MANAGING WETLANDS FOR CLIMATE CHANGE ADAPTATION AND DISASTER RISK REDUCTION: A CASE STUDY OF THE EASTERN FREE STATE; SOUTH AFRICA

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2016

ACES

A Community on Ecosystem Services

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in partnership with

ECOSYSTEM MARKETS

Making Them Work

ESP

December 5-9, 2016

Jacksonville, FL, USA

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for an interdisciplinary forum to share experiences, methods, and tools for assessing and incorporating ecosystem services into public and private decisions.

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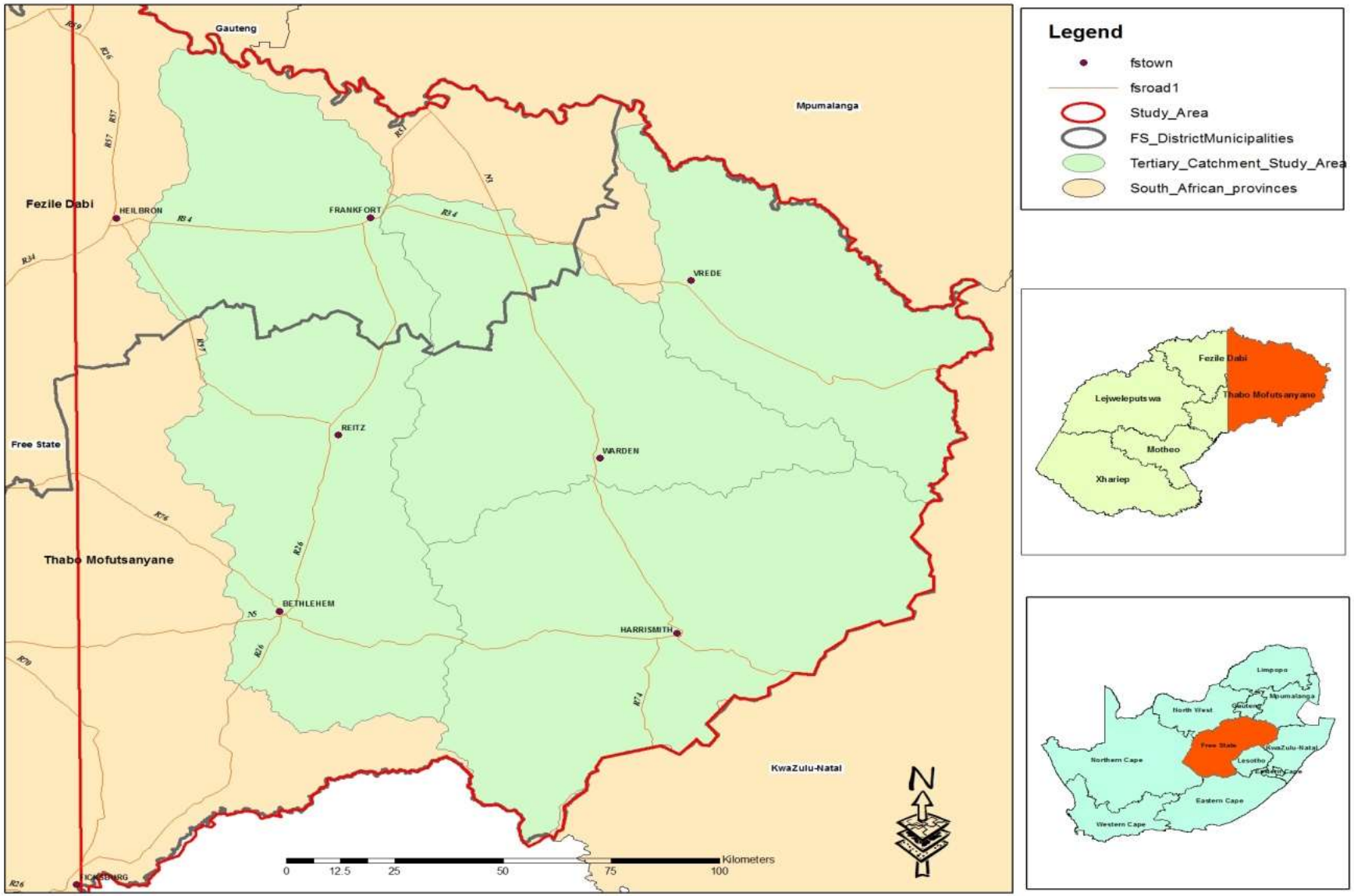
BACKGROUND: STUDY AREA



WHAT ARE WETLANDS?

