Frequent Flooding and Perceived Adaptive Capacity of Subarctic Kashechewan First Nation, Canada

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APPENDIX S1:
NON-PARAMETRIC INFERENTIAL TEST STATISTICS

The nonparametric one-sample chi-square (χ^2) (also called the goodness-of-fit test) statistic was used to determine whether each indicator's sample data was consistent with its hypothesized distribution. In other words, the observed values were compared with the expected values to determine if the sample data represented the data expected to be found in the population. The χ^2 test also determined which indicators as one-sample have a greater effect (size of the contribution) than others in assessing the perceived adaptive capacity. In fact, effect size indicates the proportion of variance in one category of an indicator explained by variance in the other, which was calculated using the following formula.

$$ES = \chi^2/(N\,(J-1))$$

where ES = Effect size value, χ^2 = chi-square value, N = sample size, and J = number of categories of the variable.

We used Spearman's (rho) correlation coefficient to test if there was a significant, monotonic relationship between ordinal (rank-ordered) variables. The effect size of the correlation between the determinants was also estimated by squaring the values of rho. For instance, the effect size of rho 0.356 will be rho 0.1276 or 12.76%. The larger the effect size, the larger will be the impact, assuming other things remain the same (Fritz et al., 2012).

The Friedman's χ^2 two-way ANOVA (analysis of variance) tests by ranks of related samples was performed because the data are related rather than independent samples. Friedman's χ^2 measured two or more comparable indicators from the same sample to compare their distributions. Kendall's W (coefficient of concordance) test was conducted to calculate the effect size estimates, which cannot be calculated directly from Friedman's χ^2 (Kraemer et al., 2003; Fritz et al., 2012). Kendall's W determines whether an agreement between ranks of indicators has been reached, and if the strength of the agreement increases or decreases in addition to its relative strength (Cafiso et al., 2013). Kendall's W calculated the effect size using the following formula developed by Tomczak and Tomczak (2014), which assumes the value between 0 (suggesting no relationship/agreement) and 1 (indicating a perfect relationship/agreement):

$$W = \chi^2/(N\,(k-1)$$

where W = Kendall's (K) value, χ^2 = Friedman's value, N = sample size, and K = number of indicators of the determinant.

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APPENDIX S2.
PERCEIVED ADAPTIVE CAPACITY: CENTRAL MEASURES OF TENDENCY OF INDICATORS

Indicator	Mean	Median	Mode	SD	Variance	Range
Reciprocity	4.16	4.00	4	0.778	0.605	3
Expectation	4.07	4.00	4	0.818	0.670	4
Participation by Band	3.46	3.00	3	1.083	1.172	4
Participation by government	3.43	3.00	3	1.092	1.192	4
Awareness	3.48	3.50	4	0.838	0.702	3
Traditional knowledge	3.32	3.00	3	0.970	0.940	4
Other knowledge	3.44	3.00	3	0.901	0.811	4
Information: FM radio	4.37	4.00	4	0.626	0.392	2
Information: social media	4.11	4.00	4	0.880	0.774	4
Support by Band	4.04	4.00	4	0.873	0.762	4
Support by government	3.92	4.00	4	0.890	0.792	4
Information provided by Band	3.97	4.00	4	0.893	0.797	4
Health care provided by clinic	3.79	4.00	4	1.011	1.022	4
Education by community schools	3.57	4.00	4	1.082	1.170	4
Tap water supply	3.10	3.00	4	1.209	1.462	4
Anticipation	3.43	3.00	3	0.887	0.774	3
Resilience	3.04	3.00	3	0.959	0.919	4
Preparedness	4.07	4.00	4	0.804	0.647	3
Experience	4.04	4.00	4	0.763	0.582	3
Flexibility	3.70	4.00	4	0.905	0.819	3
Migration	4.33	5.00	5	0.924	0.854	3

APPENDIX S3.
DESCRIPTIVE STATISTICS OF INDICATORS

Indicator	Strongly agree	Agree	Neutral	Disagree	Strongly disagree	Total
Reciprocity	37% (33)	44% (40)	17% (15)	2% (2)	0% (0)	100% (90)
Expectation	31% (28)	49% (44)	17% (15)	2% (2)	1% (1)	100% (90)
Participation by Band	20% (18)	27% (24)	37% (33)	12% (11)	4% (4)	100% (90)
Participation by government	21% (19)	23% (21)	37% (33)	16% (14)	3% (3)	100% (90)
Awareness	10% (9)	40% (36)	38% (34)	12% (11)	0% (0)	100% (90)
Traditional knowledge	12% (11)	29% (26)	40% (36)	17% (15)	2% (2)	100% (90)
Other knowledge	11% (10)	37% (33)	40% (36)	10% (9)	2% (2)	100% (90)
Information: FM radio	44% (40)	48% (43)	8% (7)	0% (0)	0% (0)	100% (90)
Information: social media	36% (32)	47% (42)	13% (12)	2% (2)	2% (2)	100% (90)
Support by Band	30% (27)	52% (47)	12% (11)	3% (3)	2% (2)	100% (90)
Support by government	26% (23)	50% (45)	17% (15)	7% (6)	1% (1)	100% (90)
Information provided by Band	27% (24)	53% (48)	11% (10)	8% (7)	1% (1)	100% (90)
Health care provided by clinic	26% (23)	43% (39)	17% (15)	13% (12)	1% (1)	100% (90)
Education by community schools	18% (16)	48% (43)	9% (8)	24% (22)	1% (1)	100% (90)
Tap water supply	10% (9)	36% (32)	21% (19)	21% (19)	12% (11)	100% (90)
Anticipation	14% (13)	27% (24)	47% (42)	12% (11)	0% (0)	100% (90)
Resilience	3% (3)	31% (28)	39% (35)	20% (18)	7% (6)	100% (90)
Preparedness	30% (27)	52% (47)	12% (11)	6% (5)	0% (0)	100% (90)
Experience	29% (26)	49% (44)	20% (18)	2% (2)	0% (0)	100% (90)
Flexibility	19% (17)	43% (39)	27% (24)	11% (10)	0% (0)	100% (90)
Migration	58% (52)	24% (22)	11% (10)	7% (6)	0% (0)	100% (90)

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