

Appendix A. Stakeholder groups

Table A.1. Key stakeholder groups in Hawane Dam and Nature Reserve.

Sector	Stakeholder Groups
Community	<p>Adjacent (rural) residents (n = 20) Households neighboring HDNR and depend on it for their livelihood (grazing, water, farming, fishing etc.). Their claims are legitimate and urgent but often lack power.</p>
	<p>Urban residents (n = 26) Mbabane City dwellers who enjoy piped water from HDNR. Possess legitimate claims, but generally lack the power or urgency to influence claims or situations regarding the resource.</p>
	<p>Recreationists (n = 2) Individuals who visit HDNR for leisure. They have legitimacy but not power or urgency.</p>
	<p>Local recreation groups or resorts (n = 2) Activity-based groups that seek to represent their members who gain specific benefits from HDNR (e.g., recreation, bird viewing, and water). Their claims are legitimate and urgent but often lack power.</p>
	<p>Businesses (n = 2) Stakeholders who extract wetland resources for final goods manufacture. Their claims are legitimate and urgent but often lack power.</p>
	<p>Local media (n = 2) Stakeholders who drive public opinion and politics. Their claims have legitimacy and urgency, but lack power.</p>
Government	<p>Eswatini Environment Authority (n = 2) A parastatal that authorizes activities or projects after an Environmental Impact Assessment. Possesses legitimate claims and power, but not always urgency.</p>
	<p>Eswatini National Trust Commission (n = 2) A stakeholder who is an administrative authority that administers key legislation and policy affecting HDNR and other nature reserves. Possesses legitimate claims and power, but not always urgency.</p>
	<p>Malolotja Nature Reserve (n = 3) Stakeholders responsible for managing HDNR. They possess legitimate claims, have power, and but not always urgency.</p>
	<p>Ministry of Natural Resources and Energy (n = 2) Stakeholders who provide a monitoring function through River Basin Authorities. Possess legitimate claims and power, but not always urgency.</p>
	<p>Ministry of Tinkhundla Administration (n = 2) A stakeholder who focuses public administration. They possess legitimate claims and power, but not always urgency.</p>

	<p>Ministry of Agriculture (n = 2) Stakeholders who administer key legislation and policy affecting wetlands. They possess legitimate claims and power, but not always urgency.</p>
	<p>Ministry of Tourism and Environmental Affairs (n = 2) Stakeholders who administer key legislation and policy affecting wetlands, to promote sustainable water use and business tourism. They possess legitimate claims, but no power and urgency.</p>
Research Centre	<p>Malkerns Research Station (n = 3) Their output affects the HDNR through information and education. Their claims are legitimate and urgent, but have no power.</p>

Note: The priority different stakeholders would have in wetland management can be described using three power dynamics elements viz. legitimacy, urgency, and power (Mitchell et al., 1997; Simpson et al., 2016). Following Mitchell et al. (1997), legitimacy is a generalized perception that a stakeholder's actions are apt in socially constructed system of beliefs, values, norms, urgency is the extent to which stakeholder claims call for immediate attention, and power refers to a relationship among stakeholders in which one stakeholder can get another stakeholder to do something s/he would not have otherwise done.

Appendix B. Flagged Q-sorts

Table B.1. Rotated factors and flagged Q-sorts.