*"A **transitional** land between terrestrial and aquatic systems where the **water table** is usually at or near the surface, or land that is periodically covered by shallow water and which in normal circumstances support or would support **vegetation** that is typically adapted to **saturated soils**"* (NWA, 1998).

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RAMSAR DEFINITION OF A WETLAND

- Areas with water,
- natural or artificial, permanent or temporary, static or flowing,
- fresh, brackish or salty,
- areas of marine water not more than six meters at low tide. (RCS, 2010)

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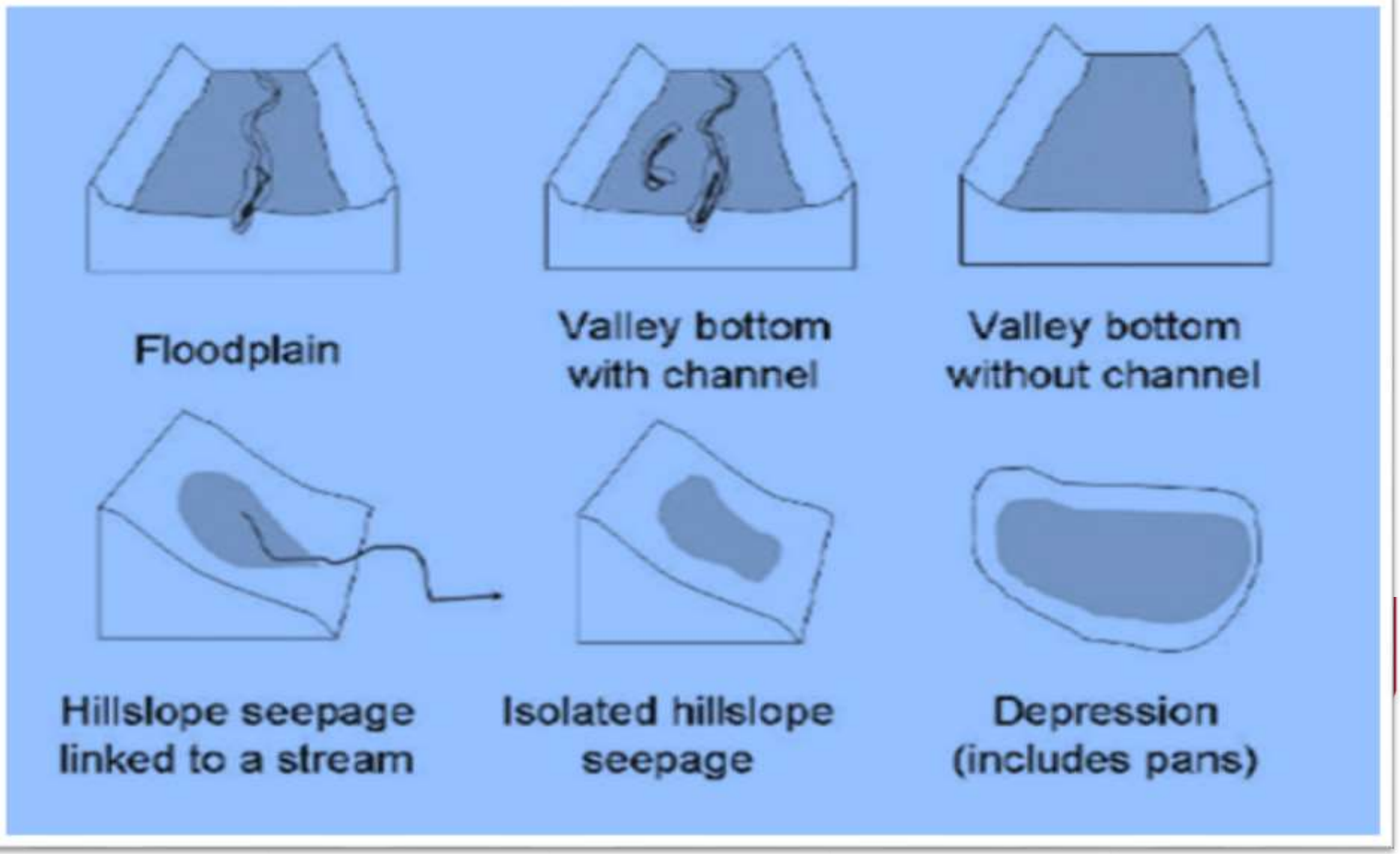
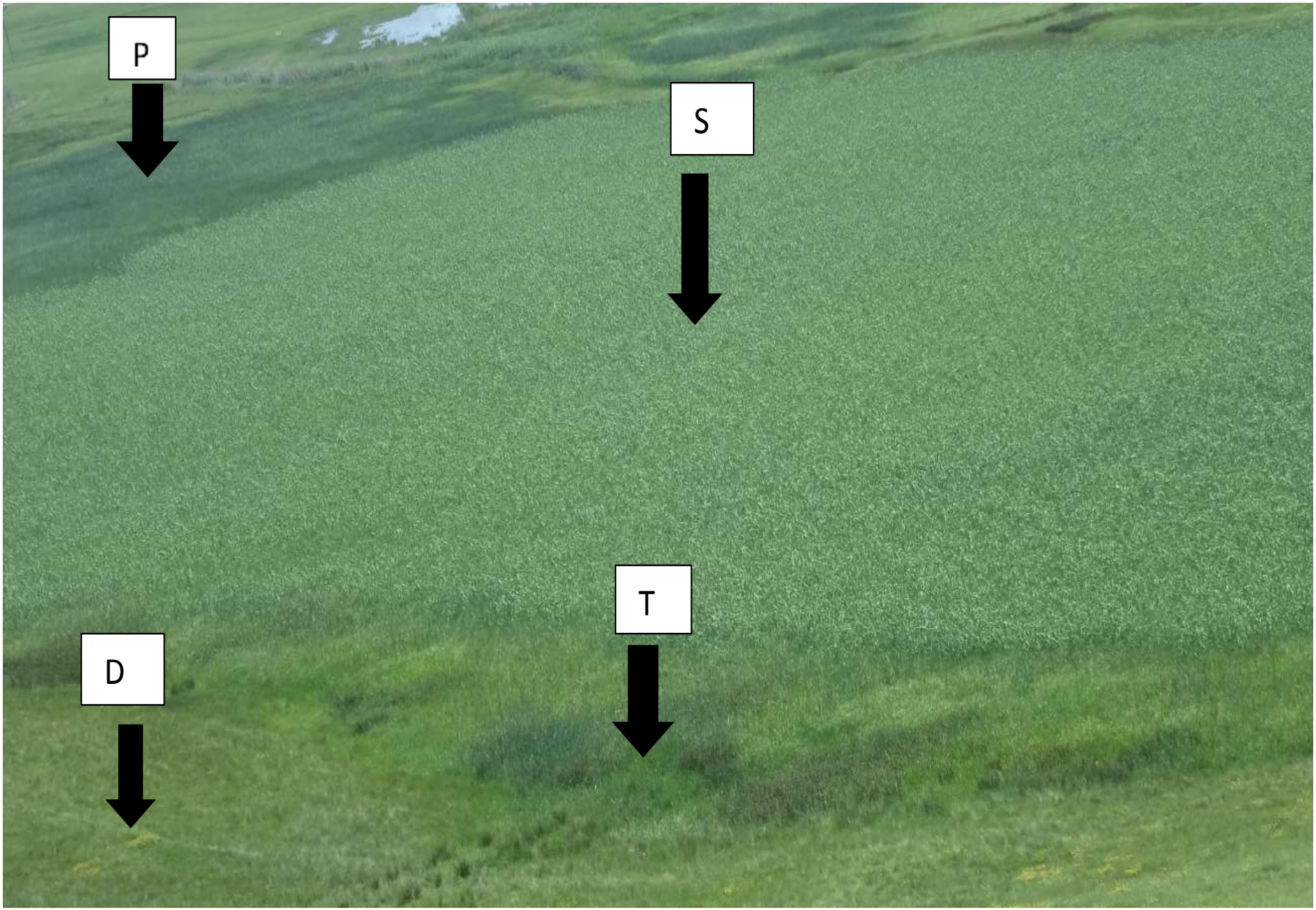
THE HYDRO-GEOMORPHIC CLASSIFICATION OF WETLANDS

