

**CONSTRUCTING PARTNERSHIP:
A DELPHI STUDY OF SHARED RESOURCE MANAGEMENT
IN THE NORTH YUKON**

by

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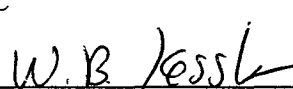
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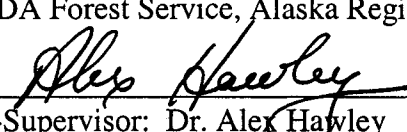
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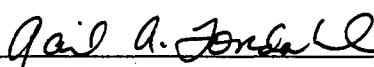
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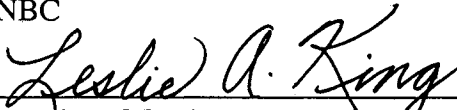

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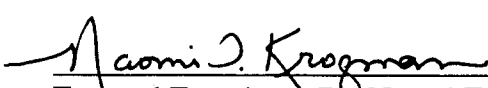

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ABSTRACT

Shared resource management (SRM) offers an important approach for future stewardship of resources and is intended to blend Aboriginal and government approaches, gain greater Aboriginal community support, and enhance the effectiveness of numerous resource management functions. Innovative methods are needed to achieve and advance the ambitious goals of power-sharing, equity, and the integration of knowledge inherent in SRM. The goals of the present study were to develop and test a method for First Nation people and government resource managers to explore the characteristics of effective SRM and to identify its essential elements for the north Yukon. A standard Delphi method was modified to specifically accommodate communication among Vuntut Gwitchin experts, Yukon government experts, and federal government experts. This dissertation examines the effectiveness of this modified Delphi method, its impacts on participants, and the key characteristics that contributed to its success.

The modified Delphi method succeeded in engendering participation, in facilitating cross-cultural communication among diverse experts in remote locations, and in generating critical, structured thinking about a complex, common problem. Characteristics of the approach that contributed to these accomplishments included expert selection and motivation, communication adaptations, conflict management, and maintenance of a positive group climate. Participating experts experienced social learning (cognitive enhancement and moral development), empowerment, and personal and professional change. Eleven essential elements of north Yukon SRM were identified, namely: a strong community-based approach to SRM; development of a common SRM vision and shared goals; skilled facilitation of a SRM group; partnership building efforts; elimination of cultural biases and stereotypes; effective communication among SRM

partners; involvement of effective Aboriginal and government SRM representatives; collaboration among government agencies and First Nations to collect, understand, and store knowledge and information related to both science-based resource management systems and traditional environmental knowledge and management systems; using all available knowledge and information to make SRM decisions; development and use of effective SRM communication methods and mediums; and fulfilling the communication requirements of SRM. Findings in this research suggest that the modified Delphi method may have relevant application in other SRM settings and cultural contexts, as well as to broader cross-cultural issues.

TABLE OF CONTENTS

ABSTRACT	i
TABLE OF CONTENTS	iii
LIST OF TABLES	xi
LIST OF FIGURES	xvi
LIST OF ACRONYMS	xvii
ACKNOWLEDGEMENTS	xviii
CHAPTER 1 - INTRODUCTION	1
1.0 OVERVIEW	1
1.1 TERMINOLOGY	3
CHAPTER 2 - LITERATURE REVIEW	5
2.0 SHARED RESOURCE MANAGEMENT	5
2.0.1 Definitions	5
2.0.2 Models of SRM	6
2.0.3 Two Systems of Resource Management	7
2.0.4 SRM in Practice	9
2.0.5 Potential SRM Benefits	12
2.0.6 Potential SRM Barriers	13
2.1 THE DELPHI METHOD	14
2.1.1 Idea Generating Strategies	14
2.1.2 History of the Delphi Method	16
2.1.3 Basic Features of the Delphi Method	18
2.1.4 Main Stages and Outcomes of the Delphi Method	19
2.1.5 Advantages of the Delphi Method	21
2.1.6 Delphi Experts	21
2.1.7 Delphi Group Size	24
2.1.8 Instructions	24
2.1.9 Consensus	25
2.1.10 Continuity	26
2.1.11 Building Relationships	26
2.1.12 Participant Satisfaction	27
2.1.13 When to Stop	27
2.1.14 Delphi Response Rates	28
2.1.15 Analysis of Delphi Experts' Input	29
2.2 BACKGROUND ON VUNTUT GWITCHIN FIRST NATION	30

2.2.1 Preparatory Studies and Preliminary Doctoral Research	30
2.2.2 The Historic Gwitchin	31
2.2.3 Traditional Territory of the Gwitchin	35
2.2.4 Vuntut Gwitchin Land Use	35
2.2.5 The People	36
2.2.6 Political and Regulatory Context of this Study	37
CHAPTER 3 - METHODS	40
3.0 OVERVIEW	40
3.0.1 Design	41
3.0.2 The Delphi Process	43
3.1 EXPERT SELECTION	46
3.2 METHODOLOGICAL ADAPTATIONS	52
3.2.1 Distance	52
3.2.2 Cultural Considerations	53
3.2.2.1 Community Researcher	53
3.2.2.2 Local Translators	54
3.2.2.3 Cultural Translation of Delphi Questions	55
3.2.2.4 Design of Research Workbooks	56
3.2.2.5 Cultural Translation of Delphi Feedback	57
3.2.2.6 Design of Feedback Workbooks	58
3.2.2.7 Building Relationships	58
3.2.2.8 Remuneration	60
3.2.3 Communication	61
3.2.3.1 Communication of Delphi Questions and Feedback	61
3.2.3.2 Data Collection	61
3.2.3.2.1 <i>Pre-Testing</i>	61
3.2.3.2.2 <i>Government Experts</i>	62
3.2.3.2.3 <i>Vuntut Gwitchin Experts</i>	63
3.2.3.3 Contact Procedures	66
3.2.3.4 Expert Contact List	67
3.2.3.5 Monitoring Participant Satisfaction	68
3.3 DATA MANAGEMENT AND ANALYSIS	69
3.3.1 Data Management	69
3.3.2 Content Analysis	72
3.3.2.1 Group Content Analysis	72
3.3.2.2 Individual Content Analysis	73
3.3.3 Checks of Data Integrity	74
3.3.3.1 Verification	74
3.3.3.2 Reliability Checks of Content Analysis	75
3.3.4 Key Points of Feedback	77
3.3.5 Data Reduction	79
3.4 SPECIFIC APPLICATION OF THE MODIFIED DELPHI METHOD	80
3.4.1 Delphi Round 1	80
3.4.2 Delphi Round 2	82

3.4.3 Delphi Round 3	84
3.4.4 Delphi Round 4	87
3.4.5 Post-Delphi Round 1	89
3.4.6 Post-Delphi Round 2	91
3.4.7 In-Progress Evaluation	94
3.5 FRAMEWORK ANALYSIS	96
 CHAPTER 4 - RESULTS	 99
4.0 EXPERT SELECTION	99
4.0.1 Panel Composition	99
4.0.2 Panel Attrition and Expert Response Rates	102
4.1 DELPHI ROUND 1 RESULTS	104
4.1.1 Cross-Cultural Understanding	104
4.1.2 Shared Management Process	105
4.1.3 Shared Decision-Making	106
4.1.4 Communication	107
4.1.5 Relationship Building	108
4.1.6 Capacity Development	108
4.1.7 Knowledge Systems	110
4.1.8 Maintaining Relationships with the Land and Developing New Opportunities	112
4.2 DELPHI ROUND 2 RESULTS	113
4.3 DELPHI ROUND 3 RESULTS	119
4.4 DELPHI ROUND 4 RESULTS	121
4.5 FRAMEWORK ANALYSIS	132
4.5.1 Effective SRM Representatives	133
4.5.2 Cross-Cultural Understanding	136
4.5.3 Skilled Facilitation	140
4.5.4 Guidelines for SRM Partnership	143
4.5.5 Operational Procedures and Ground Rules	144
4.5.6 Knowledge Systems	145
4.5.7 SRM Negotiation Process	148
4.5.8 Community-Based Approach to SRM	149
4.5.9 SRM Communication	151
4.6 IN-PROGRESS DELPHI EVALUATION	154
4.7 OVERALL METHODOLOGICAL AND IMPACT EVALUATION	156
4.7.1 General Evaluation of the Delphi Method	156
4.7.2 Evaluation of Cultural Adaptations	161
4.7.3 Evaluation of Communication Adaptations	168
4.7.4 Specific Merits and Limitations	172
4.7.5 Evaluation of Project Impacts	175
4.7.6 Delphi Research Product Evaluation	181

CHAPTER 5 - DISCUSSION-----	184
5.0 OVERVIEW -----	184
5.1 DELPHI ACCOMPLISHMENTS -----	185
5.1.1 Expert Participation -----	185
5.1.2 Cross-Cultural Communication -----	186
5.1.3 Idea Generation -----	188
5.2 KEY CHARACTERISTICS OF THE DELPHI APPROACH -----	189
5.2.1 Expert Selection and Motivation -----	190
5.2.1.1 The Concept of Expert -----	190
5.2.1.2 Expert Selection Procedures -----	191
5.2.1.3 Expert Selection Criteria -----	192
5.2.1.4 Panel Composition -----	193
5.2.1.5 Expert Motivation Factors -----	194
5.2.1.5.1 <i>Personal and Professional Relevance</i> -----	195
5.2.1.5.2 <i>Dissatisfaction with the Status Quo</i> -----	195
5.2.1.5.3 <i>Project Timing</i> -----	196
5.2.1.5.4 <i>Potential for Growth</i> -----	196
5.2.1.5.5 <i>Confidence in the Expert Group</i> -----	197
5.2.1.5.6 <i>Confidence in the Delphi Approach</i> -----	197
5.2.1.5.7 <i>Concern for Performance</i> -----	198
5.2.1.5.8 <i>Participation Incentives</i> -----	198
5.2.1.5.9 <i>Sense of Responsibility</i> -----	199
5.2.1.5.10 <i>Useful Outcomes</i> -----	199
5.3 MANAGING GROUP INTERACTIONS -----	200
5.3.1 Communication -----	200
5.3.1.1 Cultural Differences -----	200
5.3.1.1.1 <i>Community Researcher</i> -----	201
5.3.1.1.2 <i>Language</i> -----	203
5.3.1.1.3 <i>Data Collection Methods</i> -----	203
5.3.1.1.4 <i>Feedback</i> -----	205
5.3.1.2 Individual Differences -----	207
5.3.1.2.1 <i>Status</i> -----	208
5.3.1.2.2 <i>Power</i> -----	210
5.3.1.2.3 <i>Personality</i> -----	213
5.3.1.3 Environmental Factors -----	213
5.3.1.4 Non-Verbal Communication -----	215
5.3.1.5 Logistics -----	216
5.3.2 Conflict Management -----	217
5.3.3 Group Climate -----	220
5.3.3.1 Mutual Understanding -----	221
5.3.3.2 Team Building -----	222
5.3.3.3 Trust -----	223
5.3.3.4 Continuity -----	224
5.3.4 Delphi Researcher Qualities and Skills -----	225
5.3.4.1 Qualities -----	226

5.3.4.2 Skills -----	229
5.4 DELPHI IMPACTS -----	231
5.4.1 Social Learning -----	232
5.4.1.1 Cognitive Enhancement -----	232
5.4.1.2 Moral Development -----	234
5.4.2 Empowerment -----	235
5.4.3 Action -----	238
5. 5 ESSENTIAL ELEMENTS OF SRM -----	239
5.5.1 SRM Participants -----	239
5.5.1.1 SRM Representatives -----	240
5.5.1.1.1 <i>General Attributes of Effective SRM Representatives</i> -----	241
5.5.1.1.2 <i>Specific Attributes of First Nation Representatives</i> -----	245
5.5.1.1.3 <i>Specific Attributes of Government Representatives</i> -----	246
5.5.1.1.4 <i>Challenges to SRM Representation Systems</i> -----	247
5.5.1.1.4.1 Selection Procedures -----	248
5.5.1.1.4.2 Community Heterogeneity -----	249
5.5.1.1.4.3 Authority -----	249
5.5.1.1.4.4 Accountability -----	250
5.5.1.1.4.5 Continuity -----	252
5.5.1.1.4.6 Community Linkages -----	252
5.5.1.1.4.7 Support Systems -----	254
5.5.1.2 SRM Facilitators -----	255
5.5.1.2.1 <i>Facilitator Characteristics</i> -----	256
5.5.1.2.2 <i>Facilitator Responsibilities</i> -----	259
5.5.1.2.3 <i>Facilitator Development</i> -----	264
5.5.1.3 SRM Administrative Support Staff -----	265
5.5.1.4 SRM Funders -----	266
5.5.1.5 Community Members -----	267
5.5.1.5.1 <i>Defining Community</i> -----	268
5.5.1.5.2 <i>Types of Community Participation in SRM</i> -----	270
5.5.1.5.2.1 Government Control -----	270
5.5.1.5.2.2 Community Control -----	271
5.5.1.5.2.3 Participatory SRM -----	272
5.5.1.5.3 <i>Rationale for Participatory SRM</i> -----	273
5.5.1.5.4 <i>Local Participants</i> -----	276
5.5.1.5.5 <i>Three Key Community Linkages</i> -----	278
5.5.2 SRM Partnerships -----	280
5.5.2.1 Cross-Cultural Understanding -----	281
5.5.2.1.1 <i>Impediments to Cross-Cultural Understanding</i> -----	282
5.5.2.1.1.1 Stereotypes -----	282
5.5.2.1.1.2 Superiority and Dismissiveness -----	283
5.5.2.1.1.3 Limited Exposure -----	284
5.5.2.1.1.4 Mistrust -----	284
5.5.2.1.1.5 Abuse of Power -----	285
5.5.2.1.1.6 External Constraints -----	286
5.5.2.1.2 <i>Cultivation of Cross-Cultural Understanding</i> -----	287

5.5.2.1.2.1 Developing Awareness-----	288
5.5.2.1.2.2 Cultural Translators -----	290
5.5.2.1.2.3 Trust -----	291
5.5.2.1.2.4 "Getting Out on the River" -----	293
5.5.2.1.2.5 Training -----	294
5.5.2.2 Guiding Principles for SRM -----	296
5.5.2.2.1 Co-operation -----	298
5.5.2.2.2 Respect -----	299
5.5.2.2.3 Inclusiveness -----	302
5.5.2.2.4 Sharing -----	303
5.5.2.2.5 Equity-----	304
5.5.2.2.6 Meaningful Communication-----	304
5.5.2.2.7 Accountability-----	305
5.5.2.2.8 Trust-----	305
5.5.2.2.9 Listening -----	306
5.5.2.2.10 Mutual Support -----	307
5.5.2.3 Operating Procedures and Ground Rules -----	308
5.5.2.3.1 Mentally Engaging Process -----	309
5.5.2.3.1.1 Be Prepared-----	309
5.5.2.3.1.2 Attend Faithfully-----	309
5.5.2.3.1.3 Distribute an Agenda-----	309
5.5.2.3.1.4 Engage in Critical Reflection -----	310
5.5.2.3.1.5 Use Culturally Appropriate Communication Tools-----	310
5.5.2.3.1.6 Ensure the Use of Aboriginal Languages -----	311
5.5.2.3.1.7 Solicit the Involvement of Outside Experts-----	311
5.5.2.3.2 Emotionally Supportive Environment -----	311
5.5.2.3.2.1 Take Time-----	311
5.5.2.3.2.2 Have Fun Together -----	312
5.5.2.3.2.3 Be Yourself -----	313
5.5.2.3.2.4 Be Sensitive-----	313
5.5.2.3.3 Physically Affirming Context -----	314
5.5.2.3.3.1 Consider the Location -----	314
5.5.2.3.3.2 Schedule Action-----	314
5.5.2.3.3.3 Seating Arrangements-----	315
5.5.2.3.3.4 Establish a Visitor Policy -----	315
5.5.2.3.4 Spiritually Involving Atmosphere -----	316
5.5.2.3.4.1 Incorporate Ritual and Spirituality -----	316
5.5.2.3.4.2 Celebrate Accomplishments-----	317
5.5.3 SRM Communication-----	318
5.5.3.1 Multi-Dimensional -----	319
5.5.3.1.1 Within-Party Communication-----	319
5.5.3.1.2 SRM Group Communication-----	320
5.5.3.1.3 Institutional Communication-----	320
5.5.3.1.4 Community Communication-----	321
5.5.3.1.5 Stakeholder Communication -----	322
5.5.3.1.6 General Public Communication-----	323

5.5.3.2 Multi-Media-----	323
5.5.3.3 Sensitivity to Cultural Differences in Communication-----	325
5.5.3.3.1 <i>Linguistic Barriers</i> -----	325
5.5.3.3.2 <i>Ideological Differences</i> -----	327
5.5.3.3.3 <i>Elder's Communication</i> -----	329
5.5.3.3.4 <i>Communication Styles</i> -----	330
5.5.4 SRM Knowledge -----	333
5.5.4.1 Reasons for a New Alliance -----	334
5.5.4.1.1 <i>Pluralism and Interdependency</i> -----	335
5.5.4.1.2 <i>Policy Requirements</i> -----	336
5.5.4.1.3 <i>Legal Requirements</i> -----	337
5.5.4.1.4 <i>Human Rights Mandate</i> -----	338
5.5.4.2 Problems and Solutions-----	339
5.5.4.2.1 <i>Problems of Acceptance</i> -----	339
5.5.4.2.1.1 Erosion of TEKMS -----	339
5.5.4.2.1.2 Dismissiveness -----	340
5.5.4.2.1.2 Romanticism-----	340
5.5.4.2.2 <i>Solutions to Problems of Acceptance</i> -----	341
5.5.4.2.2.1 Documentation and Transmission of TEKMS-----	341
5.5.4.2.2.2 Acknowledgement and Respect -----	341
5.5.4.2.2.3 Recognition of Limitations -----	342
5.5.4.2.2.4 Validation -----	343
5.5.4.2.3 <i>Problems of Understanding</i> -----	344
5.5.4.2.3.1 Multiple Definitions -----	344
5.5.4.2.3.2 Linguistic and Cultural Barriers -----	345
5.5.4.2.3.3 Specialisation-----	346
5.5.4.2.3.4 Characteristics of Knowledge-----	346
5.5.4.2.3.5 Importance of the Land -----	347
5.5.4.2.3.6 Entanglement of Values and Facts -----	348
5.5.4.2.4 <i>Solutions to Problems of Understanding</i> -----	348
5.5.4.2.4.1 Go Beyond Definitions -----	348
5.5.4.2.4.2 Recognise Similarities -----	349
5.5.4.2.4.3 Create Learning Opportunities-----	349
5.5.4.2.4.4 Reveal Value Frameworks -----	350
5.5.4.2.5 <i>Problems of Implementation</i> -----	351
5.5.4.2.5.1 Misuse of TEKMS-----	351
5.5.4.2.5.2 Marginalisation of TEKMS -----	351
5.5.4.2.5.3 Power Sharing-----	352
5.5.4.2.5.4 Lack of Guidelines-----	353
5.5.4.2.5.5 Challenges of Documentation-----	353
5.5.4.2.6 <i>Solutions to Problems of Implementation</i> -----	354
5.5.4.2.6.1 Involve Aboriginal People-----	354
5.5.4.2.6.2 Develop Guidelines and Protocols -----	354
5.5.4.2.6.3 Ensure Aboriginal Control of the TEKMS Research Agenda-----	355
5.5.4.2.6.4 Honour Intellectual Property Rights -----	356
5.5.4.2.6.5 Balance Power-----	357

5.5.4.2.6.6 Develop a System for Storing and Accessing Information -----	358
5.5.5 SRM Negotiation-----	360
5.5.5.1 Consensus Decision-Making -----	361
5.5.5.2 Community Participation in SRM Decision-Making -----	363
5.5.5.2.1 <i>Preparation</i> -----	363
5.5.5.2.2 <i>Time Frames</i> -----	363
5.5.5.2.3 <i>Meetings</i> -----	364
5.5.5.2.4 <i>Dependency</i> -----	364
5.5.5.2.5 <i>Community Power Dynamics</i> -----	365
5.5.5.2.6 <i>Parochialism</i> -----	366
5.5.5.2.7 <i>Disenfranchisement</i> -----	366
5.5.5.3 SRM Negotiation Framework -----	367
5.5.5.3.1 <i>Developing a Common Vision</i> -----	367
5.5.5.3.1.1 Communication Initiatives -----	368
5.5.5.3.1.2 Participants -----	368
5.5.5.3.1.3 The Visioning Process -----	369
5.5.5.3.1.4 Enshrining the Vision -----	370
5.5.5.3.2 <i>Developing a SRM Strategy</i> -----	371
5.5.5.4 Community Participation in SRM Implementation -----	373
5.5.5.4.1 <i>Transferring Benefits</i> -----	373
5.5.5.4.2 <i>Strengthening Community Institutions</i> -----	374
5.5.5.4.3 <i>Ensuring Equity</i> -----	375
5.5.5.5 SRM Monitoring and Evaluation -----	375
5.6 FUTURE MODIFICATIONS AND APPLICATIONS -----	378
5.6.1 Limitations -----	378
5.6.2 Suggested Modifications -----	381
5.6.3 Recommendations for Future Applications -----	385
5.7 SUMMARY OF CONCLUSIONS -----	389
 REFERENCES -----	 390
 APPENDIX A -----	 423
 APPENDIX B -----	 424
 APPENDIX C -----	 427
 APPENDIX D -----	 431

