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OKACOM Multi-Sector Investment Options Analysis

National Feedback Event

Gaborone, Botswana

4th and 5th August 2016

Climate Resilience and Investment Options: Developing a Climate Decision Tool to assist in Option Selection.

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In this presentation:

- Climate context: drivers of vulnerability
- Climate considerations in MSIOA decision making
- Development of a Climate Resilience ‘Index’ to rank development options against climate variability and change

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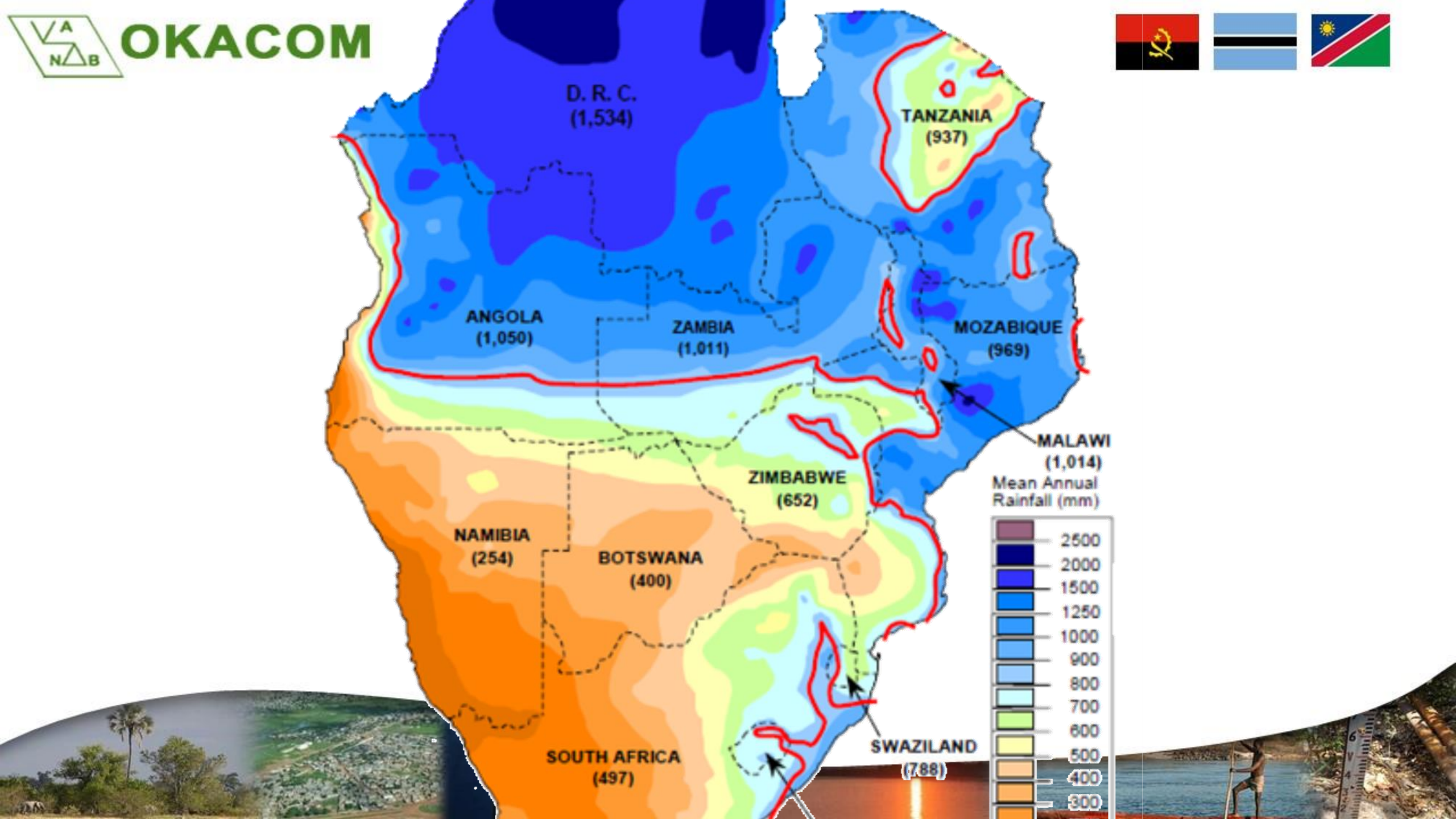
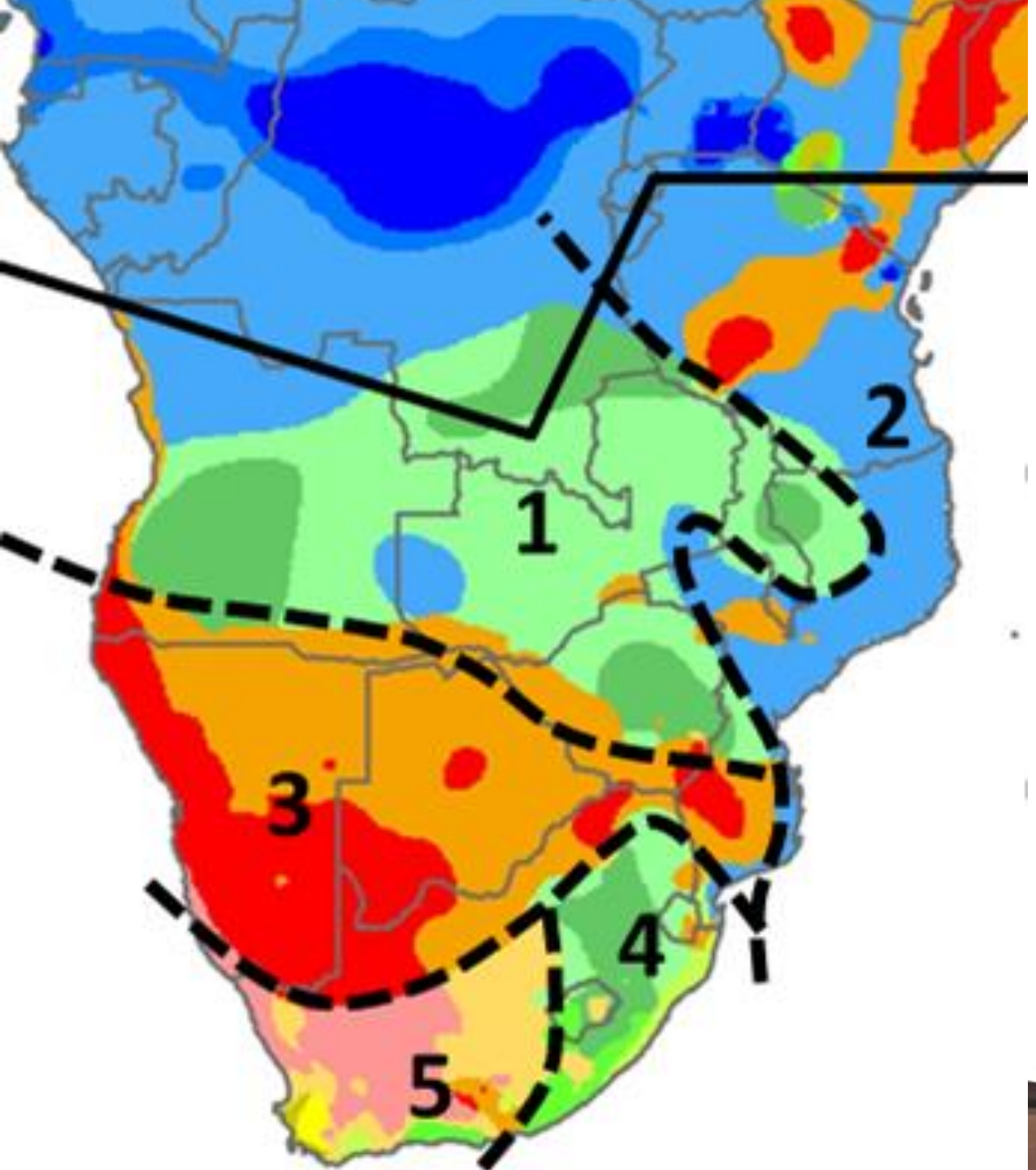
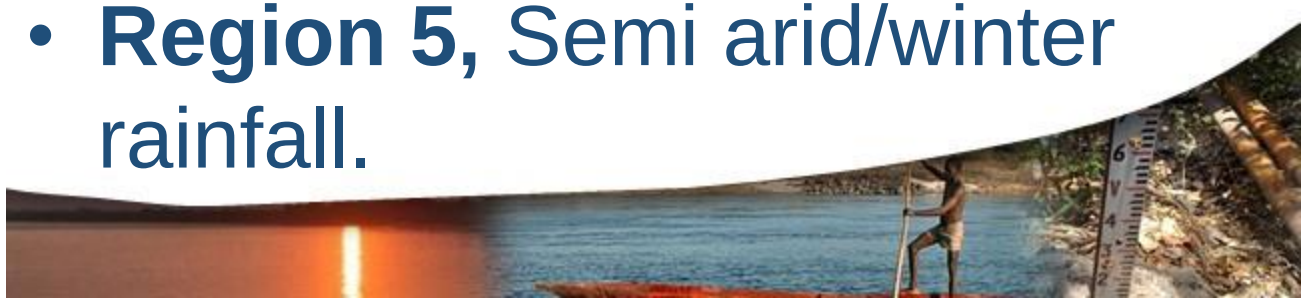