Empty Cell	Factor 1	Empty Cell	Freq1^a	Factor 2	Empty Cell	Freq2^a	Factor 3	Empty Cell	Freq3^a
EEA1	-0.02		0.00	0.81	x	0.99	-0.06		0.01
EEA2	0.09		0.01	0.67	x	0.98	0.00		0.00
ENTC1	0.20		0.06	0.07		0.03	0.35	x	0.69
ENTC2	-0.25		0.01	0.56	x	0.60	0.41		0.26
HH10	-0.02		0.00	0.44	x	0.91	-0.13		0.01
HH11	0.59	x	0.93	0.15		0.00	-0.28		0.05
HH13	0.19		0.01	0.56	x	0.84	0.24		0.06
HH15	0.10		0.00	0.58	x	0.97	-0.14		0.02
HH19	0.57	x	0.86	-0.04		0.01	0.19		0.12
HH2	0.54	x	0.87	-0.09		0.01	0.11		0.10
HH20	-0.09		0.01	0.17		0.04	0.66	x	0.91
HH3	0.33		0.05	0.41	x	0.49	0.16		0.10
HH5	0.49	x	0.69	0.31		0.14	-0.20		0.07
HH6	0.15		0.01	0.47	x	0.48	0.42		0.34
HH7	0.11		0.02	-0.12		0.01	0.70	x	0.93
HH8	0.39		0.21	-0.01		0.02	0.51	x	0.71
HH9	0.32	x	0.48	0.17		0.08	-0.25		0.11
HMB1	-0.07		0.01	0.70	x	0.92	0.28		0.07
HMB10	0.10		0.01	0.55	x	0.97	-0.12		0.02
HMB11	0.51	x	0.83	-0.18		0.01	0.19		0.10
HMB12	0.60	x	0.62	-0.11		0.02	0.41		0.35
HMB14	0.56	x	0.84	-0.11		0.00	-0.45		0.14
HMB15	0.24		0.04	0.08		0.02	0.64	x	0.91
HMB16	0.61	x	0.87	-0.23		0.02	0.14		0.07
HMB17	0.32		0.14	0.34	x	0.43	0.08		0.04
HMB18	0.83	x	0.98	-0.19		0.01	0.10		0.01
HMB19	0.15		0.04	0.13		0.04	0.56	x	0.85
HMB2	0.66	x	0.73	0.28		0.01	0.27		0.05
HMB20	0.47	x	0.80	0.20		0.05	0.00		0.07

HMB21	0.67	x	0.94	-0.06		0.00	-0.30		0.05
HMB22	0.57	x	0.89	-0.09		0.01	0.05		0.08
HMB23	0.63	x	0.94	0.04		0.01	0.05		0.03
HMB24	0.62	x	0.93	0.10		0.01	0.06		0.03
HMB25	0.63	x	0.87	-0.06		0.01	0.27		0.11
HMB3	0.64	x	0.88	0.31		0.03	-0.26		0.04
HMB4	0.60	x	0.67	0.47		0.16	-0.13		0.02
Empty Cell	Factor 1		Freq1 ^a	Factor 2		Freq2 ^a	Factor 3		Freq3 ^a
HMB5	0.18		0.02	0.53	x	0.83	0.15		0.06
HMB8	0.49	x	0.69	0.37		0.19	-0.24		0.03
HMB9	0.07		0.01	0.34	x	0.69	0.06		0.02
Media1	0.54	x	0.83	0.16		0.04	0.07		0.08
Media2	0.61	x	0.89	0.18		0.01	0.10		0.03
MNR1	0.08		0.01	0.47	x	0.91	0.10		0.05
MNR2	0.41	x	0.78	-0.11		0.01	-0.14		0.08
MNR3	-0.05		0.01	0.56	x	0.97	0.03		0.01
MoA1	-0.04		0.00	0.75	x	0.98	-0.36		0.01
MoA2	0.49	x	0.81	-0.01		0.02	0.20		0.14
MoT1	0.19		0.04	0.30		0.32	0.33		0.49
MOTEA1	-0.10		0.01	0.61	x	0.87	0.28		0.11
MOTEA2	0.02		0.02	0.24		0.11	0.54	x	0.83
MRS1	0.75	x	0.98	0.09		0.01	-0.08		0.01
MRS2	0.04		0.01	0.66	x	0.98	-0.06		0.01
MRS3	0.19		0.01	0.61	x	0.79	0.27		0.10
Recreat1	0.16		0.04	0.06		0.01	0.35	x	0.65
Resort1	0.53	x	0.86	0.25		0.03	-0.26		0.05
Resort2	0.62	x	0.81	-0.18		0.01	0.30		0.16
WRB2	-0.31		0.02	0.50	x	0.48	0.36		0.22
No Loaded	27			20			8		
Eigenvalues	10.17			7.77			4.87		
Percent Explained	18.16			13.87			8.69		

Freq: Percentage of 3000 bootstraps where the Q-sort was flagged on this factor

Appendix C. Factors Z-scores

Table C.1. Factors Z-scores.