LIST OF TABLES

Table 2.1: Comparison of Interacting Group Techniques and the Nominal Group Technique (adapted from the work of Delbecq et al., 1975 and Needham & deLoe, 1990).-----	17
Table 2.2: Comparison of Delphi techniques in terms of major defining characteristics (adapted from the work of Needham & deLoe, 1990).-----	20
Table 3.1: An overview of the three research phases and six rounds of this Delphi application.-----	43
Table 3.2: Expert selection criteria and the indicators and information sources used to assess them.-----	47
Table 3.3: Senior bureaucrats and VGFN leaders contacted to solicit Delphi panel nominations.-----	48
Table 3.4: Sample expert selection matrix displaying relevant personal details for four nominated Delphi candidates.-----	49
Table 3.5: Sample expert self-assessment form detailing one Delphi candidate's rating of his expertise according to specified selection criteria.-----	51
Table 3.6: Two examples of feedback in the form of combined summary statements prepared from several interrelated codes and summary statements.-----	78
Table 3.7: Introductory materials from Delphi Round 1 illustrating adaptations for each expert group.-----	81
Table 3.8: Delphi Round 1 data collection and management methods illustrating adaptations for each expert group.-----	82
Table 3.9: Delphi Round 2 feedback materials illustrating adaptations for each expert group.-----	83
Table 3.10: Delphi Round 2 data collection and management methods illustrating adaptations for each expert group.-----	84
Table 3.11: Delphi Round 3 feedback materials illustrating adaptations for each expert group. -----	86
Table 3.12: Delphi Round 3 data collection and management methods illustrating adaptations for each expert group.-----	87

Table 3.13: Delphi Round 4 feedback materials illustrating adaptations for each expert group.-----	88
Table 3.14: Delphi Round 3 data collection and management methods illustrating adaptations for each expert group.-----	89
Table 3.15: Post-Delphi Round 1 feedback materials illustrating adaptations for each expert group.-----	90
Table 3.16: Post-Delphi Round 1 data collection and management methods illustrating adaptations for each expert group.-----	91
Table 3.17: Post-Delphi Round 2 feedback materials illustrating adaptations for each expert group.-----	93
Table 3.18: Post-Delphi 2 data collection methods illustrating cross-cultural adaptations.-----	94
Table 3.19: In-progress evaluation feedback materials illustrating adaptations for each expert group.-----	95
Table 3.20: In-progress evaluation data collection methods illustrating adaptations for each expert group.-----	96
Table 3.21: Sample thematic chart of summary characteristics of an effective SRM representative.-----	98
Table 3.22: Sample thematic chart linked to participant characteristics and Delphi experts' motivation.-----	98
Table 4.1: Distribution of Delphi expertise according to profession or occupation.-----	100
Table 4.2: Distribution of Delphi expertise according to gender and cultural affiliation.-----	100
Table 4.3: Distribution of Delphi expertise according to agency affiliation. -----	101
Table 4.4: Delphi expert response rates.-----	102
Table 4.5: Factors motivating Delphi experts' commitment and ongoing participation in this Delphi research project.-----	103

Table 4.6: The top 25 positive influences on SRM and the top 25 negative influences on SRM underlying the eight key issues identified in Delphi Round 1.-----	115
Table 4.7: The top 11 influences which can positively or negatively impact the success of a SRM regime as determined by Delphi experts' voting and ranking in Delphi Round 3.-----	120
Table 4.8: The top five characteristics of an effective SRM system related to implementing a strong community based approach. -----	122
Table 4.9: The top five characteristics of an effective SRM system related to the development of a common SRM vision and shared goals.-----	123
Table 4.10: Five characteristics of an effective SRM system related to the involvement of effective First Nation and government representatives.-----	124
Table 4.11: Five characteristics of an effective SRM system related to the development and use of effective SRM communication tools and mediums.-----	125
Table 4.12: Five characteristics of an effective SRM system related to internal communication.-----	126
Table 4.13: Five characteristics of an effective SRM system that promotes the consolidation of diverse knowledge and management systems.-----	127
Table 4.14: Five characteristics of an effective SRM system that addresses cultural biases and stereotypes.-----	128
Table 4.15: Five characteristics of an effective SRM system that ensures skilled facilitation of the SRM group.-----	129
Table 4.16: Five characteristics of an effective SRM system that promotes partnership building.-----	130
Table 4.17: Five characteristics of an effective SRM system that promotes successful information management.-----	131
Table 4.18: Five characteristics of an effective SRM system that addresses SRM communication needs.-----	132
Table 4.19: General and specific characteristics of Vuntut Gwitchin representatives and government representatives involved in SRM.-----	135

Table 4.20: Key factors to consider in the development of effective systems of representation.-----	136
Table 4.21: Obstacles identified by Delphi experts as impeding the development of cross-cultural understanding in SRM.-----	137
Table 4.22: Initiatives and themes identified by Delphi experts that contribute to the achievement of cross-cultural understanding in a successful SRM system.-----	139
Table 4.23: Basic elements of skilled facilitation related to the capabilities, responsibilities, and development of professional SRM facilitators.-----	141
Table 4.24: Basic elements of skilled facilitation concerning adequate funding and administrative support for SRM.-----	142
Table 4.25: Principles to guide SRM groups as they interact, make decisions, and implement SRM plans and programs.-----	143
Table 4.26: Operational procedures and ground rules to assist SRM group functioning.-----	144
Table 4.27: Reasons for the new alliance between TEKMS and SBRMS in the context of north Yukon SRM including regional, national, and international considerations.-----	145
Table 4.28: General and specific problems inhibiting the consolidation of TEKMS and SBRMS in the context of north Yukon SRM.-----	146
Table 4.29: Initiatives to address the problems inhibiting consolidation of TEKMS and SBRMS in the context of north Yukon SRM.-----	147
Table 4.30: Two phases and eight key chronological steps SRM groups should follow in the negotiation of SRM plans and agreements.-----	149
4.31: Three phases of community participation in SRM and the essential activities to undertake each phase.-----	153
Table 4.32: The general and specific characteristics of effective SRM communication.-----	154
Table 4.33: A summary of expert responses to select in-progress evaluation questions by Delphi round (round 1 n=29; round 2 n=25; round 3 n=24; round 4 n=23).-----	157

Table 4.34: Experts' general evaluation of the Delphi method in terms of satisfaction, the expert selection process, anonymity, independence, the opportunity for reflection, group communication, project timing, and fairness (n = 26).-----	159
Table 4.35: Experts' assessment of methodological adaptations undertaken to address cultural considerations (Elders n=2, TLU and FNSA n=9; Gov't and FNSB n=15).-----	164
Table 4.36: Delphi experts' assessment of methodological adaptations undertaken to address communication constraints (Elders n=2, TLU and FNSA n=9; Gov't and FNSB n=15).-----	170
Table 4.37: Experts' assessment of the specific merits of the modified Delphi method.-----	173
Table 4.38: Experts' assessment of the specific limitations of the modified Delphi method. -----	175
Table 4.39: Experts' evaluation of the Delphi project's impact on cross-cultural communication, learning, change, and participation (Elders n=2, TLU and FNSA n=9; Gov't and FNSB n=15).-----	177
Table 4.40: General and specific impacts of the Delphi process on participants.-----	179
Table 4.41: Experts' evaluation of the content and design of the final Delphi reports.-----	182
Table 5.1: Summary of Delphi researcher qualities and skills that contributed to the success of the present Delphi application.-----	225
Table 5.2: Summary overview of the framework used in section 5.4 to address the essential elements of SRM identified by Delphi experts.-----	239

LIST OF FIGURES

Figure 2.1: Non-Group and Group Idea Generating Strategies (adapted from the work of Needham & deLoe, 1990).-----	15
Figure 2.2: Map of five regional Gwitchin groups residing in the Upper Porcupine Basin during the early 19th Century (Greer, 1995).-----	33
Figure 2.3: Map of regional historic Gwitchin settlements (Greer, 1995).-----	34
Figure 3.1: Flow chart of a typical Delphi round illustrating the various research stages.-----	44
Figure 3.2: The Delphi process depicted as an inverted pyramid. Through each round of research, the scope of the discussion was narrowed and refined. Two rounds to evaluate the method, impact, and products of the research followed.-----	45
Figure 3.3: Flow chart of a typical Delphi round illustrating methodological adaptations related to communication and cultural differences among Delphi experts.-----	64
Figure 3.4: Flow chart illustrating the various data management approaches, content analysis procedures, and reliability checks used during each Delphi round.-----	70
Figure 3.5: Flow chart illustrating the key points of Delphi feedback and the various data reduction procedures used during the Delphi process.-----	71

LIST OF ACRONYMS

COSEWIC	Committee on the Status of Endangered Wildlife in Canada
CYFN	Council of Yukon First Nations
DIAND	Department of Indian Affairs and Northern Development
GCS	Gwich'in Cultural Society
GNWT	Government of the Northwest Territories
IFA	Inuvialuit Final Agreement
IUCN	International Union for the Conservation of Nature
PAR	Participatory Action Research
PCH	Porcupine Caribou Herd
PCMB	Porcupine Caribou Management Board
RCAP	Royal Commission on Aboriginal People
RCMP	Royal Canadian Mounted Police
SBRMS	Science-Based Resource Management System
SRM	Shared Resource Management
SWOT	Strengths/Weaknesses/Opportunities/Threats Analysis
TEKMS	Traditional Environmental Knowledge and Management System
VGFN	Vuntut Gwitchin First Nation
VGFNFA	Vuntut Gwitchin First Nation Final Agreement
UNCED	United Nations Conference on Environment and Development
WCS	World Conservation Strategy
WCED	World Commission on Environment and Development

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CHAPTER 1

INTRODUCTION

1.0 OVERVIEW

Shared resource management (SRM) comprises an important approach to the future stewardship of resources and intends to blend Aboriginal and government management approaches, gain greater community support, and enhance the effectiveness of numerous resource management functions (Berkes, 1989b; Pinkerton, 1989; Berkes, 1994; Singleton, 1998). SRM regimes differing in structure, legality, and cultural diversity are being established throughout Canada for different purposes (Notzke, 1994). These SRM initiatives have met with varying degrees of success (Osherenko, 1988a; Notzke, 1995; Campbell, 1996), suggesting that the ambitious SRM goals of power sharing, fairness, local relevance, long term sustainability, and the integration of knowledge systems and values are difficult to achieve (Berkes, George, & Preston, 1991; Nakashima, 1991; Pinkerton & Weinstein, 1995; Beckley, 1998; Prystupa, 1998).

Recent work emphasises the need for innovative research methods to examine the structure, operations, and outcomes of effective SRM (Taiepa et al., 1997; Treseder et al., 1999). To date, the examination of SRM has focused on specific SRM regimes and employed standard ethnographic techniques, including interviewing, participant observation, focus groups, and workshops (Witty, 1994; Kofinas, 1998; Chambers, 1999). In the present research, a novel approach to explore the fundamental characteristics of effective SRM was undertaken using the Delphi method. This technique has been used in the past as an idea-generation, communication, and decision-making aid, which allows participants to deal with complex problems

systematically (Needham & deLoe, 1990; Helmer, 1994; Goldschmidt, 1996; Rotondi & Gustafson, 1996). My approach was to modify a standard Delphi process to provide a framework within which people from diverse cultural backgrounds and in remote locations could work together on common issues.

This study engaged three groups of people whose effective participation was required through the Vuntut Gwitchin First Nation Final Agreement (VGFNFA) for SRM in the north Yukon: the Vuntut Gwitchin (whose knowledge was acquired through long histories of living on the land and using resources), resource managers from Yukon government agencies, and resource managers representing federal government agencies (the two latter groups consist of specialists whose knowledge is acquired primarily through research, university/college education, and professional practice in resource management). I aimed to develop a method for First Nation people and government managers to explore the characteristics of SRM and to generate informed, creative, and useful information about the essential elements of an effective SRM partnership in the north Yukon. Although the study was designed to accommodate cultural differences, the purpose was not to compare and contrast cultural features, but to explore a method to promote cross-cultural communication and idea generation, and to identify components of effective SRM.

The specific objectives of this study were: 1) Describe the most important resource management issues when the Vuntut Gwitchin First Nation (VGFN), the Yukon government, and the federal government occupy and use the same land, sharing rights and responsibilities. 2) Identify what problems and opportunities underlie these shared resource management issues and which are of greatest importance. 3) Delineate solutions for resolving the negative influences and achieving the positive influences on SRM identified by participants. 4) Ascertain how these can

be implemented. 5) Describe the characteristics of an effective SRM partnership. 6) Design a cross-cultural application of the Delphi method. 7) Evaluate this unique methodological variant and its impacts from the perspective of participants.

1.1 TERMINOLOGY

'Gwich'in' is used in the present study as an accepted, modern spelling that describes the Vuntut Gwitchin language. The spelling of 'Gwitchin' is used when referencing a particular group of people (Gwich'in Cultural Society (GCS), 1996; Gwich'in Cultural Society (GCS), 1997). Local people prefer the latter traditional spelling and it is the designation recognised in the VGFNFA. The word 'Elder' is capitalised to convey the sense of respect with which these wise, older people are treated in the Old Crow community. Throughout this dissertation, the terms 'First Nation', 'Aboriginal', 'Indigenous', 'Native', and 'Indian' are used interchangeably and refer to people who are the original human inhabitants of Canada. Furthermore, when describing the two groups of participants in the present study, the terms 'Vuntut Gwitchin expert' and 'government expert' are used. 'Expert' is commonly used throughout the Delphi literature to delineate research participants (Linstone & Turoff, 1975; Bertin, 1996; Goldschmidt, 1996; van Beek, 1996; Ziglio, 1996; Czinkota & Ronkainen, 1997) and in the present study is a term of acknowledgement and respect. 'Expertise' as defined broadly by this research entails the acquisition of experience, special skill in, or knowledge of north Yukon resource use and management. Although VGFN, under the VGFNFA and Self-Government Agreement, is a government in its own right, the term 'Vuntut Gwitchin expert' is used to delineate these experts. The term 'government expert' refers to experts from the various territorial and federal

government agencies involved in the research. Every use of the term expert in this work is in relation to Delphi participants unless specifically stated otherwise.

CHAPTER 2

LITERATURE REVIEW

2.0 SHARED RESOURCE MANAGEMENT

2.0.1 Definitions

Co-management, also called joint management, shared resource management, participatory management, collaborative management, or multi-party management refers to a broad spectrum of institutional arrangements (Borrini-Feyerabend, 1996). The concept evolves constantly as each new experiment in shared decision-making adds insights. Osherenko (1988b) characterised co-management as an institutional arrangement covering a specific geographic area, where local users and the state agree to a system of reciprocal rights and obligations, a collection of rules indicating actions to be undertaken in different circumstances, and procedures and processes for collective decision-making. Berkes et al. (1991) defined co-management as the sharing of power and responsibility between government and resource users. Pinkerton (1993a:37) explained that co-management initiatives usually develop around common property resources and involve genuine power-sharing between "community-based managers and government agencies so that each can check the potential excesses of the other." According to the International Union for the Conservation of Nature (IUCN), collaborative management occurs when two or more social actors negotiate, define and guarantee amongst themselves a fair sharing of the management functions, entitlements, and responsibilities for a given territory, area, or set of natural resources (Borrini-Feyerabend, Taghi Farvar, Nguinguiri, & Ndangang, 2000). Thus, the main features of

co-management arrangements are: involvement of two or more parties with interests and values related to joint resources; attempts to balance relationships between individual resource users, user groups, and the state; and, sharing of management responsibilities and benefits. The present research used the term shared resource management (SRM) so as to free research participants' thinking from the constraints of established models and conventional approaches that may be associated with "co-management". As well, SRM is broad enough to encompass the array of management partnerships developed through the VGFNFA (Department of Indian Affairs and Northern Development (DIAND), 1993).

2.0.2 Models of SRM

Researchers have advanced different organisational models of power-sharing to describe SRM. For example, SRM can be represented on a horizontal continuum from total local management to total government management, or a top-down ladder with power-sharing decreasing down the rungs (Berkes et al., 1991; Higgelke & Duinker, 1993; Pinkerton & Weinstein, 1995; Beckley & Korber, 1997). The horizontal continuum model makes no assumptions about where power fundamentally lies and emphasises the balance of initiative and authority exercised by government and local groups (Wall, Hallman, & Skibicki, 1995). This model accurately represents SRM as an evolving and dynamic process. The second model, based on Arnstein's (1969) ladder of citizen participation, views power as moving from the government to local communities (Berkes et al., 1991). This vertical devolution of legal authority creates a hierarchy of community power and participation, from manipulation to citizen control. In this model, each level on the ladder represents a static goal or end point.

2.03 Two Systems of Resource Management

Resource managers world-wide are finding that conservation and management are more effective when they include local interests (Western, 1989; Western & Wright, 1994; Borrini-Feyerabend, 1996; Warren, 1998). Thus, SRM offers a practical and creative alternative to the standard arrangements outlined above. From a simplified perspective, SRM unites two systems of resource management in active use throughout Canada, the Aboriginal system and the government system. Several authors have characterised and compared these two approaches (Osherenko 1988a; Berkes et al. 1991; Johnson 1992; Berkes 1994; Dyer & McGoodwin 1994; Kofinas 1998). While understanding how these two systems differ is instructive, their basic similarity and complementarity may be more important.

A matter of survival to the people who generate it, a traditional environmental knowledge and management system (TEKMS) is a way of life founded on a distinct view of the world, a specific culture, language, and value system. TEKMSs are developed over generations of living in close contact with the natural world and through experience, observation, trial-and-error experiments, and the oral tradition (Berkes, 1977; Hunn, 1988; Osherenko, 1988b; Wheeler, 1988; Grenier, 1998). Each TEKMS is an integrated system of knowledge, practice, and belief. TEKMSs are held by all members of a community and do not depend on recognition by any outside authority for their existence, legitimacy, or operation (Berkes, 1987; Feit, 1988). TEKMSs are local or regional and are based on customary authority and communal management principles. Compliance is based on unwritten rules, cultural values, ethics, community sanctions, and extensive teaching to reinforce expectations about wise resource use (Berkes, 1988).

Within the Vuntut Gwitchin TEKMS, relations with community members and the environment are based on reciprocity, respect, recognition of the interconnectedness of all things, sharing, and mutual obligations (Sherry & Vuntut Gwitchin First Nation (VGFN), 1999).

Kofinas (1998:122) defined this local system as consisting of the following elements:

- an information base and paradigm or set of mental constructs that organises and interprets information into useful knowledge;
- a set of practitioners with a distinctive worldview or culture that includes both this paradigm and certain normative values;
- a system of rules, norms, and customs concerning rights and responsibilities that are intended to govern the behaviour of all who partake of resources and their benefits;
- an overall set of objectives embedded in the situations and ideology of the society.

Participation in a TEKMS varies among the members of a community depending on factors such as age, gender, economic status, education, social status, occupation (e.g., hunter, spiritual leader, healer), daily experiences, and roles and responsibilities in the community and at home (Fienup-Riordan, 1990). TEKMSs are validated and revised regularly through the seasonal cycle of activities. Learning through experience, management, and harvesting are inseparable enterprises. Stored in people's memories and activities, TEKMSs are expressed in numerous ways including songs, stories, proverbs, dances, myths, cultural values, beliefs, rituals, community laws, local language, local taxonomy, resource use practices, equipment and materials (Grenier, 1998). TEKMSs are not static (Ruddle, 1994). New knowledge is constantly added via innovations within the system as well as the adoption, use, and adaptation of external knowledge (Jorgenson, 1995). Continuity and flexibility are fundamental characteristics of any TEKMS (Johannes, 1982).

Science-based resource management systems (SBRMSs) are founded on application of the scientific method to "address issues involving a wide range of species, their ecosystems, the underlying ecological processes, and the working of humans" (Usher 1986; Hawley, Sherry, &

Johnson, 2002:4). This broad term encompasses a variety of premises, paradigms, and methods within the realm of science and management (Usher, 2000). SBRMSs tend to be implemented by a centralised authority (a federal, provincial or state agency) to control public property resources, and are enforced through written laws and regulations (Feeny, Berkes, McCay, & Acheson, 1990). Administrators and scientists conduct management activities. Generally, resource managers are trained specialists with the responsibility of managing resources on behalf of their society. Although resource users hold local knowledge, most do not possess training in the scientific method, upon which modern resource management is based. Management problems tend to be resolved in a technical framework by a top-down bureaucracy (Usher, 1986). Government resource managers identify the goals society holds for resources and may modify them on the basis of their specialised training, experience, or knowledge (Hawley et al., 2002). Common features of SBRMSs include licenses, fees, or harvest reporting, individual/seasonal limits, gear restrictions, and enforcement by fine, seizure, or confinement (Osherenko, 1988a). According to Usher (1986:92), the state manages for "certain levels of abundance on a technical basis and allocates shares of this abundance to users on an economic and political basis." Like Aboriginal resource management, SBRMSs are founded on culturally specific ideas about competition, individuality, property and control (Pomeroy & Berkes, 1997).

2.0.4 SRM in Practice

Recent political and legal developments in Canada encourage government and Aboriginal co-operation (Asch, 1997). SRM regimes are promoted as a means to enable this co-operation and are arising because of several factors, including: Aboriginal dissatisfaction with government

management systems that overlook traditional approaches and undermine local stewardship and harvesting interests; problems of resource overexploitation and actual or perceived resource crises; Aboriginal claims to land and resources; international, bilateral, and circumpolar agreements that explicitly give resource users a role in policy formation and operational decision-making; the presence and growth of government deficits, an impetus to the devolution of federal responsibilities; protection of existing Aboriginal and treaty rights; and, concerns over economic and industrial development pressures (Notzke, 1994; Kofinas, 1998).

Various SRM arrangements emerged in the past two decades and are being tested throughout Canada. SRM is not limited to Aboriginal-government interactions and can involve non-governmental organisations and industry; for instance, in the salmon fishery on the West Coast of North America or in Saskatchewan forestry (Dale, 1989; Beckley & Korber, 1997; Treseder & Krogman, 1999). However, Aboriginal groups must be considered because of legal and constitutional requirements and are likely therefore to have a seat at the table in a broad array of SRM situations involving government agencies, including fisheries, wildlife management, community forestry, water management, land use planning, and parks and protected areas (Treseder et al., 1999).