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MANAGING WETLANDS FOR DRR & CCA IN EFS; SA

- Method (Mixed method; four data collection tools; SPSS and thematic analysis)
- Results:

Perceived wetlands threats: Kendall's W Test (Ranks)

Threat	Mean Rank
Invasive alien species	6.19
Overgrazing	7.64 3rd
Uncontrolled fire	8.81 2nd
Lack of awareness on wetland benefits	8.94 1st
Soil erosion	6.96
Sedimentation	7.23
Pollution	6.12
Climate variability	5.65
Change in water regime	6.45
Conversion to other uses	5.87
Lack of human management capacity	6.70
Lack of material resources to manage	7.14

ECOLOGICAL STATUS AS INDICATOR OF VULNERABILITY

- Excellent = More than 75%; Good = 65-75%; Average = 50-64%; Poor = Less than 50%

Wetland group		No	WL ID	Score/50	% score	Ecological Status
Communal		1	Monontsha	20	40	
		2	Bethlehem	18	36	
		3	Helbron	24	48	
		4	Frankfort	23	46	
		5	Petrus Steyn	24	48	
		6	Edenville	22	44	
		7	Clarens	27	54	
Private	Protected Government	8	Seekoevlei	45	90	
		9	Ingula	40	80	
	Protected SANPARK	10	Golden Gate	39	78	
	Commercial Farms	11	SB 1	36	72	
		12	SB2	36	72	
		13	SB3	34	68	
		14	SB4	34	68	
		15	VR1	35	70	
		16	VR2	36	72	
		17	VR3	33	66	
		18	VR4	34	68	
		19	FB1	41	82	
		20	RT1	33	66	
		21	QQ1	31	62	

Key

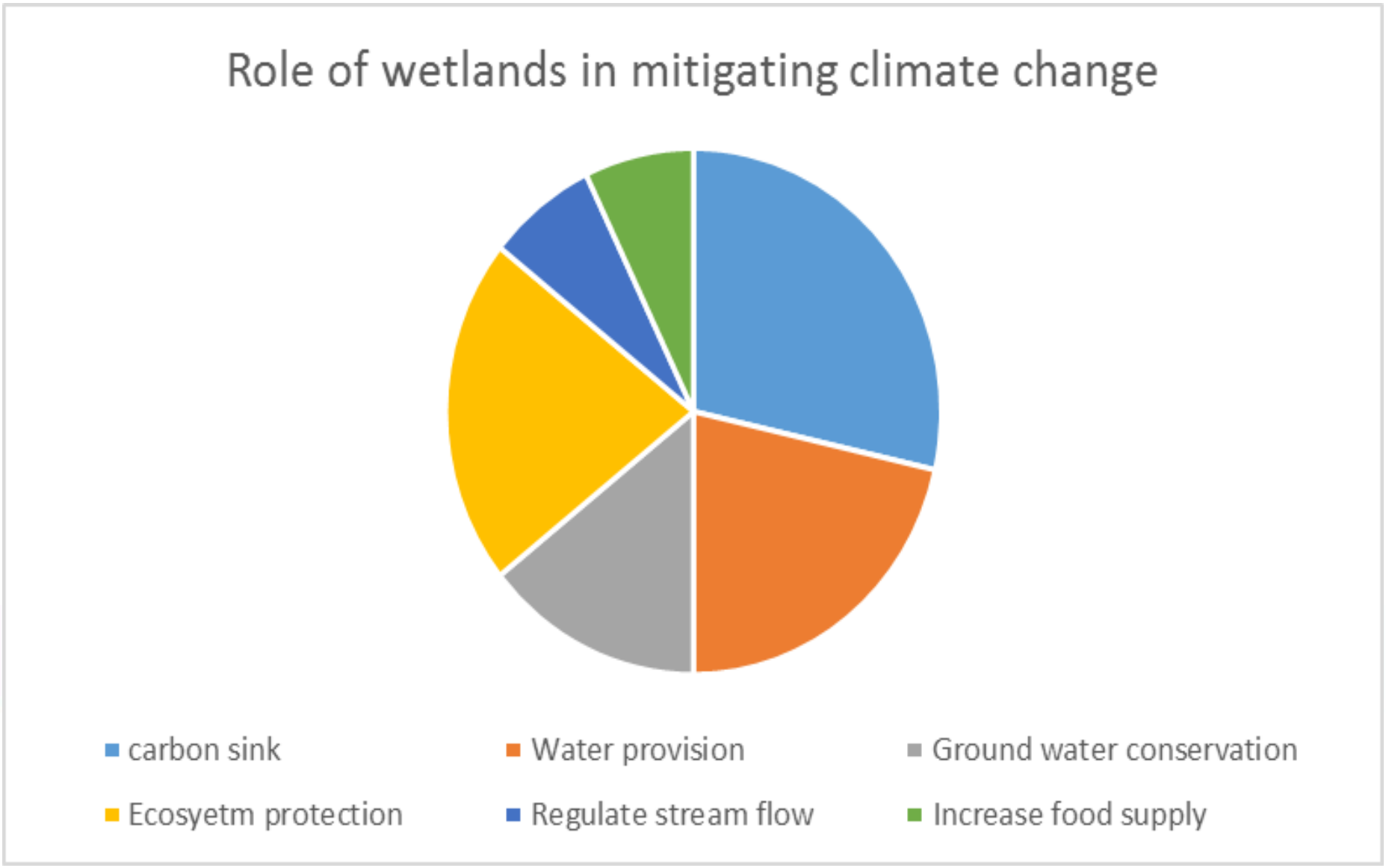
Colour	Condition
	Excellent
	Good
	Average
	Poor