D. R. C.
(1,534)
TANZANIA
(937)
ANGOLA
(1,050)
ZAMBIA
(1,011)
MOZABIQUE
(969)
MALAWI
(1,014)
ZIMBABWE
(652)
NAMIBIA
(254)
BOTSWANA
(400)
SOUTH AFRICA
(497)
SWAZILAND
(788)
Mean Annual
Rainfall (mm)
2500
2000
1500
1250
1000
900
800
700
600
500
400
300



- **Region 1**, Summer ITCZ (Intertropical Convergence Zone)
- **Region 2,** Summer Indian Ocean cyclone/monsoon.
- **Region 3**, Arid descending arm of Hadley cell.
- **Region 4,** Temperate cyclonic.
- **Region 5,** Semi arid/winter rainfall.



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Manifestation of Climate Variability and Change

- Representative Concentration Pathways of CO^2 (RCP) driving a number of variables including
- Precipitation variability, including rainfall events (annual total, seasonality, intensity, precipitation source), humidity/cloudiness, river systems, aquatic ecosystems/aquaculture, groundwater, water security, water supply and variability;
- Temperature variability, including heatwaves, seasonal temperature ranges, frost, wildfires, aridity;

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Manifestation of Climate Variability and Change

- Extreme events, including floods/droughts;
- Subsequent effects on
- Agriculture, including food production, food security, land degradation/soil erosion, ecosystems/biodiversity;
- Energy, including water requirements for hydro and hydrocarbon generation, wind and solar
- Health, including disease epidemiology, air/water pollution, biohazards, nutrition, sanitation

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‘Climate Index’ concept

- Take a number of key variables from the above suite (e.g. rainfall amount and seasonality, temperature, runoff, evaporation, drought, flood, fire, extreme events)
- Evaluate these against development scenarios (scale 1-10) and aggregate
- Narrative on scenario vulnerability
- Metric and narrative to compare options (alongside other metrics) in decision making