SRM is arising from formal agreements, but there are also many informal agreements (Roberts, 1994a; Chambers, 1999). Some arrangements have a regional geographic focus, while others target particular species (Morgan, 1993; Kofinas, 1998). Some SRM agreements involve multiple species (e.g., Wildlife Management Advisory Committee for the North Slope or the Inuvialuit Fisheries Joint Management Committee) (Berkes, 1989b). SRM is particularly applicable in common property or open access situations (Pinkerton, 1989). SRM arrangements have met with mixed success depending on their structure, operational nature, and membership,

as well as the severity of tests they have been exposed to. While each SRM regime has a different outlook and approach, they share a common goal for the maintenance of healthy, regional environments.

The body of SRM literature continues to grow (Prystupa, 1998). Most SRM research focuses on case studies of specific SRM arrangements (Pinkerton, 1989; Poffenberger, 1990a; Western & Wright, 1994; McNeely, 1995; Warren, 1998). These studies have produced informative results concerning the merits of SRM and examples of successes and failures. However, the essential elements of SRM are still being identified and are not yet fully understood (National Aboriginal Forestry Association (NAFA), 1996). There is a substantive need to understand the potential effectiveness of SRM in achieving sustainability, resolving conflict, accomplishing power-sharing, establishing community-government co-operation, building trust among very different but legally bound parties, and explicating the practical, every-day challenges encountered by SRM practitioners (Kofinas, 1998). Authors report the need to discern under what conditions SRM is achieved and to delineate concrete models or guidelines, concepts, tools, and methods to facilitate effective SRM practice (Borrini-Feyerabend, 1996; Borrini-Feyerabend et al., 2000).

In some cases, SRM arrangements have improved the management of fisheries, forests, wildlife, water, and other common pool resources in ecologically, culturally, and economically sustainable ways (Amend, 1989; Freeman, 1989; Robinson & Binder, 1992). SRM has improved communication and understanding between Aboriginal and non-Aboriginal groups (Osherenko, 1988b; Poffenberger, 1990b; Freeman, Wein, & Keith, 1992) and has functioned as an effective dispute resolution mechanism (Hawkes, 1995). Results are variable however and, in many cases, beneficial and enduring partnerships remain elusive (Wolfe, Bechard, Cizek, & Cole, 1992; Morgan, 1993; Pinkerton & Weinstein, 1995; Kofinas, 1998). Too often, SRM or government-

user co-operation is thwarted by the existence of differing values, ways of working, knowledge and belief systems (Berkes, 1989a; Freeman, 1989). In addition, 'western' science and government management priorities and procedures tend to predominate (Nakashima, 1991; McDonald, Arragutainaq, & Novalinga, 1997). Some authors question the costs of power-sharing and their implications for community and culture (Kofinas, 1998). A relatively new endeavour, SRM is wrought with uncertainty about how to proceed. Currently, it is unknown if the SRM model is viable and what the prospects are for realising its goals.

2.0.5 Potential SRM Benefits

Government-Aboriginal partnerships have the potential to enhance several management functions including data gathering and analysis, harvesting decisions, allocation decisions, protection of resources from environmental damage, enforcement of practices and regulations, long-term planning and enhancement, and broad policy decision-making (Pinkerton, 1989). Scholars claim SRM is a viable means of correcting deeply embedded patterns of conflict and paternalism by promoting co-operation, trust, and mutual acceptance (Pinkerton, 1993b). Chambers (1999) reported that increasing local involvement in resource management may result in higher-quality decision-making, increased commitment of stakeholders to management decisions, and a generally fairer management process. SRM also represents a route to community economic development, increased self-determination, and cultural autonomy (Kofinas, 1993). Finally, SRM contributes to greater local self-government (Taiepa et al, 1997).

2.0.6 Potential SRM Barriers

Several barriers may impede progress in the development of successful SRM. Shifts in the balance of power and control away from government agencies often meet with reluctance (Berkes et al., 1991; Hawkes, 1995). At times, stakeholders confront paternalistic and proprietary attitudes. A second obstacle is the learned dependency of Aboriginal communities, resulting from the appropriation of local authority and responsibility by centralised resource management agencies (Usher, 1987; Berkes, 1994). Next, decentralisation and increased local participation are met by concerns of abuse from both local users and state managers. Some fear that the SRM structure can be misused by individual or specific interests, or act as a smokescreen for 'business as usual' management (Hawkes, 1995). The compartmentalised, hierarchical nature of many government management agencies inhibits the empowerment of government staff (Singleton, 1998). Furthermore, communities and stakeholders sometimes distrust, and are disinclined to work with, government. Enhanced public participation through SRM can also create increased expectations that government may be unable or unwilling to fulfil (Chambers, 1999). This is particularly problematic for Aboriginal communities who view SRM as an interim measure towards increased autonomy, eventual self-government, and land claim/treaty settlements. Last, SRM challenges conventional resource management agencies to recognise, accept, and integrate the ideas of other important resource users (Pinkerton, 1992; Witty, 1994).

2.1 THE DELPHI METHOD

2.1.1 Idea Generating Strategies

The Delphi method belongs to a realm of perception and attitude studies called Idea Generating Strategies (IGSs). Designed to identify or to generate new information about problems and issues, IGSs are of two types. Non-group IGSs are discrete processes lacking iteration and feedback, while group IGSs, including the Delphi method, require group interaction and thinking (Needham & deLoe, 1990) (Figure 2.1). Numerous authorities have determined that group processes are superior to non-group processes with respect to the average number of unique ideas produced, total number of ideas produced, and quality of ideas produced (Osborne, 1975; Taylor, Pease & Reid, 1990). Needham and deLoe (1990) suggested that group techniques exist along a continuum of effectiveness, the Interaction Continuum. Effectiveness of group techniques varies because, in interactive situations, creativity can be inhibited by interpersonal stress arising from factors such as lack of oral communication skills, inhibition in the presence of superiors, or the influence of dominant group members.

Several researchers have addressed the question of whether the Delphi process produces better results than traditional interacting group techniques (Table 2.1) (Dalkey 1969; Helmer, 1994). These studies demonstrated that when the best available information is the opinion of knowledgeable individuals, the Delphi method is superior to group discussions, conferences, workshops, brainstorming, and other loosely structured, face-to-face group processes (Pill, 1971; Riggs, 1983). Traditional interacting group techniques produce a lower quantity and quality of ideas than the Nominal Group Technique or the Delphi method (Taylor et al., 1990) (Figure 2.1).

Face-to-face group interactions (e.g., focus groups, workshops, public meetings) have been found less effective for cross-cultural communication, problem-solving, and decision-making (Scollon & Scollon, 1980; Gallagher, 1988; Morrow, 1990; Morrow & Hensel, 1992).

The Nominal Group Technique (NGT) is similar to the Delphi Method except that it occurs in a highly structured group meeting (Table 2.1). NGT is used for aggregating group judgement and distilling information on highly complex, uncertain problems (Ziglio, 1996). It brings experts face-to-face in verbal and non-verbal activities, and relies on literacy and the use of the dominant language (i.e., English). NGT phases include independent idea generation, structured feedback in an interactive format, group discussion, and independent judgements (Delbecq, Van de Ven, & Gustafson, 1975; Scholters, 1990). The interactive phases of NGT can induce interpersonal stress as described above for traditional interacting group techniques (Figure 2.1).

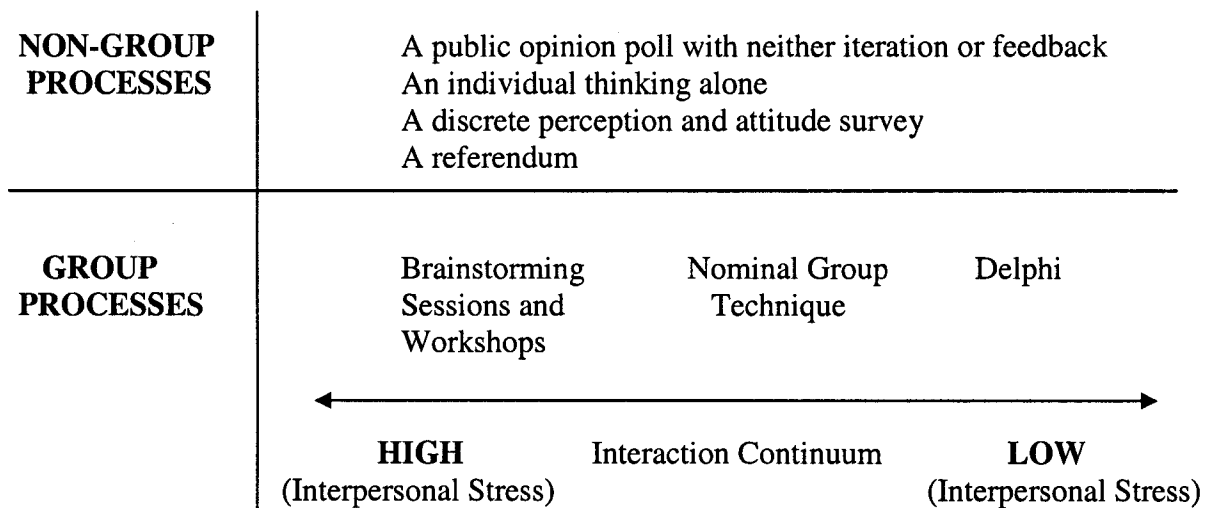


Figure 2.1: Non-Group and Group Idea Generating Strategies (adapted from the work of Needham & deLoe, 1990).

2.1.2 History of the Delphi Method

Five eras in the evolution of the Delphi method are described by Rieger (1986): secrecy (late 1950's to early 1960's), novelty (mid to late 1960's), popularity (early to mid 1970's), scrutiny (mid to late 1970's), and continuity and refinement (1980's to present). During the era of secrecy, Delphi studies focussed on defence research and military applications (Dalkey & Helmer, 1963). In the novelty and popularity eras, the Delphi method was used to obtain estimates (e.g., probabilistic forecasts of future societal trends and technological events), through mediation of expert opinion (Helmer, 1994). Participants provided estimates of the probability, frequency, and timing of future occurrences. Linstone and Turoff (1975) reported 134 Delphi-related publications prior to 1970 and 355 publications between 1970 and 1974. In 1975, Sackman's 'attack on Delphi' was challenged and his arguments effectively refuted (Goldschmidt, 1975; Jillison, 1975a; Quaille-Hill & Fowles, 1975). Since that time, attention has shifted from the methodological legitimacy of the Delphi to refining aspects of its application such as enhancing group stability (Chaffin & Talley, 1980), strengthening the accuracy of predictions (Riggs, 1983), facilitating in-depth conversation among experts (Rotondi & Gustafson, 1996), and developing computer systems that support group communication (Turoff & Hiltz, 1996). Application of the Delphi method has expanded from forecasting and decision-making to include analytical communication and decision facilitation (Needham & deLoe, 1990). For example, Adversary Delphi is a new tool that seeks to generate extreme, opposing viewpoints on policy issues (Helmer, 1994).

Table 2.1: Comparison of Interacting Group Techniques and the Nominal Group Technique
(adapted from the work of Delbecq et al., 1975 and Needham & deLoe, 1990).

Group Processes		
Characteristics	Traditional Interacting Group Techniques (discussion groups, workshops, brainstorming sessions)	Nominal Group Technique
<i>Objective</i>	To examine and discuss issues; to attempt to arrive at consensus	To identify problems; to solve problems
<i>Format</i>	Loosely structured meetings	Tightly structured meetings
<i>Final Response Interval</i>	Variable; some control	Variable; some control
<i>Participant Commitment</i>	Short time spent on site; variable time in transit	Variable time spent on site; variable time in transit
<i>Facilitator Commitment</i>	Preparatory, operational, and assessment phase demands are heavy and complex	Preparatory, operational, and assessment phase demands are heavy
<i>Underlying Assumptions</i>	Experts may be decision-makers, facilitators, or opinion leaders	Experts are often members of the sponsoring organisation; group makes the decision
<i>Questions Posed</i>	Questions may be well or ill defined; questions may have broad or narrow scope	Questions have rigid parameters; questions have very limited scope
<i>Product</i>	A list of informed opinions; a statement of informed consensus	A best option or options set
<i>Quantity of Ideas</i>	Low to medium due to the potential influence of interpersonal stresses	Medium to high due to independent and directed group thinking
<i>Quality of Ideas</i>	Low; low specificity and forced generalisations	High; high specificity due to directed group thinking
<i>Closure Level</i>	Low; lack of structure and control	High; structured with specified termination point

2.1.3 Basic Features of the Delphi Method

The Delphi method structures a communication process among a group of experts (Ziglio, 1996). The Delphi draws on a wide reservoir of knowledge, experience, and abilities in a systematic manner and seeks informed group judgement. One of the basic assumptions of Delphi theory is that informed group judgement is more reliable than individual judgement (Adams, Pierce, Jurich, & Lewis, 1992). There are two basic types of Delphi applications. A Conventional Delphi is structured to gain consensus of opinion, while a Policy Delphi is designed to facilitate the production of policy elements and options (Table 2.2).

Delphi studies are configured in a variety of ways but provide, at minimum: assessments of the group view; opportunity for participants to revise their views; opportunity for participants to react to and appraise differing perspectives; anonymity for participants; and feedback of individual contributions to the group (Stone Fish and Osborn, 1992). Typically, the Delphi method uses a series of questionnaires sent by mail or via computerised system (i.e., Internet) to a pre-selected group of experts, who can be geographically dispersed. Data collection alternates with controlled opinion feedback between rounds (Ono & Wedemeyer, 1994; Stafford, 1999). Questionnaires are structured to elicit and develop individual responses to the problems posed and to enable the experts to refine their views as the group's work progresses in accordance with assigned tasks (Linstone & Turoff, 1975). In its simplest form, the Delphi procedure involves two phases: presentation of diverse positions on issues or ideas, and the production of consensus or 'the sense of the group' (Helmer, 1994).

During a Delphi process, participants are free to present and challenge alternative viewpoints and to think reflectively and independently (Linstone & Turoff, 1975). Participants can complete

their questionnaire and revise or add to their responses until a Delphi round ends and comments are disseminated to other group members. Iteration in a Delphi process simulates the discussion that would occur in a conventional group setting (Dietz, 1987). This process can be repeated as many times as judged suitable. The Delphi method allows experts to participate in an asynchronous manner. A Delphi study takes advantage of people's different perspectives, cognitive abilities, and problem-solving skills by allowing them to choose the time and sequence of their participation (Rotondi and Gustafson, 1996).

2.1.4 Main Stages and Outcomes of the Delphi Method

The first stage of a Delphi process (Q1) is critically important. Q1 poses the problem in broad terms and invites answers and comments (Buckley, 1995). Replies to Q1 are summarised by the facilitator and used to construct a second questionnaire (Q2). Q2 gives participants the opportunity to re-evaluate their original input by considering the group's qualitative and/or quantitative feedback (Bijl, 1992). Experts can argue for or against each option or statement. It is common at the Q2 stage to request that participants rank items and establish preliminary priorities (Helmer, 1994). Researchers can expect the following positive outcomes by the end of Q2 (Ziglio, 1996). Experts' comments and voting scores identify areas of agreement and disagreement and respondents can highlight areas needing clarification. Q2 begins the dialogue between participants as questions and statements of support or criticism help participants understand each other's position and move towards a more accurate judgement. Additional rounds (Q3 or Q4) can occur if there are significant, unresolved differences between experts. Typically, additional rounds attempt to clarify issues, describe participants' underlying rationales, and develop priorities (Crichter & Gladstone, 1998). As well, statements or options can be

Table 2.2: Comparison of Delphi techniques in terms of major defining characteristics (adapted from the work of Needham & deLoe, 1990).

Conventional and Policy Delphi Techniques		
Characteristics	Conventional Decision-making Consensus	Policy decision facilitation dissensus
<i>Objective</i>	To derive a consensus in expert opinion on relevant issues	To produce critical debate among experts about opposing options on relevant issues
<i>Format</i>	Structured series of questionnaires and feedback reports	Structured series of questionnaires and feedback reports
<i>Final Response Interval</i>	Iteration variable; mostly facilitator control	Iteration variable; mostly facilitator control
<i>Participant Commitment</i>	Participant decides based on the task at hand; participant centred	Participant decides based on the task at hand; participant centred
<i>Facilitator Commitment</i>	Preparatory phase is rigorous for each iteration	Preparatory phase is rigorous for each iteration
<i>Underlying Assumptions</i>	Experts consulted are the decision-makers; an information package forms the decision	Experts consulted are the decision facilitators; an information package forms one input into the decision-making process
<i>Questions Posed</i>	Questions have well-defined parameters; questions have a narrow scope	Questions may have specified parameters; questions may have specified scope
<i>Product</i>	An option or specific range of options with associated probabilities	A list of the most relevant alternative options and their rationales
<i>Quantity of Ideas</i>	High due to independent reflective thinking and iteration	High due to independent reflective thinking and iteration
<i>Quality of Ideas</i>	High due to independent reflective thinking and iteration	High due to independent reflective thinking and iteration
<i>Closure Level</i>	High for the individual participant; variable for the Delphi facilitators as the process is participant centred	High for the individual participant; variable for the Delphi facilitators as the process is participant centred

reworked to avoid misunderstanding and distortion in the final vote. Purposes of a Delphi exercise include: exploration of alternatives and diverse viewpoints; estimation of the causes and consequences of particular options; examination of individual and group priorities; and engagement in group problem-solving (Ziglio, 1996).

2.1.5 Advantages of the Delphi Method

Compared to other IGSs, the Delphi method has many specific merits related to evoking and processing creative, judgmental information (Goldschmidt, 1975; Crance, 1987; Stone Fish & Osborn, 1992; Rotondi & Gustafson, 1996). Ziglio (1996:6) suggested that the Delphi process can structure and distil "the vast mass of information for which there is some evidence, but not yet knowledge," thus saving both time and emotion. By avoiding lengthy and acrimonious debates, the Delphi method avoids paralysis of the communication process, clarifies issues, and reveals the level of agreement within a group (Bijl, 1996). Independence and anonymity maintain participant diversity and equality thus increasing the quantity and quality of ideas produced (Preble, 1983; de Haan & Peters, 1993; Alder & Ziglio, 1996).

2.1.6 Delphi Experts

Expertise is the key criterion for selecting members of a Delphi panel. Needham and deLoe (1990:136) proposed that expertise is "synonymous with authority and implies a level of experience or control of knowledge that distinguishes the expert from the novice." The central challenge in designing Delphi studies is to ensure that selected experts will produce ideas and

evaluations which are more meaningful than if just anyone participated in the process (Goldschmidt, 1996; Ziglio, 1996). However, expertise should not be limited to individuals with specialised or professional training (e.g., academic qualifications) (Christiansen-Ruffman & Stuart, 1978), as this would exclude individuals whose expertise derives from alternate knowledge systems, direct experience, and different authorities (e.g., elders, hunters, spiritual leaders). Needham and deLoe (1990) identify experts by their closeness to a problem or issue. Whether possessing subjective closeness (e.g., hunter), mandated closeness (e.g., policy maker), or objective closeness (e.g., scientist), experts along this continuum all hold valuable opinions and knowledge.

The success of any Delphi application is intrinsically linked to expert selection and the declaration of selection criteria (Adams et al., 1992; Stone Fish & Osborn, 1992; Goldschmidt, 1996). The resource management literature is replete with examples of expert consultation and input into decision-making; however, it is short on selection criteria (Needham & deLoe, 1990). Procedural openness is critical in any process involving expert opinion because it allows for critical assessments of the products (e.g., consideration of their representativeness and applicability).

There is no formula for expert selection. Criteria vary from one Delphi application to another depending on the objectives and context of the process. However, several researchers developed guiding frameworks that warrant consideration (Dobbert, 1982; Merriam, 1988). Richey, Mar, and Horner (1985a) designed a strategy for expert selection based on professional background in two or more of ten specialty areas, evidence of professional productivity, and evidence of previous, relevant work experience. Needham and deLoe (1990) suggested two fundamental principles for selection: experts must be representative of regional and sectoral experience and

experts must exhibit recognised authority or sufficient expertise (as measured by standing within a discipline or profession, and education, training, or experience in the Delphi subject area). Simultaneous consideration of both principles will ensure that the expert sample is both representative and sufficient (Needham & deLoe, 1990). Ziglio (1996) maintained that expertise is the key criterion for selecting members of a Delphi group and defined expertise in four fundamental ways: knowledge and practical engagement with the issues under investigation, capacity and willingness to contribute to the exploration of the problem, assurance from experts that sufficient time will be dedicated to the communication exercise, and skill in written communication and expressing priorities through voting procedures. Bijl (1996) advanced three selection criteria: diversity of expertise, diversity of experience, and diversity of interests. These criteria require researchers to distinguish relevant study themes and choose experts that represent them, characterise professional and non-professional groups involved in field of inquiry, and balance interests in the sector under consideration to prevent over- or under-representation.

Self-assessments of expertise may also be important (Ziglio, 1996) as an indirect measure of experts' reliability and accuracy in performing assigned tasks. It may also deter superficial and careless answers by reminding panellists to apply their expertise in a thoughtful and earnest manner. However, it can be dangerous to use self-assessment as a means to weight expert responses as some Delphi researchers have done, especially if there are perceived power imbalances in the group (Dietz, 1987).

2.1.7 Delphi Group Size

The number of experts involved in any Delphi study is variable (Weingand, 1980). It is generally accepted that with a broadly homogeneous group of experts (e.g., those belonging to the same professional field such as medical scientists including medical doctors, nurses, biochemists, psychologists, and representatives of drug and hospital industries), good results can be obtained with 10-15 participants (Ziglio, 1996). When multiple expert groups are involved, the sample size must be considerably larger (Goldschmidt, 1996). Needham and deLoe (1990) advise that the Delphi technique has a critical participation threshold of no more than 50 participants and no less than 10 participants. A larger sample size unnecessarily increases facilitator burden, process inefficiency, participant commitment, cost, and length (which can lead to expert fatigue and attrition), while smaller groups generate a paucity of ideas. Delbecq (1968) and Dalkey (1969) demonstrated an improvement in the quality of 'group outcome' with increasing group size; however, beyond a critical number, additional individuals provide only marginal benefit or, in fact, may damage results.