CLIMATE CHANGE AND WETLANDS

Question	Response	Percentage
Do you think the climate in the FS has change?	N = 15 Yes = 15 No = 0 Not sure = 0	100% agreed
Do you think good management of wetlands can reduce the impacts of climate change	N =15 YES = 14 No = 1 Not sure =0	93.3% agreed and 6.7% disagree
Do the local communities in the FS understand the value of wetlands	N =15 No = 14 Yes = 0 Not sure =1	93.3% disagree

No.	Reason	Freq
1	More frequent droughts episodes	6
2	Warmer and shorter winters	3
3	Changes in rainfall patterns	3
4	Changes in weather patterns	2
5	Increase in temperature	2
6	Drier summer and reduced rainfall	2
7	Fall in crop yield especially maize	2
8	Weather extremes	1
9	Political discussions	1
10	Lower dam levels	1
11	Heat waves	1
12	Cold spells	1
13	Floods	1

WETLANDS ROLES IN MITIGATING AND ADAPTING TO CLIMATE CHANGE



IDENTIFIED WETLANDS VALUES AND FUNCTIONS

Food	cultivated (using conservation agriculture) for taro, sugar cane, cabbages, onion. Most of these crops are cultivated by women
Grazing	Most for livestock and game; Fodder (winter/drought)
Fibre/Fuel	Fire wood/peat for burning; grasses for construction and artisanal craft
Biochemical	Medicinal plants cure or prevent diseases eg treat headache, urinary infection, ulcer, wounds, "Uklenya" for menstrual pain relieve or to expel the placenta after birth
Trade	Tourism, craft industries provide local livelihoods. WfWetlands for local employment

Climate regulation	Source/sink for greenhouse gases, influence local and regional temperature,
Natural hazard regulation	Flood control; Buffer for drought, Wild fire breaks
Biodiversity	Habitat for most pollinators, wetland birds, plants (Medicinal)
Spiritual and inspirational	Pools for baptism, spiritual powers
Educational	Research and training

CONCLUSIONS AND RECOMMENDATIONS

- Much degradation especially in communal wetlands BUT
- Wetlands support Eco-DRR/CCA
- Contribute to climate change mitigation (absorb and store carbon).
- Mitigate disaster risks (Drought, flood, veldfires)
- Provide livelihood support to vulnerable communities to adapt and become more resilient to disaster risks and climate change
- No evidence of managing wetlands for CCA & DRR

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RECOMMENDATIONS

- Better Management to build wetlands resilience
- Effective legal and institutional arrangement needed
- Promoting awareness, education and training on wetland functions and values critical
- Promoting climate-smart conservation of wetlands important

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