SID	Statement	Factor score 1	Z-score 1	Factor score 2	Z-score 2	Factor score 3	Z-score 3
1	Purifying water	4	1.518	5	1.931	5	2.311
2	Aquatic habitat	0	-0.074	4	1.429	1	0.697
3	Conservation of threatened plants and animal species	0	-0.047	5	1.502	4	1.736
4	Gradual discharge of stored water (water regulation)	4	1.175	4	1.413	5	1.845
5	Natural flood control	0	0.236	3	1.123	3	1.011
6	Carbon sequestration	0	0.077	3	1.315	-4	-1.228
7	Nutrient cycling and sediment transport	-1	-0.442	2	0.550	-5	-1.571
8	Pollination	-3	-1.081	0	0.172	-4	-1.178
9	Erosion control	2	0.741	1	0.494	2	0.780
10	Regulation of human diseases	-1	-0.200	0	-0.058	-2	-0.765
11	Waste treatment	1	0.383	2	0.583	-2	-0.897
12	Biological control	-2	-0.904	1	0.546	-1	-0.567
13	Air quality maintenance	1	0.359	2	0.812	-2	-0.837
14	Fibre	0	0.098	0	-0.258	-1	-0.680
15	Food	1	0.285	2	0.618	0	-0.271
16	Medicinal plants	1	0.370	4	1.346	0	-0.268
17	Household/municipal water	5	2.627	1	0.487	4	1.748
18	Hydropower	5	1.831	-3	-1.203	-2	-0.730
19	Commercial irrigation	3	1.037	-3	-1.124	-1	-0.513
20	Personal irrigation	3	1.091	-2	-0.707	3	1.049
21	Water for livestock	4	1.303	-1	-0.459	3	1.045
22	Manufacturing and industrial	3	0.963	-4	-1.258	-5	-1.411
23	Mining of soapstone	-2	-0.811	-4	-1.606	-3	-1.105
24	Fighting fires	2	0.629	-1	-0.509	0	-0.158
25	Supporting commercial land-based recreation	-4	-1.170	-2	-0.721	0	-0.398
26	Fishing	2	0.400	-1	-0.480	1	0.129
27	Dam/reservoir hunting	-5	-1.430	-4	-1.217	1	0.187
28	Land-based hunting	-3	-1.111	-5	-2.050	-4	-1.131
29	Dam/reservoir recreation	-2	-0.775	-1	-0.424	-1	-0.583

30	Commercial wetland-based recreation	-1	-0.428	-2	-0.630	0	-0.021
31	Recreation/leisure activities done near wetland	-4	-1.264	-1	-0.296	2	0.843
32	Physically and mentally challenging recreation	-4	-1.273	0	-0.109	-3	-0.897
33	Education management and science	2	0.562	3	1.225	-3	-0.978
34	Knowledge systems	-1	-0.501	0	0.141	1	0.144
35	Swati spiritual values	-5	-1.995	-5	-1.732	2	0.738
36	Swati cultural values	-3	-1.090	-3	-1.044	0	0.080
37	Preserving landscapes	0	-0.009	1	0.386	1	0.265
38	Preserving livelihoods through income generation	1	0.351	1	0.527	4	1.314
39	Inspirational values	-1	-0.511	-2	-0.788	-1	-0.481
40	Aesthetic values	-2	-0.921	0	0.074	2	0.748

Appendix D. Factors composition

Table D.1. Factor 1 composition.