2.1.8 Instructions

The procedures of a Delphi exercise (e.g., methods for collecting expert opinion and providing feedback) can profoundly affect the communication process and the nature of the outcomes (Bijl, 1996). The extra potential for creativity, synergistic thinking, and a superior outcome afforded by the Delphi process can be lost if participants have different perspectives on what the task is, how it should be accomplished, and what the final outcomes will be

(Goldschmidt, 1975; Bijl, 1992; Buckley, 1995). Bernard (1995) recommended that three to six pre-test respondents are necessary. Providing experts with key word definitions and clear instructions for carrying out questionnaire tasks increases the effectiveness of information exchanges and the reliability of expert assessments (Ziglio, 1996). Instructions for using keywords (e.g., certain/risky, reliable/unreliable, not pertinent, no judgement) improve homogeneity of judgmental language and make participants think about their confidence in making assertions. Linstone and Turoff (1975), Jillison (1975a), and Crichton and Gladstone (1998) supply examples of scales for rating desirability and feasibility.

2.1.9 Consensus

Generating consensus is the major objective in a conventional Delphi. Delphi applications in the late 1960's and early 1970's sought opinions and views common to all members of expert panels (Wilenius & Tirkkonen, 1997). However, Sackman (1974) and Bijl (1996) argued that consensus is often specious since it results from pressure to conform to group opinion. Likewise, Baradecki (1984:283) reasoned that "unless the individual has great assurance and the issue is of considerable importance, there is reason to believe that any consensus will be at least in part a result of assimilative pressure rather than of any true education." Quaille-Hill and Fowles (1975) warned that consensus is a troublesome goal when it is compelled. Other authorities pointed out that attempting to create consensus among experts is often unnatural and results in the loss of vital information (Wilenius & Tirkkonen, 1997; Crichton & Gladstone, 1998). Coates (1974) advised that the Delphi approach was most appropriately used as a tool for alerting participants

to the complexity of issues, cajoling them to think, and highlighting diversity of judgement and underlying assumptions, not for reporting high reliability consensus data.

2.1.10 Continuity

Lack of continuity may impede the development of participant commitment, depth of analysis, and creativity during any Delphi exercise (Alder & Ziglio, 1996). The major factor affecting continuity is the time lag between members' responses and subsequent feedback/questionnaires (Turoff & Hiltz, 1996). Efficient editing and content analysis go a long way in reducing the impact of communication delays; however, continuity can be best enhanced by offering participants an alternative to communicating via the mail (Turoff, 1972). The postal system is too slow to facilitate earnest conversations and rapid information output (Lerch, 1988). Computer-based communication and facsimile machines can speed communication (Kiesler, Siegel, & McGuire, 1984; Schneider & Tooley, 1986).

2.1.11 Building Relationships

A Delphi process needs to foster mutual understanding and facilitate in-depth conversation between experts; however, the nature of a Delphi exercise makes this challenging (Buck, Gross, Hakim, Weinblatt, 1993). Although anonymity increases the chances that participants will be truthful, absolute anonymity can cause participants to feel isolated and make it difficult for them to develop in-depth communication with other experts (Neuman, 1995; Westbrook, 1997). Rotondi and Gustafson (1996) cautioned that if methods facilitating camaraderie, trust, and

understanding are not implemented, communication barriers could impair a Delphi process. Team building exercises and reduced participant anonymity were recommended. Kofinas (1998) determined that development and use of a project logo can improve engagement with tasks and issues, and cultivate a sense of belonging among experts.

2.1.12 Participant Satisfaction

Individuals should be able to discuss concerns such as declining interest, suggestions for improving the process, and miscommunication with the Delphi facilitator (Rotondi & Gustafson, 1996). Several researchers concluded that respondents who do not understand the Delphi exercise may become frustrated, answer inappropriately, or drop out of a study (Baradecki, 1984; Adams et al., 1992). Often, facilitators receive concrete suggestions only when a participant is so dissatisfied that she or he wishes to withdraw (Rotondi & Gustafson, 1996). Monitoring participant satisfaction may keep a study efficient and focused, but is not an easy task (Gustafson, Cats-Barrel, & Alemi, 1991).

2.1.13 When to Stop

Numerous researchers have generated substantial evidence concerning the optimal number of Delphi iterations. When responses begin to stabilise across iterations or when resources are exhausted, the results of the current Delphi round should be used as the products of the study (Dietz, 1987). Richey, Mar, and Horner (1985b) ascertained that only the second Delphi iteration produced different or more comprehensive consensus views. Judd (1972) determined that

variance in response was reduced from round to round, but that most respondents did not shift responses radically. Evidence suggests that error drops through Delphi iteration and that most of a group's responses are realised by the end of the second round (Dietz, 1987; Singg & Webb, 1979). The greatest change in responses occurs between rounds 1 and 2 (Baradecki, 1984). Richey et al. (1985b) found that iteration does not improve the precision of Delphi results enough to warrant more than three rounds, especially considering the additional expenditures of time and money, and the risk of panel fatigue. Feedback and data collection instruments used in social policy and public health studies range from as few as 25 to upward of 350 pages (Alder & Ziglio, 1996; Beebe and Masterson, 2000). Judd (1972) warned that Delphi studies involving more than three rounds, with 100 statements for evaluation in more than two dimensions, are likely to induce fatigue in participants. Dillman (1978) suggested that mailed questionnaires exceeding 125 questions reduce response rates.

2.1.14 Delphi Response Rates

Goldschmidt (1996) suggested that approximately two-thirds of potential panellists will consent to participate in a Delphi exercise. Some agreeing experts will abandon the process once it is underway (e.g., agree to participate and then fail to return Q1) (Bertin, 1996). From one-third to one-half of agreeing experts are expected to abandon the process (Turoff & Hiltz, 1996). Dillman (1978, 1983) synthesised research on increasing response rates to mailed surveys and developed the Total Design Method (rules for questionnaire administration concerning physical format, question order/length, cover letter, packaging, postage, participation incentives, and contact procedures). Bernard (1995) indicated that professional surveys conducted in Canada that

follow Dillman's design achieve an average response rate of 75%, with many surveys reaching an 85% to 90% response rate, and advocated that Dillman's method should be used in industrialised countries. Fox, Crask, & Kim (1988) indicated university sponsorship as the most effective procedure for increasing response rates. Priority postage, monetary incentives and gifts have also been found to increase response rates (Dillman, 1983).

2.1.15 Analysis of Delphi Experts' Input

Editing and content analysis are poorly understood areas of Delphi practice (Weingand, 1980; Dekleva & Zupancic, 1996; Stewart, O'Halloran, Harrigan, Spencer, Barton, & Singleton, 1999). There are no well-established protocols for shaping panel members' responses into comprehensive feedback and/or material for evaluation in subsequent Delphi rounds (Goldschmidt, 1996; Bijl, 1996). Judd (1972:183) likens the editing process to "the problem of whether to use a butcher knife or a scalpel in trimming the responses to a portion that can be served up in round two [and three]". Linstone & Turoff (1975) suggested that coding 65% of transcripts will reveal at least 90% of the Delphi coding framework. An analysis by Judd (1972) of a Delphi project with 42 panel members responding to nine structured 'sentence-completion' opportunities resulted in 197 separate and different responses (an average of 22 per question). A highly professional editing staff with necessary equipment and administrative support is recommended (Judd, 1972; Linstone & Turoff, 1975). Studies by Judd (1970, 1971) indicated that a group editing and coding approach is highly productive and serves to effectively trim the volume of responses to a manageable size. The overarching goal of any Delphi synthesis is to

maximise the quality of feedback and material for subsequent Delphi rounds in a concise, clear, and understandable manner (Alder & Sainsbury, 1996).

2.2 BACKGROUND ON VUNTUT GWITCHIN FIRST NATION

2.2.1 Preparatory Studies and Preliminary Doctoral Research

In preparation for the present study, the principal researcher (author) completed coursework in environmental anthropology and the practice of First Nation research, as well as directed studies in shared resource management and Aboriginal approaches to resource management. Archival sources (e.g., Royal Canadian Mounted Police journals, Hudson Bay Company journals, Anglican Church records, newspaper articles, videos, photographs, and maps) and ethnographic sources relating to the culture, history, and land use of the Vuntut Gwitchin were collected and reviewed. A series of three preliminary meetings with the Vuntut Gwitchin First Nation were undertaken in Whitehorse, Yukon and Old Crow, Yukon, to establish a co-operative research partnership. The present study builds on and extends community-based research the principal researcher conducted during 1998 and 1999 with the Vuntut Gwitchin First Nation (VGFN) in the community of Old Crow, Yukon, which revealed much about the relationship of Vuntut Gwitchin to traditional lands (Sherry & VGFN, 1999). The community includes many experts in the use and stewardship of resources, people whose contributions are essential to SRM. That work revealed that VGFN hope SRM will promote continued life on the land, social health, cultural survival, and economic well being. Vuntut Gwitchin argue for the continuity and efficacy of their TEKMS. They emphasise the rights and responsibilities of resource users and

believe that their knowledge and management systems, supported rather than undermined by government, are the keys to sustainability and conservation. However, the previous research also indicated that northern SRM regimes are only partially effective in achieving their goals. For example, VGFN managers and community members express concern about the continuing erosion of their TEKMS, the high community costs of SRM, conflicts between government and Aboriginal management systems, and flawed management decisions (Kassi, 1990; Klassen, Ogden, & Paul, 1998).

2.2.2 The Historic Gwitchin

At the time of contact, Gwitchin speakers could be grouped into nine regional bands (Welsh, 1974; Slobodin, 1981) (Figure 2.2). Before the Hudson Bay trading posts were built, Gwitchin acted as trading intermediaries between Russians on the lower Yukon River and Inuit on Herschel Island (Welsh, 1970; Cruikshank, 1974; Vanstone, 1974). The Gwitchin made contact with western Europeans in the late 1780's when they met Alexander Mackenzie at the headwaters of what is now the Mackenzie River (Slobodin, 1981; Greer, 1995). In 1840, the Hudson Bay Company established Ft. MacPherson, which was soon followed in 1847 by Ft. Yukon (Cruikshank, 1974) (Figure 2.3). Early during the contact-traditional period in 1860, the Roman Catholic Church and the Church of England sent missionaries to the Gwitchin (Slobodin, 1981). This outside influence resulted in a decade of major small pox epidemics. Between 1889 and 1904, the Yankee whaling boom drew Gwitchin north to the Arctic coast and Herschel Island (Cruikshank, 1974). The Klondike Gold Rush brought impacts to southern Gwitchin populations including epidemic disease, acculturation, and loss of livelihood between 1898 and 1915 (Balicki, 1963; Greer, 1995). The first RCMP detachments to Gwitchin settlements in 1903 were

quickly followed by severe influenza epidemics in 1904 and 1928 and by residential schools, which persisted from 1905 until 1940 (Slobodin, 1981). At the beginning of the modern period in 1953, the Department of Northern Affairs and Natural Resources constructed government schools, administrative offices, and healthcare facilities to focus Gwitchin settlement into a few principal communities (Sherry & VGFN, 1999). By the 1970's most Gwitchin were English speakers (Montgomery, 1994; GCS, 1996; GCS, 1997).

2.2.3 Traditional Territory of the Gwitchin

The traditional territories of Gwitchin peoples are centred on the western sub-Arctic's major river drainages, the Mackenzie, the Peel, the Porcupine, and the Yukon. This region stretches west 1000 km from the Mackenzie River, north to the Brooks Range in Alaska, and south to the sixty-fifth parallel (Cruikshank, 1974, 1991). These great rivers have been a major factor in the ecology and cultural history of the Gwitchin. The traditional territory of the Vuntut Gwitchin encompasses land located east of the Alaska boundary, north of the Ogilvie mountains, west of the NWT border, and south of Ivvavik National Park (DIAND, 1993).

The climate in Vuntut Gwitchin traditional territory is interior sub-Arctic (Christian & Gardner, 1977). Winters are long and cold, while summers are short and hot. The dry interior is covered by boreal forest and by periodically flooded plains around Yukon Flats and the Mackenzie Delta (Slobodin, 1981). Treeline at this latitude occurs at 1200 m above sea level. The terrain is varied, with new, rugged mountains such as the Richardson range contrasting with the broad river valleys of the Porcupine and the wetland complexes of Old Crow Flats (Slobodin, 1962; Cruikshank, 1991).

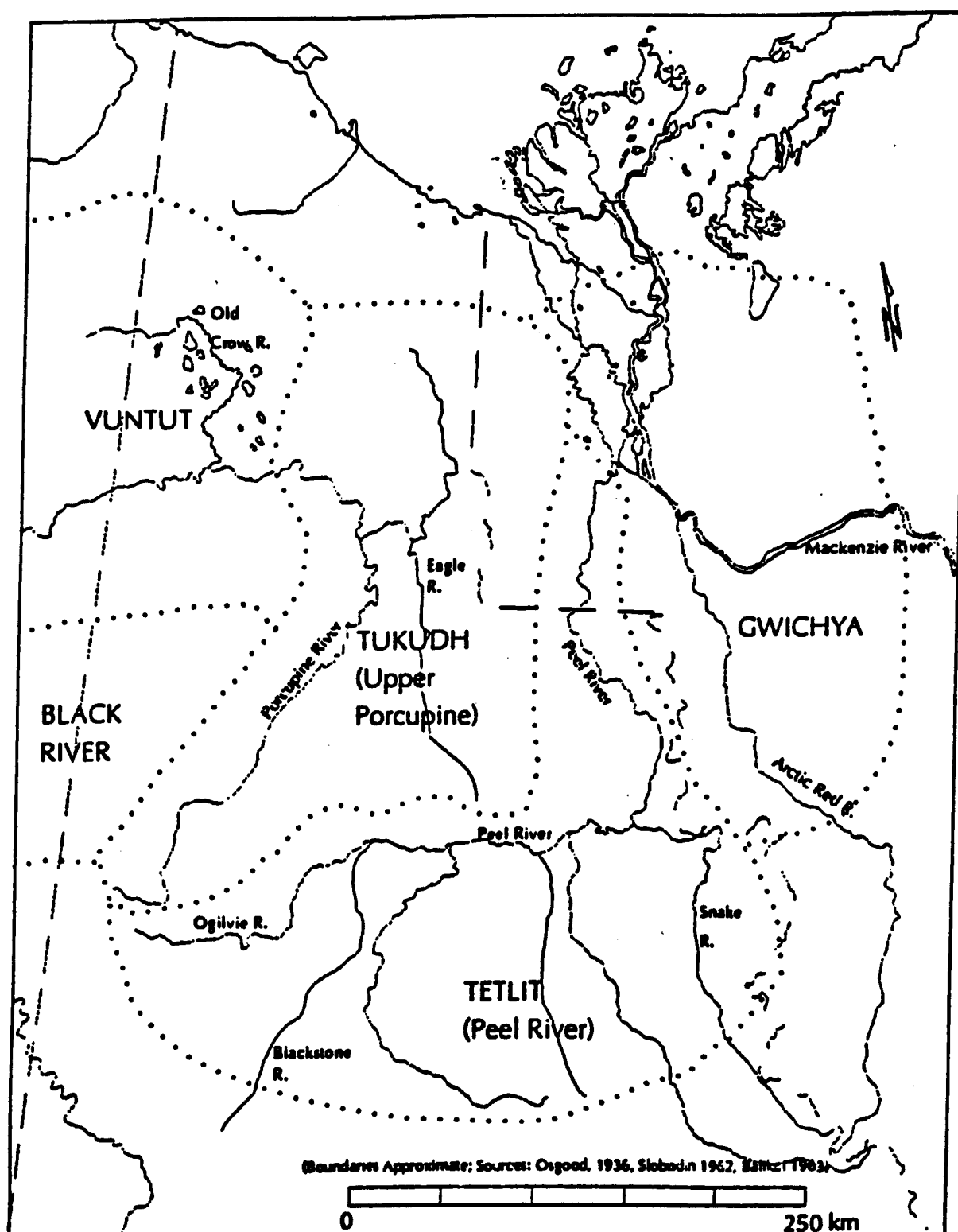


Figure 2.2: Map of five regional Gwich'in groups residing in the Upper Porcupine Basin during the early 19th century (Greer, 1995).

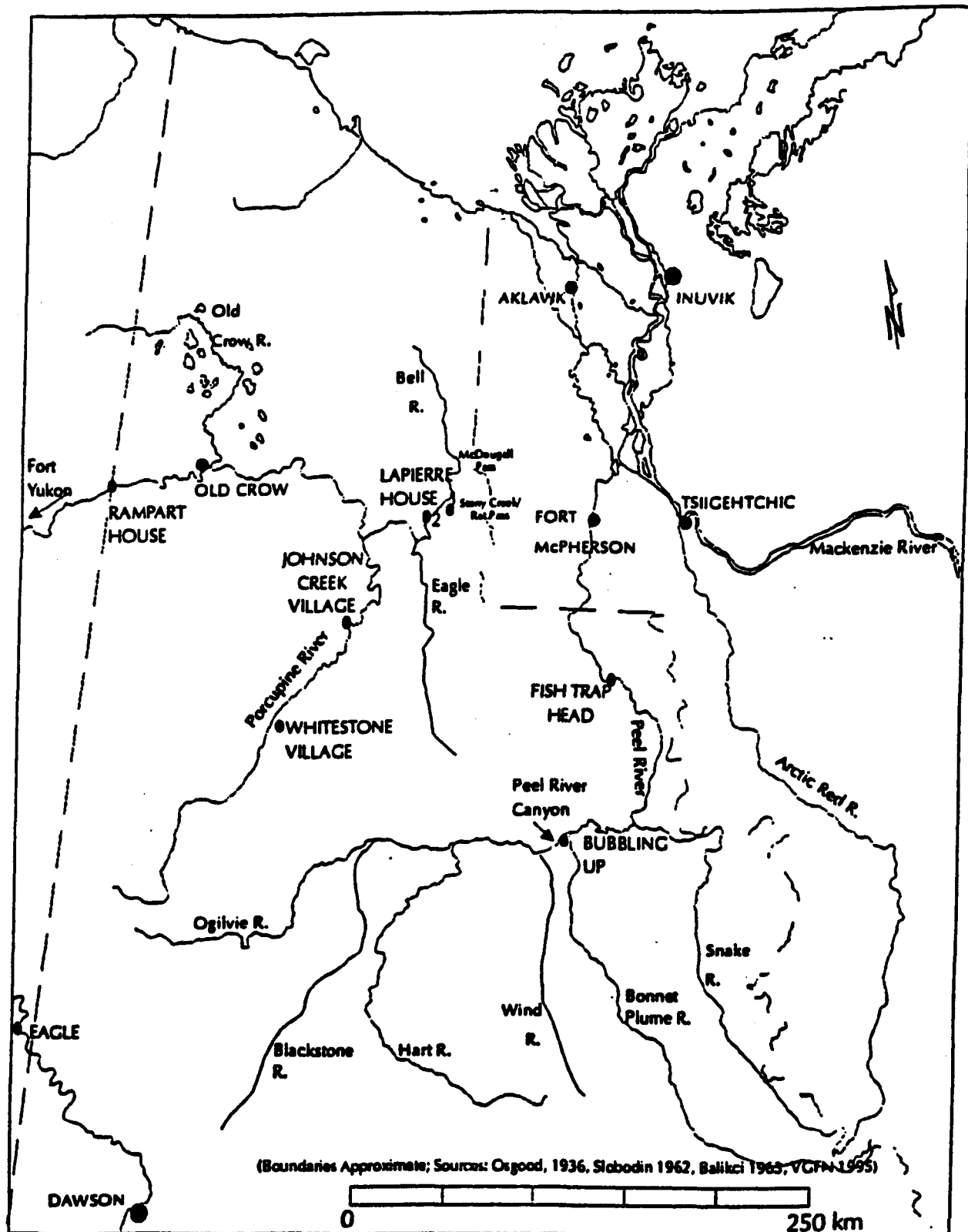


Figure 2.3: Map of regional historic Gwitchin settlements (Greer, 1995).

2.2.4 Vuntut Gwitchin Land Use

For millennia, the tundra, forests, lakes, rivers, and mountains of the north Yukon sustained the ancestors of modern Vuntut Gwitchin. People maintained a seasonal round of activities that tied them economically, spiritually, socially and politically to each other and to the land (Sherry & VGFN, 1999). Understanding of the natural environment, and people's relationship to it, was a prerequisite for survival in a demanding sub-Arctic climate where resources are widely dispersed and fluctuating (Vanstone 1974; Bearisto, Choy-Hee, Davies, Meynell, & O'Carroll, 1997).

Pre-contact, Vuntut Gwitchin were hunter-gatherers, subsisting on a wide variety of edible flora and fauna (Slobodin, 1962; Cruikshank, 1974). Caribou provided the Gwitchin with a large proportion of their food and raw materials for clothing, tools, weapons, ornaments and ritual objects (Sherry & VGFN, 1999). Fish, small mammals, and migratory birds such as ducks, geese, and swans were relied on for day-to-day subsistence (Slobodin, 1981). Other large animals taken for food included moose, dall sheep, and black bear (Bearisto et al., 1997). Balicki (1963:29) described the seasonal cycle of the Vuntut Gwitchin as follows:

In the late summer and autumn the people hunted caribou in the corrals on the mountain slopes north of Crow Flats. After freeze-up, the southbound migration began with people travelling together. They crossed the Porcupine and continued caribou hunting with bows and arrows in smaller bands in wooded areas south of the river. In spring, before break-up, the people left the forests and moved back north to Crow Flats. There they looked for muskrat runways in the snow, and caught the muskrat with hoop nets. After break-up, fishing, using several methods, started, together with duck hunting from birch bark canoes. It was possible for people to congregate in larger groups during the good season.

