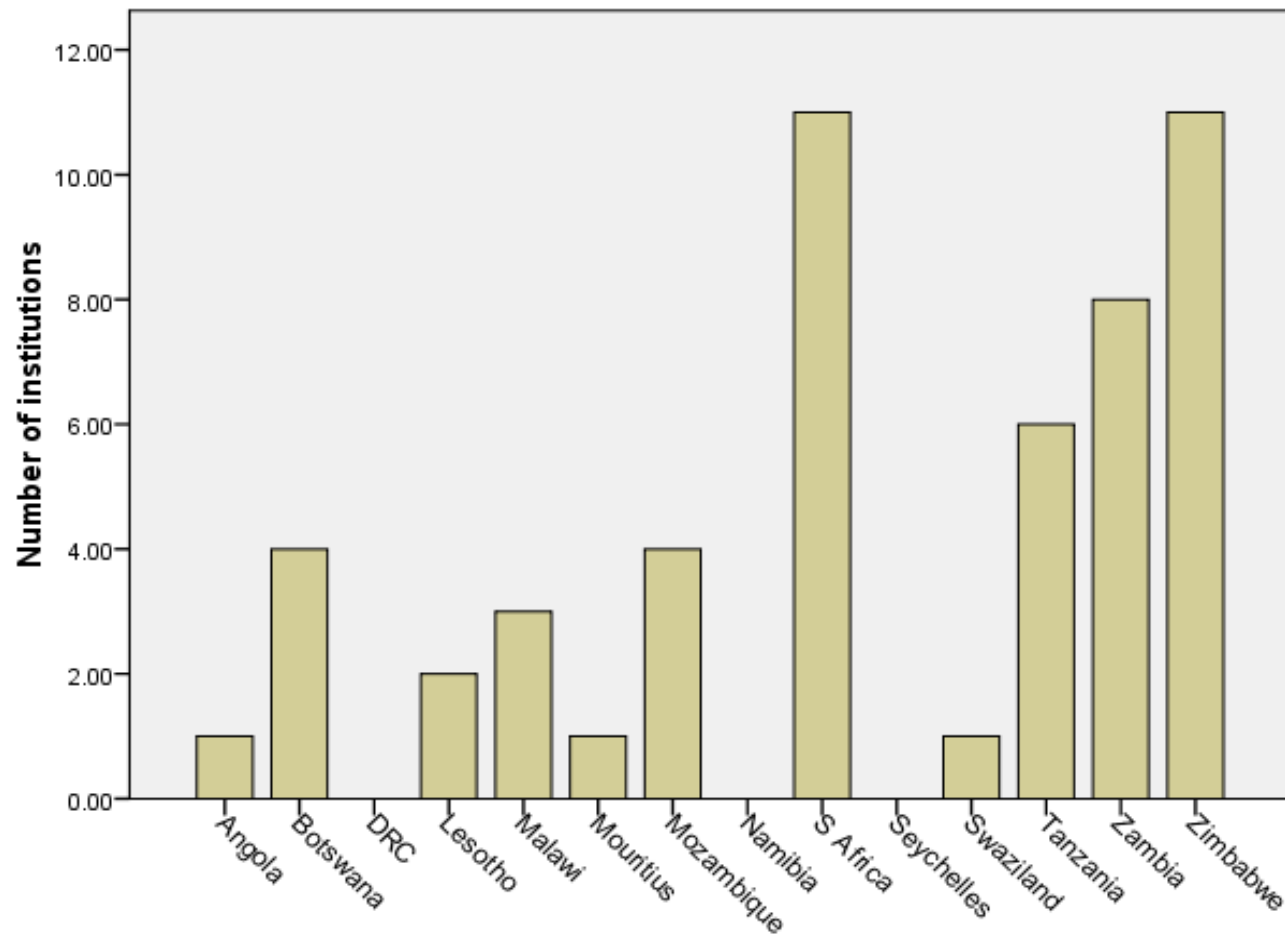


Number of institutions where CC work related to health is conducted in SADC



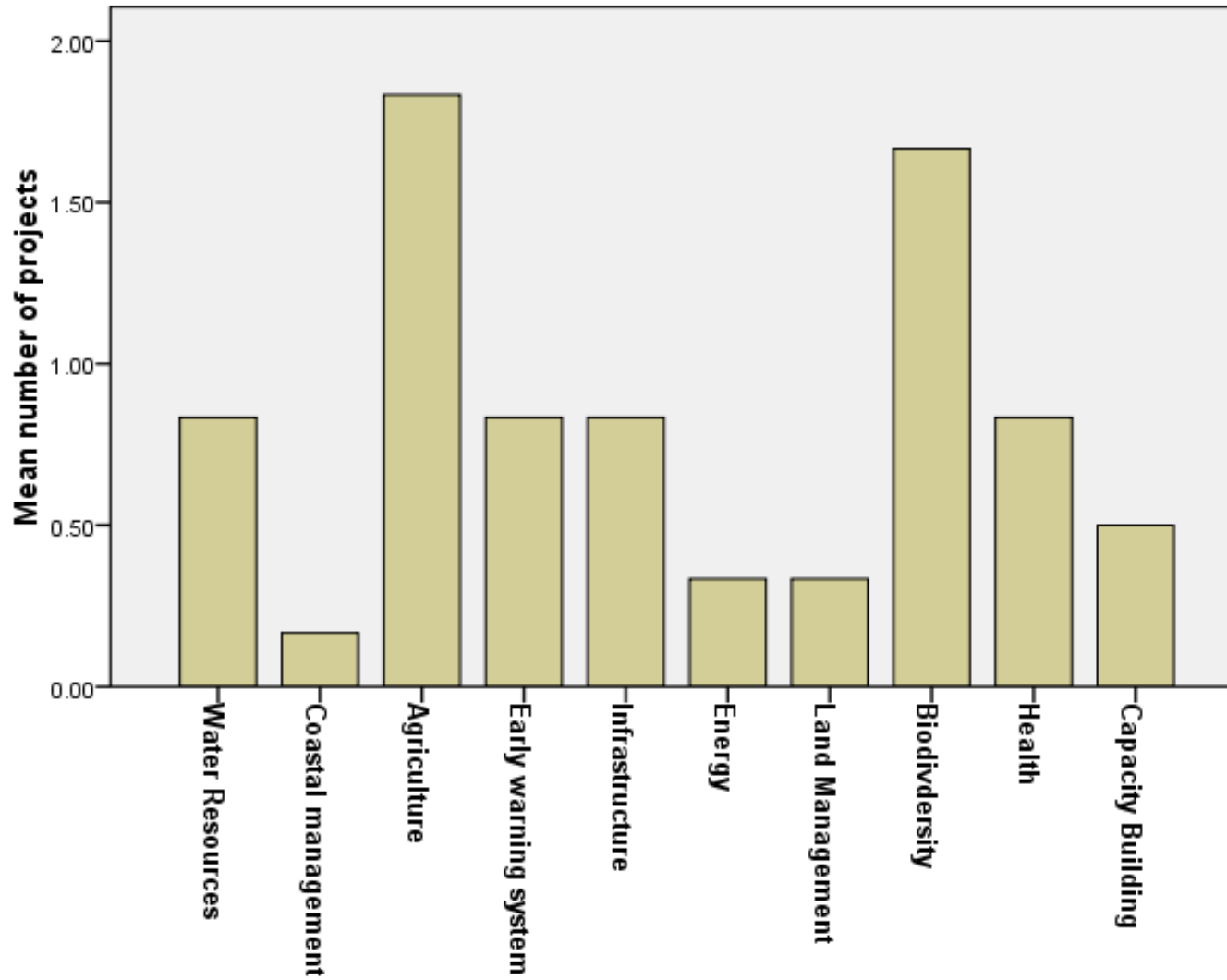


Number of institutions per country where CC work related to health is carried out in SADC





Projects identified by SADC LDCs in their NAPAs





Prioritization of health issues in LDCs NAPAs



Country	Number of projects	Health Prioritization
DRC	3	0
Lesotho	8	0
Malawi	5	0
Mozambique	4	0
Madagascar	15	13, 14
Tanzania	6	6
Zambia	9	9