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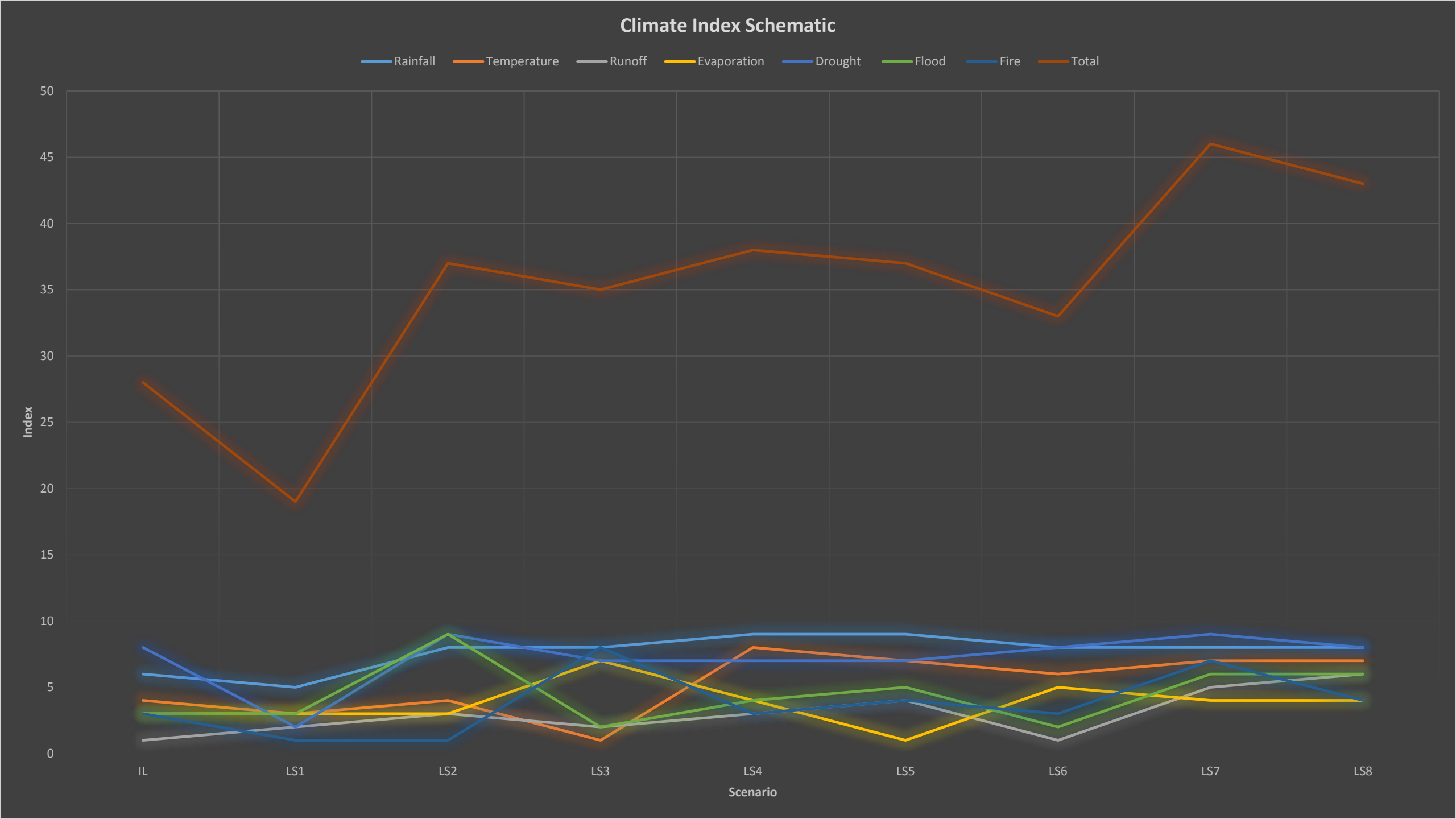
MSIOA Scenario Summary

Scenario	Angola				Botswana				Namibia				Basin			
	NPV	SJ	EI	CR	NPV	SJ	EI	CR	NPV	SJ	EI	CR	NPV	SJ	EI	CR
IL	0	253	-0.016		0	50	-0.028		0	76	-0.016		0	379	-0.019	
LS1	1	244			1	105			1	255			3	604		
LS2	929	1,056	-0.671		1	105	-0.426		60	288	-0.682		990	1,449	-0.636	
LS3	966	1,053	-0.728		1	104	-0.425		139	266	-0.728		1,105	1,424	-0.674	
LS4	930	1,050			1	105			60	288			991	1,443		
LS5	1,525	2,102	-1.095		-36	71	-1.050		38	217	-1.050		1,527	2,390	-1.050	
LS6	1,568	2,106	-0.948		0	84	-1.114		124	258	-0.973		1,691	2,447	-0.973	
LS7	2,199	3,187	-1.496		-70	60	-1.421		523	392	-1.421		2,652	3,639	-1.421	
LS8	1,963	4,173	-1.822		-124	14	-1.528		506	414	-1.528		2,346	4,601	-1.528	


Climate Index Schematic
Rainfall
Temperature
Runoff
Evaporation
Drought
Flood
Fire
Total
50
45
40
35
30
25
20
15
10
5
0
Index
IL
LS1
LS2
LS3
LS4
LS5
LS6
LS7
LS8
Scenario