Due to fluctuations in the availability of resources, Gwitchin bands needed to remain plastic and flexible to allow for families to shift their band association or become wholly independent (Sherry & VGFN, 1999). The seasonal cycle was dominated by two communal, co-operative

activities - the caribou hunt and fishing. The three largest Gwitchin gatherings occurred at fall caribou grounds north of Old Crow Flats, at spring caribou crossings on the Porcupine, and at summer fish camps along the Porcupine (Slobodin, 1962; Welsh, 1970).

While continuing today, these subsistence activities and seasonal land use patterns are increasingly influenced by a sedentary lifestyle, shifts towards a cash economy, mandatory schooling, and reduced resource access (Welsh, 1974). Through an ideology of respect and reciprocity, combined with resource use practices that provide for self-regulation and a system of social organisation that guides human behaviour, Vuntut Gwitchin continue to manage their relationship with the natural, physical, and spiritual realms (Sherry & VGFN, 1999). Now, local management practitioners include people of all ages. The objectives of this local system centre on community/individual well-being, continuation of the resource base, and cultural survival.

2.2.5 The People

The VGFN is centred in the remote community of Old Crow, Yukon, situated on the north bank of the Porcupine River at its confluence with the Crow River, 750 km by air from Whitehorse and 150 km north of the Arctic Circle (Charlie, personal communication, May 18, 1998). Old Crow, the centre for the Vuntut Gwitchin government, is home to 281 people. As of 1995, the Yukon Bureau of Statistics reported 45% of the population was under 24 years of age, 47% was between the ages of 25 and 64 years, and 8% was over 65 years. The population is fairly homogeneous, consisting mainly of VGFN beneficiaries, those people enrolled as members of VGFN under the VGFNFA.

English is the spoken language among the majority of community members, although Elders and many middle-age people continue to speak the traditional language, Gwich'in (Ritter, 1986; Montgomery, 1994). The present-day residents of Old Crow are a composite group of three regional Gwitchin bands but are mainly comprised of Vuntut Gwitchin, 'people of the lakes'; they also describe themselves as 'people of the caribou' because of strong subsistence and cultural ties to the Porcupine Caribou Herd. Two additional First Nations represented include the Tetlit Gwitchin ('people of the headwaters') and the Tukudh Gwitchin ('people between others'). Old Crow has no year-round road access but is regularly served by an airline. River travel by boat and over-land winter travel by snowmobile and dog sled are common.

2.2.6 Political and Regulatory Context of this Study

The VGFN settled a comprehensive land claim and self-government agreement under the *Yukon Umbrella Final Agreement* in 1993 (DIAND, 1993). The VGFN now has legally defined rights to directly manage and protect a portion of the land base they depend on. Settlement lands total 7744.06 km² (mostly Category A lands to which VGFN has surface and subsurface rights) and monetary compensation totals \$19 161 859.

For Vuntut Gwitchin, SRM in the north Yukon began in 1985 with the Porcupine Caribou Management Agreement, which grew out of conflict related to sovereignty and resource development (i.e., Mackenzie Valley Pipeline Inquiry) (Berger, 1977; Therrien, 1987; Kofinas, 1998). This early SRM arrangement, enacted through federal legislation, resulted in the formation of the Canadian Porcupine Caribou Management Board. The VGFNFA has profoundly influenced the development of SRM in the north Yukon; since 1993, a large number

of new regimes have come into existence. The VGFNFA led to the establishment of several jointly managed protected areas including Vuntut National Park, Rampart House Historic Site, LaPierre House Historic Site, Fishing Branch Wilderness Preserve and Habitat Protection Area, and Old Crow Flats Special Management Area A and B (DIAND, 1993). Several chapters in the VGFNFA specify the sharing of jurisdiction for resources and establish institutional structures to implement SRM. VGFN has a seat at the table and varying degrees of power on a variety of SRM councils, committees and boards including the North Yukon Renewable Resource Council, the Yukon Heritage Resources Board, the Yukon Fish and Wildlife Management Board, the Salmon Sub-Committee, the Regional Land Use Planning Commission, the Yukon Water Board, the Yukon Development Assessment Board, and the Yukon Surface Rights Board (DIAND, 1993). These boards and committees are empowered through the legislation that gave effect to the VGFN Final Agreement.

In general, these SRM arrangements provide for balanced Aboriginal and non-Aboriginal membership (DIAND, 1993). Decision-making by these bodies has been described as consensus-based and SRM recommendations are regarded as advisory (Peter & Urquhart, 1991). Decisions are forwarded to the appropriate territorial or federal ministers who accept and implement SRM decisions except when they are inconsistent with available evidence or conflict with factors such as public health and safety, conservation principles, or existing legislation. The history so far is one of transition between government-controlled regulation and new systems of shared management. The variety of SRM regimes involving the VGFN underway in the north Yukon illustrates the successes and failures of working SRM. As such, it is a productive environment for exploring SRM issues; both innovative advances and persistent challenges are evident (Kofinas, 1998). Furthermore, SRM is largely unexplored in this region. Only two other studies

have addressed local SRM: Kofinas (1998) investigated the involvement of three northern Aboriginal communities, including Old Crow, in Porcupine Caribou Herd (PCH) co-management to delineate the community costs of power sharing; and, Therrien (1987) examined Aboriginal participation in public-policy making through a case study of the Porcupine Caribou Management Board (PCMB).

CHAPTER 3

METHODS

3.0 OVERVIEW

Section Overview

- The present structured Delphi communication process involved six iterative rounds and each, except the first which initiated the process, consisted of four stages: a feedback stage, a data collection stage, a content analysis phase, and a data reduction stage.
- Delphi participants were selected using a four-step process based on explicit criteria, including recognised authority, representative experience, sufficient expertise, willingness to contribute, and communication skills. Delphi participants are identified in the present study as experts, a term in common use throughout the literature.
- In this Delphi exercise, experts' responses remained anonymous. Experts had freedom to dissent with the group's view or to add new information for other's consideration. Experts participated independently and asynchronously within a set time frame each round.
- A standard Delphi approach was adapted to accommodate constraints imposed by distance, cultural considerations, communication differences, cost, and convenience. Specific adaptations arose from the principal researcher, VGFN advisors, the community researcher, and local translators. The study assumed an adaptive management approach to monitor and further modify the Delphi method by conducting in-progress evaluations.
- Modifications to the Delphi method included: establishment of a community researcher within Old Crow, employment of local translators, the cultural translation of Delphi questions, the re-design of research workbooks, the cultural translation of Delphi feedback, the re-design of Delphi feedback workbooks, activities to build relationships among experts, different forms of remuneration, use of electronic communications, three different data collection procedures for government experts, traditional land users and First Nation employees, and Elders, intensive contact procedures, use of an expert contact list, and surveys to monitor participant satisfaction.
- Both group content analysis and individual content analysis procedures were applied to transcripts, translations, and written workbook responses to reduce the volume of Delphi input each round in a concise, understandable manner.
- The integrity of data was confirmed through a verification process and four reliability checks performed on content analysis, including analysis team checks, community researcher checks, inter-rater reliability checks, and Delphi expert checks.
- Data reduction occurred in Delphi Round 1, Delphi Round 2, and Delphi Round 3 to distil experts' responses in a straightforward manner, to empower participants to complete the next Delphi round by determining the group's priorities, and to focus the questions in the upcoming round. Although Delphi experts were asked to reconsider their judgements based on the group's input each round, the emphasis of this study was on the expression of diverse positions rather than generating consensus. The majority judgement was used to progressively reduce the data and focus the scope of Delphi rounds.

3.0.1 Design

A community-based research approach guided research design. Several participatory elements were incorporated into the present study, including: establishment of a co-operative research venture with VGFN, Yukon government agencies, and federal government agencies; meaningful involvement of participants at major research stages (e.g., research design, verification, and evaluation); broad community involvement (e.g., use of local research advisors, dissemination of research results using newsletters and oral presentations); employment of community-based researchers, interpreters, translators, and co-ordinators; provision of training for project staff; guaranteeing community ownership of information and control of its uses; promoting self-sustaining capacity for local research; and, efforts to nurture self-identity and promote empowerment as described by Ryan and Robinson (1990) and Ryan (1994). The University of Northern British Columbia Ethics Review Board, the Vuntut Gwitchin First Nation, and the Yukon Scientist's and Explorer's Permit Board reviewed and approved the research. Research followed the Association of Canadian Universities for Northern Studies guidelines for the ethical conduct of research in the north (Graham & McDonald, 1996).

This study involved three phases comprising six iterative Delphi rounds (Table 3.1). Each Delphi round, except the first which initiated the process, consisted of four stages: a feedback stage in which experts received the results of the previous round and reviewed and reflected on this information; a data collection stage when experts responded to the questions and issues posed in that round; a content analysis phase when experts' information was distilled into feedback; and a data reduction stage, when results of the content analysis were distilled to generate questions for the next Delphi round (Figure 3.1). Methodological details of each round are presented in section 3.4.

In the first Delphi round, experts explored the issues underlying SRM by answering general questions about the most important shared resource management issues (Table 3.1). Using content analysis procedures described in section 3.3.3, replies were summarised to generate feedback for experts' further consideration. Data reduction procedures described in section 3.3.5 were used to construct a new set of questions that formed the basis of the following round.

Delphi Round 2 began the exploration phase of three rounds in which the results of Delphi Round 1 were presented and participants evaluated other experts' ideas and refined their own input. It requested experts' judgement on the new set of research questions relating to the opportunities and problems underlying each issue identified in the previous round (Table 3.1). In Delphi Round 3, Delphi experts were asked to establish and explore priorities. In Delphi Round 4, they were asked to further refine and focus their judgement by elaborating on the characteristics of effective SRM. Post-Delphi Round 1 and Post-Delphi Round 2 represented the evaluation phase in which the Delphi method, the project's impact on participants, and the quality of the products of the exercise were evaluated by experts.

Table 3.1: An overview of the three research phases and six rounds of this Delphi application.

Phase	Round	Basic Question(s) Defining Each Round
<i>DEVELOPMENT</i>	Delphi 1	Issues: What are the most important resource management issues when Aboriginal and non-Aboriginal people occupy and use the same land, sharing rights and responsibilities?
<i>EXPLORATION</i>	Delphi 2	Problems and Opportunities: What opportunities (positive influences) and problems (negative influences) underlie these SRM issues?
	Delphi 3	Solutions: What are the most important positive influences and negative influences on SRM? What solutions can be identified for resolving the negative influences and what approaches can be identified for realising the positive influences on SRM?
	Delphi 4	Implementation of Solutions: Based on the findings, what are the characteristics of an effective SRM partnership? How can these characteristics be implemented?
<i>EVALUATION</i>	Post-Delphi 1	Methodological Assessment: What is your opinion of the Delphi method? Impact Assessment: How did the project impact you?
	Post-Delphi 2	Product Assessment: What is your opinion of the final Delphi products?

3.0.2 The Delphi Process

The Delphi process can be envisioned as an inverted pyramid (Figure 3.2). During each round, experts defined the first layer of the pyramid through the range of responses to a series of questions and statements. The researcher organised, summarised, and presented this discussion for consideration in the subsequent round. While the majority opinion strongly determined the direction of the Delphi discussion, everyone's input influenced the character of the next layer of the pyramid.

Experts' responses remained anonymous. Throughout the Delphi exercise, experts were able to add information, react to new ideas, or dissent from the group's position. For example, they could rework feedback to reflect their understanding or add new priorities for the group's consideration. Experts participated independently and had freedom to complete each round where, when, and how they wanted to over a four to seven week period. Experts were not required to answer those questions outside their area of expertise which they felt unqualified to address.

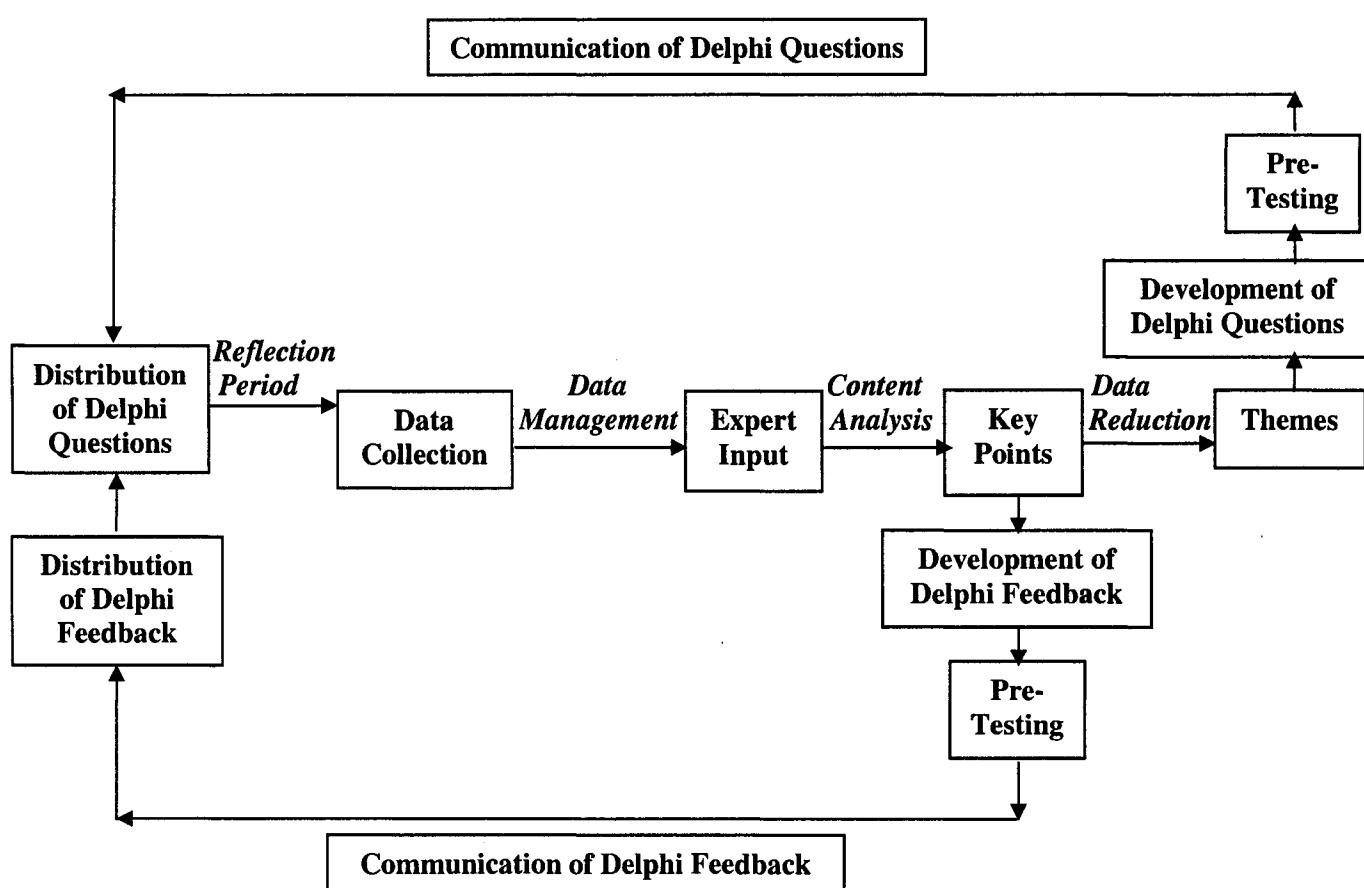


Figure 3.1: Flow chart of a typical Delphi round illustrating the various research stages.

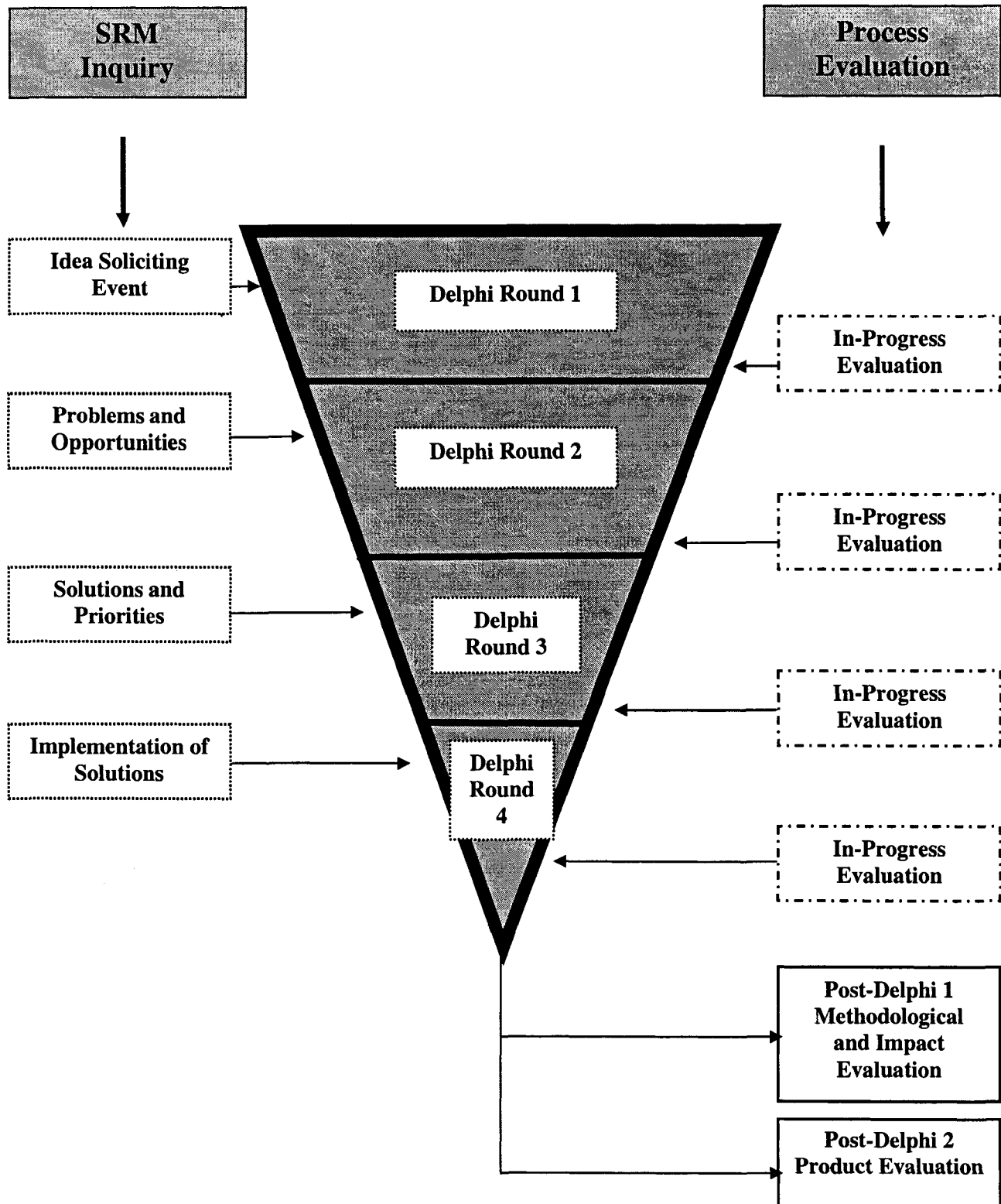


Figure 3.2: The Delphi process depicted as an inverted pyramid. Through each round of research, the scope of the discussion was narrowed and refined. Two rounds to evaluate the method, impact, and products of the research followed.

3.1 EXPERT SELECTION

Delphi experts were selected using a four-stage process based on explicit criteria (Table 3.2). First, a potential expert list was generated based on the personal experience of the principal researcher obtained during previous research in the north Yukon. A second list was also generated using a chain referral or progressive network referral technique to solicit nominations from senior bureaucrats and VGFN leaders (Table 3.3). Combining these two lists resulted in the identification of 21 potential Vuntut Gwitchin Delphi experts and 20 potential federal and territorial government Delphi experts.

An expert selection matrix was created by the principal researcher to verify that nominated experts were appropriately qualified (Table 3.4). The matrix was based on background information about the candidates gained from senior bureaucrats, VGFN leaders, and published sources including web pages and publication databases. Following this, a three-person selection committee comprised of one of the thesis supervisors, the community researcher (see section 3.2.2.1), and the principal researcher evaluated the suitability of each nominee using the specified selection criteria. Two government experts were eliminated because of their lack of regional affiliation. This resulted in a preliminary panel of 21 Vuntut Gwitchin experts and 18 government experts.

All 39 potential participants received an invitation package, sent by courier to government candidates or delivered in-person by the community researcher to VGFN candidates. Every invitation package included: a letter of invitation on University of Northern British Columbia (UNBC) letterhead, an overview of the study design, a summary of project information (e.g., sponsors, scheduling, remuneration, contact information, expected outcomes), and a personal information/administrative data form. This form requested contact information, a project code

Table 3.2: Expert selection criteria and the indicators and information sources used to assess them.

Expert Selection Criteria	Indicators	Information Sources
Recognised Authority	• standing (held in high regard) within a discipline;	• peer nominations
	• standing within a profession;	• peer nominations
	• standing within a community	• peer nominations
Representative Experience	• profession or occupation;	• biographical information
	• agency affiliation;	• biographical information
	• cultural affiliation; and	• biographical information
	• gender	• biographical information
Sufficient Expertise	• demonstrated education or training;	• degrees and/or diplomas • evidence of traditional Vuntut Gwitchin education from self-report, peer assessment, and archival sources
	• evidence of past professional or life experience;	• evidence of experience working or living in the north Yukon from self-report, peer assessment, biographical sources, organisational web sites, publications, and resumes
	• evidence of knowledge of and practical engagement with the issues under investigation	• evidence of experience with resource management, land use, and/or SRM activities in the north Yukon from self-report, peer assessment, biographical sources, organisational web sites, publications, and resumes
Willingness	• ability to contribute sufficient time and effort to the exploration of the Delphi issues and the communication exercise	• expert self-assessment
Communication Skills	• skill in written or oral communication	• expert self-assessment
	• ability to express priorities	• expert self-assessment

Table 3.3: Senior bureaucrats and VGFN leaders contacted to solicit Delphi panel nominations.