Networks in the SSA



- Capacity Strengthening of Least Developed Countries on Climate Change Adaptation (CLACC)
<http://www.clacc.net>
- 1. Africa Center for Climate and Earth System Sciences (ACCESS) www.africacimatescience.org
- 2. ACCCA project www.accaproject.org
- 3. Air Pollution Information Network for Africa (APINA)
<http://www.se/index.php?section=atmospheric&page=projdesc&projdescpage=9992>
- 4. Regional Air Pollution In Developing Countries (RAPIDC) <http://www.sei.se/rapidc>
- 5. National Environmental Management Council (NEMC)
<http://www.nemctan.org>



Networks in the SSA



- Southern African Nordic Centre <http://www.sanord.org>
- Africa Center for Climate Earth System Science (ACCESS) www.africacimatescience.org
- Air Pollution Information Network for Africa (APINA) <http://www.sei.se/index.php?section=atmospheric&page=projdesc&projdescpage=9992>
- Regional Air Pollution In Developing Countries (RAPIDC) <http://www.sei.se/rapidc>
- Climate Systems Analysis Group <http://data.csag.uct.ca.za>
- National Environmental Management Council (NEMC) <http://www.nemctan.org>
- Southern African Nordic Centre <http://www.sanord.org>



Networks in the SSA



- African Climate Change Fellowship Programme (ACCFP)
- African Technology Policy Studies Network (ATPS)
- Global Climate Change Adaptation Network in Africa (in the process of being established)
- Earth System Science Partnership-linked networks
- Assessment of Impacts and Adaptation to Climate Change
- National Global Change Committees
- Pan African Start Secretariat (PASS)
- Pages-Africa Network
- African Pollen Database (APD) Network



Networks in the SSA



- Miombo Network
- Kalahari Transect
- Southern African Fire Network
- East African Lakes (IDEAL)
- AfriBasins and AfriCAT)
- Afriflux
- IGAC/DEBITS-AFRICA (IDAF)
- Global Environmental Change and Food Security (GECAFS)
- Climate Variability and Predictability (CLIVAR)
- Global Energy and water Cycle Experiment (GEWEX)
- Land Use and Land Cover Change (LUCC)



Networks in the SSA



- Other Human Dimensions of Global Change Research
- The Consultative Group on International Agricultural Research (CGIAR)
- CLIMAG (Climate and Agriculture in West Africa)



Observations



- Not much work on CC and health is taking place in SSA. But globally and in East Africa much more work is being done
- SSA is perceived to be overly vulnerable to CC impacts mainly in the agricultural and water sectors that directly or/and indirectly impact on health
- CC effects on health will be more significant in SSA than is appreciated now
- Much of the work on CC and health is in the area of malaria and HIV/AIDS
- There are many networks (**36 identified**) on CC but data bases on what they do is not readily available
- Mapping exercise is mentioned by many networks as a priority
 - ATPS, ZERO and CARE Zimbabwe, UNEP-GNCCA, CCAA, CLACC



Research Challenges in the field of CC and Health



- Establishing and documenting linkages between climate change and health
- Development or improvement of rapid diagnostic tests
- Development of vaccines
- Improvement of disease surveillance at state and local level
- Transmission dynamics studies



Way forward



- Collaboration between networks is key for complementarity. Joint efforts with networks that have already made good progress is encouraged
- Awareness campaigns and lobbying are necessary to encourage work on CC and health
- More studies on health particularly for other diseases besides malaria are needed to convince policy makers
- Fellowships initiatives should be used as knowledge sources on CC issues
 - Climate Change Fellowship Programme (ACCFP)
 - Capacity Strengthening of Least Developed Countries on Climate Change Adaptation (CLACC)



Acknowledgement



- Danish Institutions
 - Danish Development Research Network (DDRN)
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 - Kalahari Conservation Society (KCS)
 - Global Water Partnership, South Africa (GWP-SA)
 - Council for Scientific and Industrial Research (CSIR)
 - Ministry of Energy and Water, Zambia
- GWP-SA
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