ID	Stakeholder type	Farm Size (hectares, ha)	Gender (0 – male, 1 – female)	HW Times ^a	Cattle (number of cattle)	Loadings F1
HMB18	Household	0	0	0	0	0.83
MRS1	Malkerns Research Station	0	1	0	5	0.75
HMB21	Household	0	1	0	0	0.67
HMB2	Household	0	0	2	0	0.66
HMB3	Household	0	1	0	0	0.64
HMB23	Household	0	1	0	0	0.63
HMB25	Household	0	1	0	0	0.63
HMB24	Household	0	0	0	0	0.62
Resort2	Resort	0.25	0	1	2	0.62
HMB16	Household	0	0	0	0	0.61
Media2	Media	0	0	6	0	0.61
HMB12	Household	0	0	0	0	0.6
HMB4	Household	0	1	20	0	0.6
HH11	Household - farmer	1	0	365	0	0.59
HH19	Household - farmer	2	1	1	22	0.57
HMB22	Household	0	1	0	0	0.57
HMB14	Household	0	0	3	0	0.56
HH2	Household - handcraft	6	1	365	10	0.54
Media1	Media	2	1	4	0	0.54
Resort1	Resort	1	1	365	12	0.53
HMB11	Household	0	1	0	0	0.51
HH5	Household - livestock	5	1	365	60	0.49
HMB8	Household	0	1	5	0	0.49
MoA2	Ministry of Agriculture	0	0	50	0	0.49
HMB20	Household	0	1	0	0	0.47
MNR2	Maloloja Nature Reserve	2	1	365	4	0.41
HH9	Household – farmer	1	1	20	0	0.32

^aNo of times the respondent visited HDNR in the last year (365 corresponds to households living with the HDNR area).

Table D.2. Factor 2 composition.

ID	Stakeholder type	Farm size (hectares, ha)	Gender (0 – male, 1 – female)	HW times^a	Cattle (number of cattle)	Loadings F2
EEA1	Eswatini Environment Authority	0.5	0	3	9	0.81
MoA1	Ministry of Agriculture	0	1	200	0	0.75
HMB1	Household	0	0	5	0	0.7
EEA2	Eswatini Environment Authority	0	0	6	0	0.67
MRS2	Malkerns Research Station	0	0	15	0	0.66
MRS3	Malkerns Research Station	0	0	12	0	0.61
MOTEA1	Min. of Tourism and Environmental Affairs	0	1	1	0	0.61
HH15	Household – farmer	0.5	1	2	0	0.58
MNR3	Maloloja Nature Reserve	2	0	365	0	0.56
HH13	Household - Soapstone user	0.25	0	1	0	0.56
ENTC2	ENTC	0.9	0	365	0	0.56
HMB10	Household 3	0	1	1	0	0.55
HMB5	Household	0	0	0	0	0.53
WRB2	Water expert	0	0	5	0	0.5
MNR1	Maloloja Nature Reserve	2.5	1	3	5	0.47
HH6	Household - farmer	1.5	0	365	6	0.47
HH10	Household - farmer	2	1	365	10	0.44
HH3	Household - fishermen	1	0	365	0	0.41
HMB9	Household	0	0	0	0	0.34
HMB17	Household	0	1	0	0	0.34

^aNo of times the respondent visited HDNR in the last year (365 corresponds to households living with the HDNR area).

Table D.3. Factor 3 composition.

ID	Stakeholder type	Farm Size (hectares, ha)	Gender (0 – male, 1 – female)	HW times^a	Cattle (number of cattle)	Loadings F3
HH7	Household - farmer	0.5	0	365	0	0.7
HH20	Household - farmer	2	0	1	8	0.66
HMB15	Household	0	1	0	0	0.64
HMB19	Household	0	1	0	0	0.56
MOTEA2	Ministry of Tourism and Environmental Affairs	1.2	0	0	2	0.54
HH8	Household - farmer	2	0	365	0	0.51
ENTC1	ENTC	5	1	1	25	0.35
Recreat1	Recreational user	0.5	1	12	0	0.35