Agency	Position Title
Yukon Renewable Resources	<ul style="list-style-type: none"> • Director of Fish and Wildlife Branch • Director of Policy and Planning Branch • Director Yukon Protected Areas Secretariat • Director Field Services Branch • Chief of Regional Management • Chief of Wildlife Management • Chief of Fisheries Management • Senior Park Planner • Northern Field Operations Manager
Yukon Heritage	<ul style="list-style-type: none"> • Director of Heritage • Native Heritage Advisor
Environment Canada	<ul style="list-style-type: none"> • Manager, Canadian Wildlife Service, Yukon-Pacific Region • Head, Resource Management, Canadian Wildlife Service, Yukon-Pacific Region
Department of Indian Affairs and Northern Development	<ul style="list-style-type: none"> • Director of Renewable Resources • Regional Manager, Forest Resources
Parks Canada	<ul style="list-style-type: none"> • Vuntut National Park Superintendent
VGFN Administration	<ul style="list-style-type: none"> • VGFN Chief • VGFN Councillors (3) • President, Vuntut Development Corporation
VGFN Natural Resources	<ul style="list-style-type: none"> • VGFN Natural Resources Manager • VGFN Heritage and Cultural Resources Manager • VGFN Implementation Co-ordinator • VGFN Land Use Planner • VGFN Caribou Co-ordinator
North Yukon Renewable Resources Council	<ul style="list-style-type: none"> • NYRRC Co-ordinator

Table 3.4: Sample expert selection matrix displaying relevant personal details for four nominated Delphi candidates.

CRITERIA	Government Candidate A	Government Candidate B	Vuntut Gwitchin Candidate A	Vuntut Gwitchin Candidate B
Recognised Authority - standing within discipline, profession, and/or community	- nominated by Senior Parks Planner, Director Policy and Planning Branch, Director of Yukon Protected Areas Secretariat, VGFN Land Use Planner, and VGFN Natural Resources Manager	- nominated by Chief of Regional Management, Director of YRR Fish and Wildlife Branch, VGFN Natural Resources Manager, and DIAND Forest Resources Manager	- nominated by VGFN Natural Resources Manager, VGFN Implementation Co-ordinator, VGFN Chief and Council, Vuntut National Park Superintendent	- nominated by VGFN Natural Resources Manager, VGFN Chief and Council, VGFN Heritage Resources Manager, NYRRC, Yukon Native Heritage Advisor
Representative Experience - profession - agency affiliation - cultural affiliation - gender	- protected areas, land use, and community development planner - Yukon Protected Areas Secretariat - dominant culture - female	- caribou biologist - Manager, Canadian Wildlife Service, Yukon Pacific Region - Environment Canada - dominant culture - male	- Vuntut National Park Warden - VGFN Conservation Officer - Parks Canada and VGFN - Vuntut Gwitchin - male	- traditional land user, wilderness guide, trapper - North Yukon Renewable Resource Council - Vuntut Gwitchin - male
Sufficient Expertise - demonstrated education/training - evidence of past professional and/or life experience - evidence of knowledge and practical engagement	- B.S.W., University of Toronto and MSc. Resource Management and Rural Planning, Guelph University - northern, rural, Aboriginal, and wilderness planning - Yukon Protected Areas Strategy - Fishing Branch Habitat Protection Area and Wilderness Preserve planner - North Yukon Land Use Planning Council - Arctic Borderlands Eco-Knowledge Co-operative	- B.Sc. Forestry, UBC and MSc. Forest Wildlife Management - 26 yrs ungulate biology - habitat relationships, range selection, energetics, modelling, impacts of development and climate change - 3 yrs PCH winter range studies, 3 yrs PCH summer range studies, 2 yrs PCH calving studies - 15 yrs SRM experience including PCMB, IPCMB, and WMAC	- Diploma First Nations Business Management and Diploma Renewable Resources Management, Yukon College - traditional on the land education from a variety of respected elders and teachers - raised and currently lives in Old Crow, Yukon - hunter, trapper, fisherman - North Yukon wildlife management planning and SRM of Vuntut National Park	- traditional on the land education from a variety of respected elders and teachers - raised and currently lives in Old Crow, Yukon - hunter, trapper, fisherman, musher - extensive travel in VGFN Traditional Territory - North Yukon Renewable Resource Council - Joint Heritage Management Committee
Willingness to commit sufficient time and effort to communication	- self assessed willingness: medium	- self assessed willingness: high	- self assessed willingness: high	- self assessed willingness: high
Skill in written or oral communication and expressing priorities	- self assessed skill: high	- self assessed skill: high	- self assessed skill: high	- self assessed skill: medium

name to identify the individual during the study, biographical information, and an expert self-assessment using a simple, three-point scale (Table 3.5). Of particular interest were participants' willingness to contribute time and effort to the research, their skill in written and oral communication, and their skill in identifying and expressing priorities. Each expert was also asked to nominate up to three other individuals who met the expert selection criteria as described in the invitation package. This snowballing technique confirmed the suitability of previously identified candidates and added seven additional nominees.

All candidates were contacted two weeks after the invitation package was sent out to answer any questions they might have and to solicit participation. The principal researcher contacted potential government experts either by telephone or e-mail and reminded them to complete their personal information/administrative data form. Vuntut Gwitchin candidates were contacted by the community researcher either in-person or by telephone to confirm their availability and interest. The community researcher assisted willing Vuntut Gwitchin candidates in completing the personal information/administrative data form. As a final check, the extent to which panellists felt confident about their own expertise was compared to the selection committee's independent assessment. This resulted in the elimination of none of the experts who agreed to participate. In total, 15 VGFN candidates and 14 government candidates agreed to participate. Once the Delphi panel was established, the community researcher and the principal researcher asked participants to determine if they were satisfied with the Delphi group's composition and if not, to identify the gaps in expertise. All members endorsed the Delphi project's membership and no additions were made.

Table 3.5: Sample expert self-assessment form detailing one Delphi candidate's rating of his expertise according to specified selection criteria.

<p><i>For each expert selection criterion, please rate yourself.</i></p> <p><i>Use the following scale - high confidence, medium confidence, low confidence</i></p> <p><i>Place a check mark in the appropriate box.</i></p> <p><i>Please provide a brief explanation of your rating. For example, "I have 20 years experience as a hunter", "I gained knowledge of this topic through my Bachelor of Science degree", or "Through my job as a Conservation Officer, I have only limited experience with this issue".</i></p> <p><i>We will use this information to verify our assessment of your expertise and to describe the diversity of experience and interest contained in the Delphi panel.</i></p>				
EXPERT SELF-ASSESSMENT				
Topic	HIGH	MEDIUM	LOW	Comments
Recognised Authority (status within your discipline, profession, or community)	<input checked="" type="checkbox"/>			I have given presentations on community-based resource management at international conferences and was invited by the Saskatchewan Government to be a keynote speaker on this subject at departmental workshops.
Representative Experience (professional and agency affiliation relevant to resource management in the north Yukon)	<input checked="" type="checkbox"/>			I have a lead managerial role in the Yukon Fish and Wildlife Branch on community-based resource management involving First Nations and communities, involving planning, delivery of programs and services, and evaluation.
Sufficient Expertise (education and training; professional experience, knowledge of and practical engagement with the resource management, land use, and/or shared resource management issues)	<input checked="" type="checkbox"/>			I have 12 years of experience representing the Yukon government on various co-management boards and councils and developed the community-based resource management programs and services in the Yukon. I have 17 years of experience working with the Vuntut Gwitchin First Nation and in the north Yukon. For instance I have been a member of the Porcupine Caribou Management Board for seven years.
Willingness To contribute sufficient time and effort to the research exercise	<input checked="" type="checkbox"/>			I am interested in the value of this technique in better integrating local, traditional, and scientific knowledge for resource management and decision-making purposes.
Skill in written or oral communication and expressing priorities	<input checked="" type="checkbox"/>			I am able to participate in writing, over the e-mail, or in an interview format. I am very comfortable with either approach.

3.2 METHODOLOGICAL ADAPTATIONS

The standard Delphi method outlined in section 3.0.1 was adapted to accommodate the constraints imposed by distance, cultural differences, communication preferences, cost, and convenience. The specifics of the adaptations arose from the principal researcher's previous work and research experience with the Vuntut Gwitchin First Nation and government agencies in the Yukon, and the recommendations of Delphi experts, VGFN staff, the community researcher (see section 3.2.2.1), and local translators. This study assumed an adaptive management approach to monitor and modify the Delphi method by conducting in-progress evaluations at the conclusion of the first four Delphi rounds. The methodological adaptations resulting from in-progress evaluations are described below in the appropriate sections.

3.2.1 Distance

Distance barriers between the principal researcher in Prince George, British Columbia and Delphi experts in Whitehorse, Yukon, Dawson City, Yukon, and Old Crow, Yukon, were great. The principal researcher functioned as the research co-ordinator and contact person for all government experts. Cost constraints allowed the principal researcher to travel to Whitehorse and Old Crow only for Delphi Round 1 and post-Delphi Round 1. Communication at other times was achieved with government experts by e-mail, over the phone, by fax, or by courier. A community researcher (see section 3.2.2.1) was hired to co-ordinate the Delphi research in Old Crow and to communicate with Vuntut Gwitchin experts in person.

3.2.2 Cultural Considerations

Delphi experts were treated as a single panel in terms of participating in a common, structured communication process (Figure 3.1). However, the panel actually consisted of two main expert groups: Vuntut Gwitchin experts and government experts from territorial and federal agencies. Vuntut Gwitchin experts were further subdivided to address specific within-group communication differences. Three different approaches were used for territorial government experts and federal government experts; for Vuntut Gwitchin traditional land users and VGFN employees; and for Vuntut Gwitchin Elders. An exception was that two First Nation employees chose to participate using the approach designed for government experts. These adaptations were undertaken to facilitate participation, promote cross-cultural communication, encourage mutual understanding and camaraderie, enhance the potential for in-depth conversation among experts, and motivate experts to continue their commitment to the project. Additional measures were the establishment of a community researcher within Old Crow, the employment of local translators, the cultural translation of Delphi questions, the re-design of Delphi research workbooks, the cultural translation of Delphi feedback, the re-design of Delphi feedback workbooks, efforts directed at building relationships among participants, and different forms of remuneration.

3.2.2.1 Community Researcher

Hiring a community researcher diminished the obtrusiveness of the research and improved the cross-cultural application of the Delphi process. The community researcher was selected by the VGFN Natural Resources Department and the VGFN Chief and Council, with input from the principal researcher, on the basis of awareness of local culture, land-based skills, previous research experience, computer skills, interviewing skills, ability to fluently speak and write both

Gwich'in and English, interest, motivation, and dedication. The VGFN determined that a woman would have best access to all community perspectives. Furthermore, they determined that the designated individual, because of her highly respected standing within the community, age, and previous work with local youth and resource management issues, could develop good rapport with Delphi participants. The community researcher had a close and continuing partnership with the principal researcher throughout the Delphi project. She functioned as a cross-cultural interpreter, Delphi communication co-ordinator, interviewer, transcriber, translator, administrator, report writer, and feedback reviewer.

3.2.2.2 Local Translators

Three local translators were employed to promote the participation of Elders and traditional land users in the research. At the outset of the project, resources were available to translate Delphi instructions, questions, and feedback materials into Gwich'in each round. Some translations were written while others were oral and tape-recorded. Due to cost constraints, all Vuntut Gwitchin experts provided their responses in English during Delphi Round 1. However, as a result of the in-progress evaluation, it was determined that although Elders were capable of speaking English they could more clearly and fully express their perspectives in Gwich'in. In addition, since Gwich'in is an endangered language, Elders believed this project provided an important opportunity for improving Gwich'in literacy in Old Crow. This included: development of the community researcher's language skills through literacy development training and Elder direction in language use; involvement of Elders, the community researcher, and local translators in language renewal activities through the conduct of interviews in Gwich'in and the translation of interview audiotapes; and the publication of Gwich'in reading materials that were grounded in

local culture and were accessible to several learning groups (e.g., high school students; Yukon College students; independent learners in the community). Subsequently, fundraising by the principal researcher and contributions from the VGFN allowed Elders to speak their first language when providing Delphi responses in all remaining rounds.

3.2.2.3 Cultural Translation of Delphi Questions

Delphi questions were individually tailored to each expert group to promote participation and provide each expert an equal opportunity to contribute. The principal researcher initiated the process by writing research and in-progress evaluation questions for government experts to consider (Appendix B-D). These questions appeared in research workbooks, which government experts received at the beginning of each Delphi round.

The principal researcher generated simply-worded research and in-progress evaluation questions, analogous to government expert questions, for Vuntut Gwitchin experts. These were reviewed with the community researcher and local translators to ensure clarity and to preserve the meaning of questions, while making them more understandable and manageable. These modified questions appeared in modified research workbooks that Vuntut Gwitchin experts received at least two weeks in advance of their interviews.

For Elders, modified questions were grouped into similar topic areas and broad questions were developed and translated into Gwich'in. Translations were verified with at least two other recognised Gwich'in language experts. Local translators brought particularly difficult words to Elders for their direction in language use. Questions were provided orally to Elders at least two weeks in advance of their interview. Translated questions were recorded on a cassette tape and

played to Elders during interviews to ensure the accuracy of complicated translation. All Elders were asked the same questions in the same culturally appropriate way.

3.2.2.4 Design of Research Workbooks

Research workbooks for Delphi experts were constructed according to the following conventions. They were typed onto standard letter-sized paper and formatted as a booklet. Questions did not appear on the front or back cover of the instrument. The front cover was a bright colour and contained the project title and an eye-catching illustration. Instructions began on the first inside page. Capital letters were used for instructions and in some cases, a completed sample question unrelated to research topics was provided to aid experts in executing Delphi tasks. Time was spent on the appearance and 'user-friendliness' of the workbooks (e.g., page references, formatting, style, spacing, and visually interesting elements). The workbooks were designed to appear manageable and non-threatening. A two-page cover letter accompanied the research workbook and reiterated the purpose of the study, explained in concise terms the objectives of the current instrument, explained why it was important to review the feedback before answering Delphi questions, reiterated the deadline, provided some positive participant feedback, informed experts about any improvements to the research design, and provided researcher contact information. Letters were individually addressed, signed personally and appeared on UNBC letterhead.

Research workbooks for Vuntut Gwitchin experts included the following modifications as recommended by the community researcher, local translators, and Vuntut Gwitchin experts. The font size was increased to 14pt and 16pt to improve readability. The typeface was changed to a more informal, friendly style (Comic Sans MS). The books were made less intimidating by

ensuring a lot of 'white space' on each page. Colour pages were used as dividers between sections for easy navigation. An introductory section was included to explain the layout of the workbook. Photographs of local people, plants, animals, and landscapes were added to stimulate experts to 'turn the page' and to provide relief from the text.

3.2.2.5 Cultural Translation of Delphi Feedback

Research results were returned to participants in the form of feedback adapted in culturally sensitive and meaningful ways to the various expert groups. The principal researcher initiated the process by writing feedback for government experts to consider, based on content analysis of experts' input. This was packaged in a Delphi feedback workbook.

Feedback was modified for Vuntut Gwitchin experts through extensive discussion among the principal researcher, the community researcher, and local translators with the aim of making the feedback more understandable, non-threatening, interesting, and inviting. Technical words were simplified, complicated sentences were re-worded, sentences were shortened, the overall length of feedback was reduced, and feedback was illustrated using examples provided by Delphi experts. The result was a simple and concise rendering of feedback that preserved key points. This was presented in modified feedback workbooks.

Modified feedback was translated into Gwich'in for Elders and verified by two recognised Gwich'in language experts with Elders guidance when needed. The modified feedback translation was read on to a cassette tape. A copy of the tape remained with each Elder for their ongoing reference throughout the research round.

3.2.2.6 Design of Feedback Workbooks

Each feedback workbook contained research results, a clear introduction, a reiteration of the purpose and methods of the study, a discussion of the development and intent of the current Delphi round, descriptions of key words, a review of the types of feedback, instructions for reading the workbook, and contact information for project employees. Feedback workbooks were constructed for all experts according to the conventions for research workbooks outlined in section 3.2.2.4. Based on the recommendations of the community researcher, local translators, and Vuntut Gwitchin Delphi experts, feedback workbooks were modified according to the formatting and style considerations outlined for modified research workbooks in section 3.2.2.4. In addition to modified feedback workbooks, traditional land users and First Nation employees received a feedback workbook each round as a source of supplementary information. In addition to translated tape recordings, Elders received a copy of the modified feedback workbook and the feedback workbook. If they desired it, government experts received a copy of the modified feedback workbook.

3.2.2.7 Building Relationships

Biographies of each Delphi expert were constructed during the development phase, including a personal history, an explanation of why the expert wanted to participate in the project, a declaration of her/his project expectations, and a description of her/his expertise. In Delphi Round 1, a series of personal questions were put to each expert to provide background on the various cultural values and perspectives included in north Yukon SRM. Experts were asked to describe from a personal and professional standpoint the meaning of the land, the meaning of resource management, and the goals for resource management in the north Yukon. Expert

biographies and background information were presented to the Delphi group as a progress report called *Getting to Know You*, preceding Delphi Round 2. By presenting expert biographies, the publication aimed to promote confidence in the diversity of expertise contained within the Delphi group and to facilitate a sense of camaraderie, trust, and teamwork. By presenting background information attached only to expert code names, the publication aimed to establish experts' Delphi identities and to address cultural and perceptual barriers that could prevent the development of open and in-depth communication.

At the outset of the project, three evening workshops took place in Old Crow with Vuntut Gwitchin experts, the community researcher, local translators, community members, Elders, and local resource management professionals in order to explore the meaning of words frequently used by scientists, researchers, and government managers but which local people found challenging (e.g., resource, wildlife, planning, ecological monitoring, science, development, habitat, protected area). Between 21 and 38 people attended each of these workshops. Results were recorded in a bilingual *Delphi Project Glossary* and returned to the entire Delphi group preceding Delphi Round 2. The glossary aimed to initiate the breakdown of cross-cultural communication obstacles by encouraging experts to consider the existence and impact of ideological and semantic differences, and by providing a common working language for Delphi experts.

A project logo was developed to symbolise the co-operative work of Delphi participants (Appendix A). A project slogan was created, *Nihkhah trigikhyi* or 'together we are talking'. Pens and hats bearing the logo and slogan were produced. The logo and slogan were used in research workbooks, feedback workbooks, and other feedback materials (e.g., newsletters, flyers, final reports).

Each participant chose a unique code name. Each member's code name was used to label all of her/his contributions during the process. Thus, it was possible to provide comments that referenced specific contributions. Experts were able to track the thinking of any expert from one round to the next, better enabling them to understand the origin, context, and evolution of thoughts and responses.

3.2.2.8 Remuneration

Gifts and monetary incentives were provided. Monetary incentives were commensurate with VGFN standards for remuneration. Vuntut Gwitchin experts received: a \$25 honorarium and a T-shirt with a First Nation motif for Delphi Round 1; a \$75 honorarium for the following three Delphi rounds; a \$50 honorarium, a personalised Delphi pen, a fleece scarf and mitts, and a thermal UNBC coffee mug for post-Delphi Round 1; and a \$50 honorarium and a Delphi baseball cap for post-Delphi Round 2. Elders also received a traditional gift of dry meat or berries each round. As public servants, government experts were unable to accept financial remuneration and instead received gifts as a token of appreciation for all rounds including: a UNBC T-shirt for Delphi Round 1; a CD sponsored by the Caribou Commons Project in Delphi Round 2; a Bill Reid print in Delphi Round 3; a leather, UNBC portfolio case in Delphi Round 4; a personalised Delphi pen, a fleece scarf, and a thermal UNBC coffee mug for post-Delphi Round 1; and a Delphi baseball cap for post-Delphi Round 2. In addition, at the conclusion of every round, all experts received a hand written thank-you card acknowledging receipt of their input and expressing gratitude for their continuing commitment.

3.2.3 Communication

Delphi experts had different communication preferences, which affected how information was gathered and communicated back to participants. Three methods of data collection were adopted in this Delphi study: self-administered surveys, semi-structured interviews in English, and unstructured interviews in Gwich'in (Figure 3.3). Different communication methods were required to transfer research questions and feedback to experts (Figure 3.3).

3.2.3.1 Communication of Delphi Questions and Feedback

Feedback workbooks and research workbooks were couriered and e-mailed to government experts by the principal researcher to ensure the rapid, convenient transfer of information and to maximise the amount of time they spent reviewing the workbooks. Government experts responded using e-mail or fax communication. Modified feedback workbooks and modified research workbooks were couriered to the community researcher. She made an appointment with each Vuntut Gwitchin expert at her/his home or office and dropped off the workbooks and translated tape recordings. At this time, the community researcher reviewed the contents of the workbooks and/or tapes and answered any expert's questions.

3.2.3.2 Data Collection

3.2.3.2.1 Pre-Testing

Pre-testing was conducted to identify mistakes in instrument construction and to check readability, clarity, and comprehension. This was particularly important with culturally translated and Gwich'in materials. Six types of pre-test were conducted, including pre-tests for research workbooks, semi-structured interviews, unstructured interviews, feedback workbooks, modified

feedback workbooks, and oral, translated feedback recordings. When possible, pre-testing was conducted under conditions similar to those that would be experienced when the study was underway; however, due to the small size and remoteness of the involved communities, this was not always possible.

The devices for Vuntut Gwitchin experts were pre-tested by the community researcher and an additional community member, who was not a Delphi participant (Figure 3.4). Research workbooks and feedback workbooks were pre-tested each round by two resource managers chosen from UNBC faculty and senior students (Figure 3.4). Volunteers were offered a \$25 gift certificate since pre-testing involved a considerable time commitment. The community researcher or principal researcher sat with pre-test respondents and encouraged them to ask questions as they read and worked through the workbooks. In the case of feedback workbooks, which were often lengthy, pre-testers were asked to examine instructions and introductory materials, and to select a few sections of feedback for review. The community researcher pre-tested the semi-structured interview and the modified feedback workbook by personally reviewing the questions and feedback, then recommending modifications. In addition, she interviewed one volunteer from the community and asked her/him to review the modified feedback workbook with her. These individuals were remunerated with a \$25 honorarium. The local translator pre-tested the translated Delphi questions and the translated, tape recorded feedback workbooks with the community researcher and an additional language expert.

3.2.3.2.2 Government Experts

In Delphi Round 1 and post-Delphi Round 1, government experts participated using semi-structured interviews with the principal researcher. Interviews were conducted at the offices or homes of government experts in Whitehorse, Yukon. In all other rounds, government experts

participated in a self-administered format using research workbooks and responded in writing during a specified timeframe. Self-administered workbooks were preferable to interviews since respondents were literate and had medium to high self-assessed skill in written communication, they had access to computers and Internet connections, the researcher was confident of a high response rate (e.g., at least 70%), and the nature of the questions did not require a face-to-face meeting or the use of visual aids. Two Vuntut Gwitchin experts participated using a self-administered format in all but the first Delphi round.

3.2.3.2.3 Vuntut Gwitchin Experts

All Vuntut Gwitchin experts participated using semi-structured interviews in Delphi Round 1. Subsequently, Vuntut Gwitchin experts were divided into three sub-groups according to age, educational background, language needs, and communication preferences. Elders, who preferred to speak Gwich'in and favoured oral communication, participated by using semi-structured interviews with a bilingual community researcher and a Gwich'in language expert. Traditional land users who spoke Gwich'in but relied on English had limited formal education, were without access to computers, and preferred sharing information orally, participated using semi-structured interviews in English with a bilingual community researcher. VGFN employees with English as a preferred language, who worked with computers, who had post-secondary education, and were skilled in written communication participated by using a drop-and-collect technique with self-administered modified research workbooks. In-progress evaluation during Delphi Round 2 revealed that some First Nation employees preferred semi-structured, English interviews and,

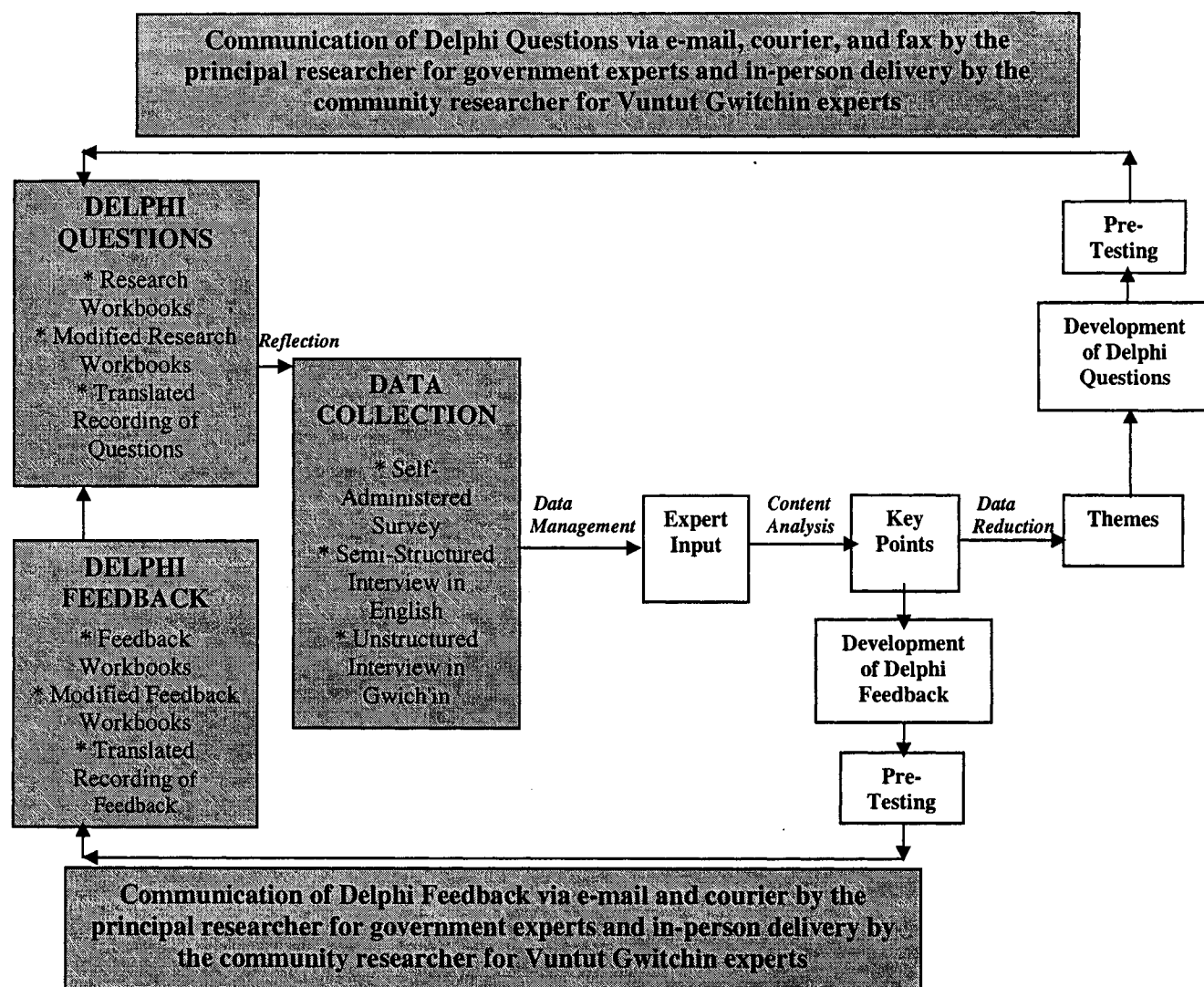


Figure 3.3: Flow chart of a typical Delphi round illustrating methodological adaptations related to communication and cultural differences among Delphi experts.

consequently, five of seven First Nation employees switched to interviews following Delphi Round 2 and were given the opportunity to elaborate orally on their Delphi Round 2 responses.

Each expert was provided with a modified research workbook and an oral explanation of Delphi questions well in advance of the actual interview to encourage reflective thinking. Elders received an oral, tape recorded Gwich'in translation of Delphi questions and reviewed the tape in partnership with the community researcher. The research addressed interviewer reactivity through additional training of the experienced community researcher to avoid biasing respondent's answers (e.g., leading questions or subtle voice/body cues). The principal researcher monitored the community researcher's interviewing technique throughout the project by reviewing tape recordings. All interviews were conducted individually to preserve independence and anonymity. Interviews were conducted in two stages. Each interview was preceded by an informal discussion between the community researcher and the expert regarding the purpose of the interview and the type of information sought. A future interview time and location were established.

The second stage of the interview process involved a pre-arranged meeting to complete the Delphi interview. Interviews were conducted where the local expert was comfortable. A variety of settings were used: in expert's homes, in the community researcher's home, at the Yukon College campus, at VGFN Administration offices, out on the land, or in a bush camp. Semi-structured interviewing techniques were employed for traditional land users and First Nation employees as recommended by Bernard (1995) and Wainwright (1996). An unstructured interview approach was used with Elders to demonstrate respect for their judgement, to give them freedom to decide which subjects were important, and to allow them to present information in a manner consistent with the oral tradition as recommended by Gorden (1975), Lofland

(1976), Spradley (1979), and Smith (1999). Unstructured interviews were based on a clear plan, but interviewers exerted minimal control over Elders' answers. During interviews, the community researcher was able to converse with Elders in Gwich'in and provide supplementary instructions or probing questions from the semi-structured interview guide if an Elder was unresponsive or diverged widely off topic (Whyte, 1984; Reed & Stimson, 1985; Bernard, 1995). The community researcher used different probes (e.g., silent probes, echo probes, and affirmative probes) to stimulate Vuntut Gwitchin experts (Streib, 1952; Matarazzo, 1964; Spradley, 1979; Bernard, 1995). The community researcher was continuously available to experts throughout each research round. Some Vuntut Gwitchin experts requested a follow-up interview to elaborate on their discussion or to clarify particular information following reflection on their contributions.

3.2.3.3 Contact Procedures

Contact procedures were important in enhancing expert response rates and ensuring efficient communication. Based on in-progress evaluation comments, the level of contact was increased after Delphi round 2 to ensure government experts felt adequately supported and less isolated. E-mails informing government experts about the upcoming Delphi round were sent twice during the four to six week data analysis interval. A reminder via e-mail was sent to all government participants a week after each Delphi package was couriered and a week before the due date. The principal researcher attempted to phone government experts once at the mid-point of each round. Government experts were encouraged to contact the principal researcher via e-mail or phone to advance any comments or questions.

The VGFN community researcher visited Vuntut Gwitchin experts once during the data analysis interval to update participants on progress. Prior to the pre-arranged interview date, the

community researcher phoned Vuntut Gwitchin experts to remind them of their appointment and to answer any research-related questions. Vuntut Gwitchin experts were encouraged to contact the community researcher via phone or in-person to advance any comments or questions.

A day after a Delphi round's completion deadline, contact was made with all outstanding respondents. The community researcher rescheduled appointments if they were missed by Vuntut Gwitchin experts. Overdue government experts and Vuntut Gwitchin experts using the self-administered format were reminded by phone or e-mail. If members of these latter two expert sub-groups remained unresponsive, a letter stating how important participation was and a second Delphi research workbook were e-mailed to the expert. The principal researcher worked with unresponsive experts to develop a revised submission schedule. Reminders were sent by e-mail every few days after the revised deadline until the expert indicated his or her intentions.

3.2.3.4 Expert Contact List

Based on expert recommendations from in-progress evaluation, a contact list providing experts' phone numbers, fax numbers, and e-mail was provided at the conclusion of every research workbook starting in Delphi Round 2. Experts were encouraged to contact each other and discuss project issues. This step was taken to diminish the isolation and loneliness some experts felt because of their independent participation. Experts could maintain anonymity in the process while seeking support from other experts outside of the process because contact information was not linked to code names. Experts were encouraged to report the results of their discussions back to the group.

3.2.3.5 Monitoring Participant Satisfaction

Several methods were implemented to monitor participant satisfaction with communication efforts. A section at the end of each interview or research workbook was dedicated to an in-progress evaluation. Modifications to the Delphi method based on expert in-progress evaluation were clearly outlined in a section called *What Worked and What Didn't* to demonstrate researchers had listened to expert input and responded appropriately.

As a result of in-progress evaluation, a group forum entitled *Expert Talk Back* was created in Delphi Round 3 where any expert could ask questions, provide specific comments on another participant's input, or seek elaboration and clarification on issues. Experts contributed to *Expert Talk Back* by commenting at the end of an interview or in the blank space provided at the end of research workbooks. All comments referenced a workbook page number and an expert code name. The principal researcher solicited responses from the involved experts and included them in the following feedback workbook.

An *Impressions Sheet* was used during each interview with government experts and Vuntut Gwitchin experts to document the interviewer's observations of each participant and the interview process. In the case of VGFN expert interviews, the community researcher reviewed her reflections with the principal researcher after she listened to the interview tape recording. Improvements were identified based on these discussions and were applied the following round. Some improvements involved adaptations to the eccentricities of individual experts (e.g., the interviewee taps objects during the interview - make sure the table is cleared next time), while others were adaptations of the interview design (e.g., wording), the interview technique (e.g., pause length, probing questions), or the interview setting (e.g., noise levels, comfort levels).

3.3 DATA MANAGEMENT AND ANALYSIS

3.3.1 Data Management

All semi-structured and unstructured interviews were tape-recorded. The community researcher and the principal researcher also took notes during interviews. Transcription and translation occurred as soon as an interview was completed, while information was clear in the minds of the community researcher and the principal researcher, and to prevent a backlog (Figure 3.4). Hand-written responses to self-administered research workbooks were typed, edited, and the format standardised (Figure 3.4). Electronic responses to self-administered research workbooks were edited and the format standardised (Figure 3.4). All transcriptions, translations, and research workbooks were printed, duplicated, and archived in binders. A data summary form, containing key data collection, data recording, and data management information, preceded each transcript, translation, or self-administered research workbook to document the sources and handling of information.

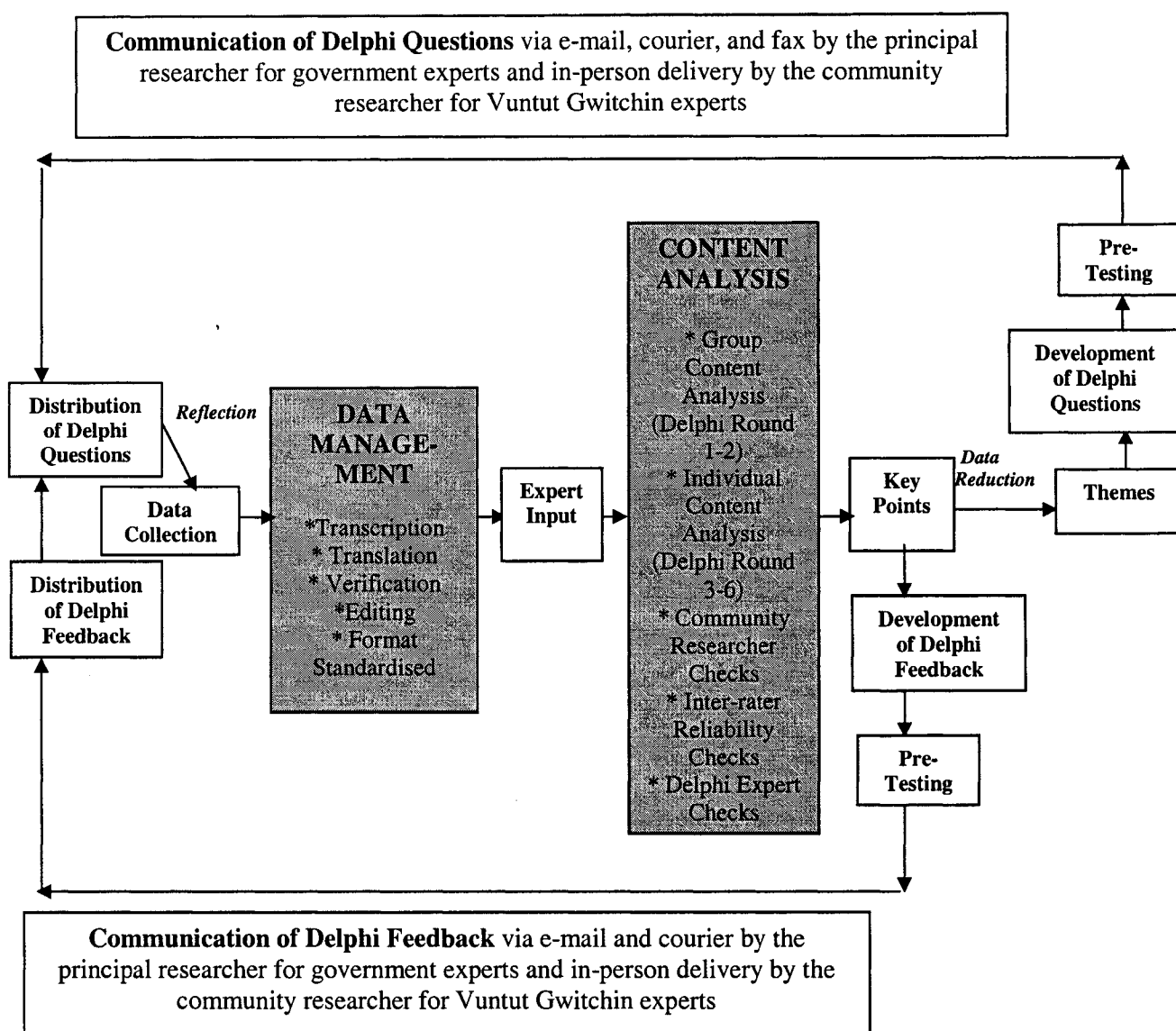


Figure 3.4: Flow chart illustrating the various data management approaches, content analysis procedures, and reliability checks used during each Delphi round.

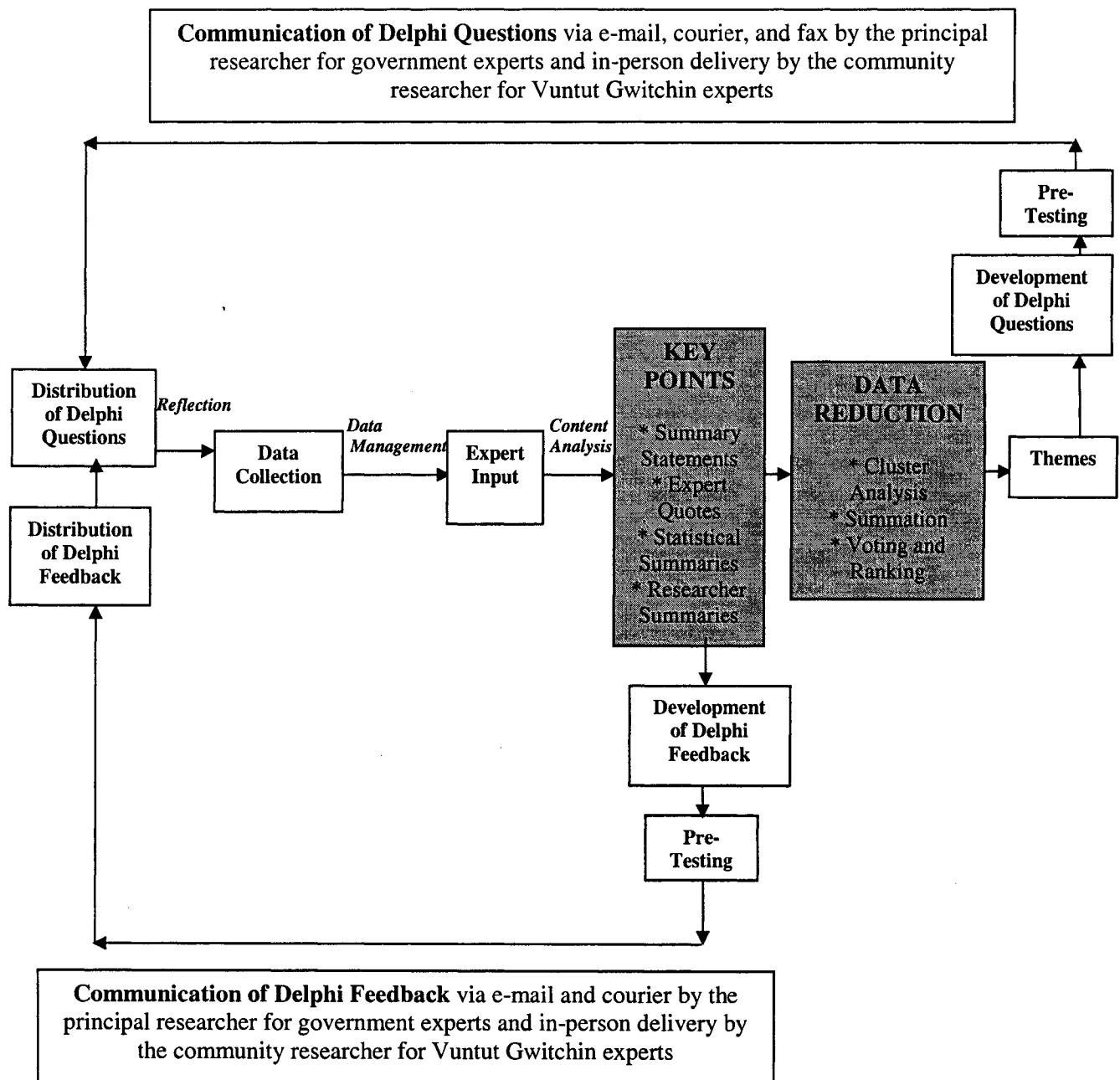


Figure 3.5: Flow chart illustrating the key points of Delphi feedback and the various data reduction procedures used during the Delphi process.

3.3.2 Content Analysis

Content analysis was undertaken to reduce the volume of Delphi responses in each Delphi round. Three sources of data (transcripts, translations, and written research workbook responses) were analysed according to established qualitative data analysis procedures (Bryman & Burgess, 1994; Huberman & Miles, 1994; Olesen, Dries, Hatton, Chico, & Schatzman, 1994; Ritchie & Spencer, 1994). Two content analysis procedures were used during the Delphi project: a team approach involving evaluation of experts' input by a group (group content analysis), and an individual approach involving evaluation of experts' input solely by the principal researcher (individual content analysis). The overarching goal of content analysis was to maximise the quality of feedback material for subsequent Delphi rounds in a concise, clear, and understandable manner (Figure 3.4).

3.3.2.1 Group Content Analysis

A group editing and coding approach following Huckfeldt (1972) was used. The analysis team, consisting of two thesis committee members and two Ph.D. candidates in Natural Resources and Environmental Studies, completed the content analysis according to the following procedures. First, two-thirds of Vuntut Gwitchin expert and government expert responses were selected at random, reproduced, and collated in binders. Responses were organised by distinguishing unique comments and determining if subsequent comments belonged with these earlier ideas or represented new thinking. This was accomplished by assigning an alphanumerical code to each comment to either show its uniqueness or its affinity with previous statements. Day one of coding was spent reviewing transcripts using this group approach. Coding occurred on consecutive days to ensure the analysis team's consistency.

On day two, as the analysis team's familiarity with coding and summary tasks increased and their collective understanding of respondent meaning solidified, each transcript was subjected to content analysis by one member of the analysis team using pre-existing codes. The group reviewed any new idea when it was uncertain which codes should be applied to it. This permitted the entire editing team to judge whether the uncoded statement was new and previously uncoded, or whether the uncoded statement was sufficiently similar to a previous response to warrant a pre-existing code. As the number of coded statements rose, the number of statements requiring group consideration diminished.

After two days of group content analysis, the principal researcher analysed any remaining transcripts using the established coding framework and adding new codes and summary statements when required (see the procedures outlined in section 3.3.2.2). This content analysis resulted in key points that were returned to Delphi experts as feedback.

3.3.2.2 Individual Content Analysis

The above system could not be sustained after Delphi Round 2 because of the volume of material requiring content analysis: every round of expert responses, except post-Delphi 2, involved approximately 600 pages of text. Therefore, the principal researcher conducted content analysis for the remaining four rounds (Figure 3.4) using the following basic steps. Before beginning the process of sifting and sorting data, the principal researcher became familiar with the range and diversity of responses, as recommended by Morse (1991) and Ritchie and Spencer (1994), by listening to tapes, reading transcripts and research workbooks, studying observational notes, and conversing with the community researcher and the local translator. Next, an index was constructed using issues introduced in the interviews and workbooks via the research questions.

Responses were coded by distinguishing unique comments and determining if subsequent comments belonged with these earlier ideas or represented new thinking. An alphanumerical code was assigned to each comment in the margins of the transcript/research workbook to either show its uniqueness or its affinity with previous statements. By adopting this annotated approach, the process was made visible and accessible to others. Each new code and its corresponding summary statement were recorded on wall charts. As in group content analysis, this was a progressive expansion in detail as additional transcripts and research workbooks were assessed. Wall charts were then transcribed into electronic format. This content analysis resulted in key points that were returned to experts as feedback.

3.3.3 Checks of Data Integrity

3.3.3.1 Verification

A verification process was employed to ensure that information was translated and transcribed without losing or distorting meaning. Two local language experts verified translations completed by the community researcher. Elders assisted with difficult words and concepts. Time was devoted to deciphering the true significance or intended meaning of complex information. The possibility of incomplete or inaccurate information also required that participants inspect transcripts of their interviews. Researchers returned transcripts to all participants. Transcripts from all rounds were returned to Vuntut Gwitchin experts in-person and transcripts from Delphi Round 1 and post-Delphi Round 1 were returned to government experts by mail. Researchers requested that experts review their transcripts to guarantee accuracy and correctness. The community researcher reviewed transcripts in partnership with Elders and those traditional land users who wanted support. The community researcher collected corrections from

Vuntut Gwitchin experts in-person. Government experts returned their corrections by e-mail, fax, and mail to the principal researcher. The principal researcher implemented all transcript amendments.

3.3.3.2 Reliability Checks of Content Analysis

Four reliability checks were performed on content analysis including: analysis team checks, community researcher checks, inter-rater reliability tests, and Delphi participant checks. The purpose was to ensure that the analysis team and the principal researcher did not unduly bias the final outcome by the judicial coding and summarising of information.

After a short period of individual coding during the group content analysis process, team members were asked to code identical responses selected at random from a transcript. After coding the response set individually, the team discussed the outcomes and resolved the differences in coding that were discovered. This quality control measure was executed at least twice more during the process.

The community researcher reviewed the content analysis performed on Vuntut Gwitchin Elder transcripts by the principal researcher. Disagreements or changes concerning specific codes and summary statements were discussed and the coding framework adjusted. This was critical as the communication style of Elders differed from that of the principal researcher and Elders expressed complex cultural concepts that had the potential to be overlooked or misinterpreted. The principal researcher carried out content analysis on the remaining Vuntut Gwitchin expert transcripts. Ideas that were difficult to understand or had uncertain meaning were reviewed with the community researcher. Codes and summary statements were mutually agreed upon.

An independent party trained in inter-rater reliability testing carried out quality control each round. In order to ensure responses to each round were consistently presented as feedback in the next, the following inter-rater reliability test was implemented (Hammersley, 1991; Bryman & Burgess, 1994; Olesen et al., 1994; Mays & Pope, 1995; Armstrong, Gosling, Weiman, & Marteau, 1997). In partnership with the skilled independent rater, the principal researcher selected one quarter of Vuntut Gwitchin expert transcripts and one quarter of government expert research workbooks. Each was numbered and selected using a random number generator. The independent rater performed a content analysis on the randomly selected transcripts and research workbooks using the established coding framework. Subsequently, his content analysis was compared to that of either the analysis team or of the principal researcher. The number of codes where the principal researcher or the analysis team and the independent rater agreed was divided by the sum of the agreements and the disagreements for each transcript or research workbook. This resulted in an inter-rater reliability score. It was determined that the inter-rater reliability score could not fall below 0.80; otherwise, the content analysis required reworking (Bell, personal communication, September 28, 2000). For an inter-rater reliability above 0.80, those areas where the independent rater and principal researcher disagreed were adjusted through mutual discussion. This involved the introduction of new codes, the rewording of existing summary statements, or the elimination of redundant codes. If necessary, these changes were extended to the remaining three-quarters of the transcripts and research workbooks.

Experts' satisfaction with the type and quality of feedback was solicited each round. Delphi experts were asked if their contributions were accurately represented in the feedback. If not, experts were asked to revise the feedback. Participants were invited to rewrite summary statements, clarify their intended meaning, or add information they felt was overlooked.

3.3.4 Key Points of Feedback

As described above, content analysis organised and distilled experts' responses to yield codes and summary statements. In many cases, summary statements were collated in feedback workbooks and provided directly to Delphi experts. However, in instances where several interrelated ideas were evident in the coding framework, these ideas were combined to improve the cohesiveness and readability of the feedback (Table 3.6). Summary statements and combined summary statements were reported back to the Delphi group to represent the range of key points advanced by experts (Figure 3.5).

Three additional types of feedback were presented throughout the Delphi process (Figure 3.5). A selection of expert quotes associated with code names was provided to give added detail, to help experts recognise their individual contributions, and to promote a sense of ownership and teamwork. Quote selection was systematic. The group content analysis team selected quotes that contributed to the formation of codes and summary statements in Delphi Round 1 and Delphi Round 2. A minimum of four quotes from each expert was included, and roughly equal numbers of Vuntut Gwitchin expert and government expert quotes appeared in the feedback. In Delphi Round 3, quotes were selected based on experts' voting and ranking; quotes were included from the experts who gave an item its highest ranking. In this way, the people who felt most strongly about an issue had their contributions heard. Except for minor editing for clarity (e.g., removal of repeated words, filler words such as um and uh, spelling errors, and punctuation errors) and to protect anonymity (e.g., removal of family members' names, job titles, or colleagues' names), quotes appeared in their entire, original format. The principal researcher began reporting the results of in-progress evaluations in Delphi Round 2. All experts' comments were fully disclosed in unabridged form.

Table 3.6: Two examples of the feedback in the form of combined summary statements prepared from several interrelated codes and summary statements.

Codes and Summary Statements	Combined Summary Statements as Presented in Feedback Workbooks
<ul style="list-style-type: none"> • BRn7: Share stories with SRM partners • BRn8: Stories provide humour • BRn9: Stories make people feel comfortable • BRn10: Stories can lighten a serious atmosphere • BRn11: Stories make meetings enjoyable for Elders 	<ul style="list-style-type: none"> • SRM partners should share stories with each other. Stories provide humour, make people feel comfortable, can lighten a serious atmosphere, and make meetings enjoyable for Elders.
<ul style="list-style-type: none"> • COMp2: Instead of public meetings, community people need alternative ways to talk to the SRM group because they are shy and afraid. • COMp11: SRM representatives should go house-to-house, visit community people, ask questions, and record the discussion • COMp12: Give community people the chance to submit information in writing to the SRM group • COMp40: Create informal and social settings where the community can interact with the SRM group. 	<ul style="list-style-type: none"> • Instead of public meetings, community people need alternative ways to talk to the SRM group. Options include: SRM representatives going house-to-house, visiting people, and recording the discussion; giving community people the chance to submit information in writing to the SRM group; or creating informal and social settings where the community can interact with the SRM group.

For feedback presented in Delphi Round 2, the principal researcher added a summary of the content analysis in an attempt to provide an overall, quick-review assessment that would encourage experts to read on in more detail (Figure 3.5). As recommended by Alder and Sainsbury (1996), this was completed for the first feedback instrument to make it less intimidating and more consumable by Delphi experts. This was important since, in this round, the highest attrition rates from dwindling motivation can be expected.

Simple quantitative feedback was presented (Figure 3.5). In Delphi Round 2 feedback, the number of times a particular summary statement was advanced and the number of experts who

discussed it were reported. In Delphi Round 3, experts were asked to prioritise and rank items. Thus, the feedback in Delphi Round 4 presented item selection frequencies and rankings using colour-coded frequency histograms. In addition, tables were used to summarise every expert's top 10 priorities. The graphs and tables combined individual feedback to create a group perspective. The community researcher reviewed and discussed quantitative results with local experts, especially in Delphi Round 4.

3.3.5 Data Reduction

Data reduction that occurred in Delphi Round 1, Delphi Round 2, and Delphi Round 3 resulted in themes which formed the basis for question development in the next Delphi round. Data reduction was undertaken to distil experts' responses in an understandable and simple manner. This empowered participants to complete the next Delphi stage by featuring the group's priorities and focused the questions in the upcoming Delphi round to withstand external scrutiny.

Although Delphi experts were asked to reconsider their judgement based on the group's perspective each round, the emphasis in this study was on the expression of diverse positions rather than on generating consensus. Thus, the majority judgement was used to progressively reduce the data and focus the scope of Delphi rounds. Experts' options were not restricted and everyone's input influenced the character of the following round. By keeping a flexible agenda, experts always had freedom to dissent from the group view or to add new material for other expert's consideration.

In Delphi Round 1, broadly similar codes and summary statements were grouped to yield eight key issues. In Delphi Round 2, data reduction was conducted by counting the number of experts associated with each code and by counting the number of times each code occurred. This

resulted in a top 50 list consisting of positive and negative influences on SRM. In Delphi Round 3, data reduction was conducted by using Delphi expert voting and ranking. From the top 50 list, each expert was instructed to pick the top 10 influences that were most critical to SRM and to rank them. This resulted in a list of critical SRM influences for experts' consideration in the subsequent round. Data reduction was unnecessary in Delphi Round 4 as it represented the end of the research concerning SRM. These data reduction procedures are outlined in added detail in the following section on round-by-round application of the modified Delphi.

3.4 SPECIFIC APPLICATION OF THE MODIFIED DELPHI METHOD DURING SIX DELPHI ROUNDS

3.4.1 Delphi Round 1

Introductory materials were provided to experts at the beginning of this round (Table 3.7). The round commenced with a question to verify the underlying assumption of the research: "Is resource management the most important issue when the Vuntut Gwitchin, territorial, and federal governments want to do things on the same land?" Every participant agreed this was true and the research proceeded. The remainder of the round focused on two questions: 1) "What are the most important resource management issues when Vuntut Gwitchin, territorial government, and federal government experts occupy and use the same land, sharing rights and responsibilities?" 2) "Why are these issues important?" In this way, Delphi experts contributed to the definition of the specific scope and content of the project. Data were collected in this round using semi-structured interviews for all participants (Table 3.8). This created an opportunity for Delphi experts to ask any questions about the research and to meet the principal researcher and/or the

community researcher. Furthermore, it gave the principal researcher an opportunity to build a working relationship with the community researcher and to provide training in research skills. After content analysis and data reduction were performed in Delphi Round 1, a set of eight key SRM issues were developed as the basis of feedback and questions in the subsequent Delphi round.

Table 3.7: Introductory materials from Delphi Round 1 illustrating adaptations for each expert group.

Delphi Round	Elders	Traditional Land Users and VGFN Employees, group A	VGFN Employees, group B	Government Experts
Delphi Round 1	<ul style="list-style-type: none"> • Oral, recorded summary of modified introductory materials • Gwich'in • Modified introductory materials • English • Oral introduction • Community researcher and principal researcher contact in-person 	<ul style="list-style-type: none"> • Modified introductory materials • English • Oral introduction • Community researcher and principal researcher contact in-person 	<ul style="list-style-type: none"> • Modified introductory materials • English • Oral introduction • Community researcher and principal researcher contact in-person 	<ul style="list-style-type: none"> • Introductory materials • English • Oral introduction • Principal researcher contact, in-person

Table 3.8: Delphi Round 1 data collection and management methods illustrating adaptations for each expert group.

Delphi Round	Elders	Traditional Land Users and VGFN Employees, group A	VGFN Employees, group B	Government Experts
Delphi Round 1	<ul style="list-style-type: none"> • Oral recorded Research Workbook 1 • Semi-structured interview • English/ Gwich'in • Community researcher led, translator and principal researcher present • Tape recorded, translated, and verified 	<ul style="list-style-type: none"> • Research Workbook1 • Semi-structured interview • English/ Gwich'in • Community researcher led, principal researcher present • Tape recorded, transcribed, and verified 	<ul style="list-style-type: none"> • Research Workbook1 • Semi-structured interview • English • Principal researcher led • Tape recorded, transcribed, and verified 	<ul style="list-style-type: none"> • Research Workbook 1 • Semi-structured interview • English • Principal researcher led • Tape recorded, transcribed, and verified

3.4.2 Delphi Round 2

This round was designed to identify the problems and opportunities surrounding each of the eight key SRM issues identified in the previous round. Delphi experts were provided with a 48-page progress report between the end of Delphi Round 1 and the commencement of Delphi Round 2. Two versions of Delphi feedback workbook 1 were developed, as well as an oral translated summary recording (Table 3.9). The feedback workbook was 52 pages and the modified feedback workbook 28 pages in length. Research questions posed in Delphi Round 2 can be found in Appendix B. Data were collected according to the approaches outlined in Table 3.10.

The top 50 positive influences and negative influences underlying SRM issues were determined by counting the number of experts who advanced each influence from a collection of over 330 influences. The top three positive influences and the top three negative influences were chosen for each of the eight key SRM issues identified in the preceding round. Ties were broken by determining which influence experts suggested most often. For two of the eight key SRM issues, a fourth influence was added to the top three lists since a tie could not be broken. The final list consisted of 25 positive influences and 25 negative influences.

Table 3.9: Delphi Round 2 feedback materials illustrating adaptations for each expert group.

Delphi Round	Elders	Traditional Land Users and VGFN Employees, group A	VGFN Employees, group B	Government Experts
Delphi Round 2	<ul style="list-style-type: none"> • Progress Report • Delphi Project Glossary • Oral recorded summary of modified Feedback Workbook 1 • Gwich'in • Modified Feedback Workbook 1 • English • Oral introduction and overview • Community researcher contact in-person and principal researcher involvement via telephone and letter 	<ul style="list-style-type: none"> • Progress Report • Delphi Project Glossary • Modified Feedback Workbook 1 • Feedback Workbook 1 • English • Oral introduction and overview • Community researcher in-person contact and principal researcher involvement via telephone, e-mail, and letter 	<ul style="list-style-type: none"> • Progress Report • Delphi Project Glossary • Modified Feedback Workbook 1 • Feedback Workbook 1 • English • Couriered • E-mail introduction and overview • Principal researcher contact via e-mail, fax, telephone, letter 	<ul style="list-style-type: none"> • Progress Report • Delphi Project Glossary • Feedback Workbook 1 • English • Couriered • E-mail introduction and overview • Principal researcher contact via e-mail, fax, telephone, letter

Table 3.10: Delphi Round 2 data collection and management methods illustrating adaptations for each expert group.

Delphi Round	Elders	Traditional Land Users and VGFN Employees, group A	VGFN Employees, group B	Government Experts
Delphi Round 2	<ul style="list-style-type: none"> • Oral, recorded summary of modified research workbook 2 • Unstructured interview • Gwich'in • Community researcher led, translator present • Tape recorded, translated, and verified 	<ul style="list-style-type: none"> • Modified research workbook 2 • Semi-structured interview • English/Gwich'in • Community researcher led • Tape recorded, transcribed, and verified 	<ul style="list-style-type: none"> • Modified research workbook 2 • Self-administered • Written responses • English • Couriered and E-mailed • Principal researcher led, community researcher support • Mail, E-mail or fax information transfer 	<ul style="list-style-type: none"> • Research workbook 2 • Self-administered • Written responses • English • Couriered and E-mailed • Principal researcher led • Mail, E-mail or fax information transfer

3.4.3 Delphi Round 3

A 20-page Delphi newsletter, prepared prior to the commencement of Delphi Round 3, presented highlights of the process to date and provided continuity and an alternate form of feedback that gave experts relief from lengthy documents. Copies of the newsletter were distributed to every household and office in Old Crow to increase the visibility of the project, raise awareness about shared resource management issues, and return results in a useful way to the community. As well as Delphi results, the newsletter contained reports from the project facilitator and the community researcher, a story about a weekend river trip, photos of caribou

hunting, photos of bone tools, Gwich'in translations of common bird and mammal names used in the project, cartoons, recipes, puzzles, and children's activities.

Two versions of Delphi feedback workbook 2 were developed, as well as an oral translated summary recording (Table 3.11). The feedback workbook was 93 pages and the modified feedback workbook was 40 pages. Research questions posed in Delphi Round 3 can be found in Appendix C. Data were collected according to the approaches outlined in Table 3.12.

From the top 50 list of important SRM influences identified in the preceding round, participants were directed to select and rank the ten influences that in their opinion were most important to SRM. Selection frequency and importance ranking were used to reduce the top 50 list to the most critical SRM influences. Based on tasks in previous rounds, ten items were considered a reasonable number for experts to work with. The top ten influences were determined by selection frequency, which emphasises the importance of expert choice. Further examination of the data revealed a six-way tie in selection frequency for eleventh place. Since so many influences were clustered immediately after the cut-off point, the principal researcher decided to determine if one influence stood out in importance among the rest. To break this tie, the ranks given to each influence were scored on a ten-point scale such that a rank of one received a score of ten, while a rank of ten received a score of one. Individual scores were added for each influence. Average score was calculated by taking this total score and dividing it by the number of people who selected the influence. Average score demonstrates the importance of an influence to the sub-group of experts who chose it. The average score was compared to break the six-way tie generated by selection frequencies and yielded an additional influence, resulting in a top 11 list of the most critical influences on SRM.

Table 3.11: Delphi Round 3 feedback materials illustrating adaptations for each expert group.

Delphi Round	Elders	Traditional Land Users and VGFN Employees, group A	VGFN Employees, group B	Government Experts
Delphi Round 3	<ul style="list-style-type: none"> • Delphi Project Newsletter 1 • Oral recorded summary of modified Feedback Workbook 2 • Gwich'in • Modified Feedback Workbook 2 • English • Oral introduction and overview • Community researcher in-person contact and principal researcher involvement via telephone and letter 	<ul style="list-style-type: none"> • Delphi Project Newsletter 1 • Modified Feedback Workbook 2 • Feedback Workbook 2 • English • Oral introduction and overview • Community researcher in-person contact and principal researcher involvement via telephone, e-mail, and letter 	<ul style="list-style-type: none"> • Delphi Project Newsletter 1 • Modified Feedback Workbook 2 • Feedback Workbook 2 • English • Couriered • E-mail introduction and overview • Principal researcher contact, e-mail, fax, telephone, letter 	<ul style="list-style-type: none"> • Delphi Project Newsletter 1 • Feedback Workbook 2 • English • Couriered • E-mail introduction and overview • Principal researcher contact, e-mail, fax, telephone, letter

Table 3.12: Delphi Round 3 data collection and management methods illustrating adaptations for each expert group.

Delphi Round	Elders	Traditional Land Users and VGFN Employees, group A	VGFN Employees, group B	Government Experts
Delphi Round 3	<ul style="list-style-type: none"> • Oral, recorded summary of modified research workbook 3 • Unstructured interview • Gwich'in • Community researcher led, translator present • Tape recorded, translated, and verified 	<ul style="list-style-type: none"> • Modified research workbook 3 • Semi-structured Interview • English/ Gwich'in • Community researcher led • Tape recorded, transcribed, and verified 	<ul style="list-style-type: none"> • Modified research workbook 3 • Self-administered • Written responses • English • Couriered and E-mailed • Principal researcher led, community researcher support • Mail, E-mail or fax information transfer 	<ul style="list-style-type: none"> • Research workbook 3 • Self-administered • Written responses • English • Couriered and E-mailed • Principal researcher led • Mail, E-mail or fax information transfer

3.4.4 Delphi Round 4

A flyer accompanied feedback materials and provided a 'quick-look' overview of the structure and content of the reports. This tool aimed to make feedback less intimidating and to point out advanced organisational features that could help participants successfully work through the feedback. Two versions of Delphi feedback workbook 3 were developed, as well as an oral translated summary recording (Table 3.13). The feedback workbook was 178 pages and the modified feedback workbook was 79 pages. Research questions posed in Delphi Round 4 can be found in Appendix D. Data were collected according to the approaches outlined in Table 3.14.

Table 3.13: Delphi Round 4 feedback materials illustrating adaptations for each expert group.

Delphi Round	Elders	Traditional Land Users and VGFN Employees, group A	VGFN Employees, group B	Government Experts
Delphi Round 4	<ul style="list-style-type: none"> • Overview Flyer • Oral recorded summary of modified Feedback Workbook 3 • Gwich'in • Modified Feedback Workbook 3 • English • Oral introduction and overview • Community researcher in-person contact and principal researcher involvement via telephone or letter 	<ul style="list-style-type: none"> • Overview Flyer • Modified Feedback Workbook 3 • Feedback Workbook 3 • English • Oral introduction and overview • Community researcher in-person contact and principal researcher involvement via telephone, e-mail, and letter 	<ul style="list-style-type: none"> • Overview Flyer • Modified Feedback Workbook 3 • Feedback Workbook 3 • English • Couriered • E-mail introduction and overview • Principal researcher contact, e-mail, fax, telephone, letter 	<ul style="list-style-type: none"> • Overview Flyer • Feedback Workbook 3 • English • Couriered • E-mail introduction and overview • Principal researcher contact, e-mail, fax, telephone, letter

Table 3.14: Delphi Round 3 data collection and management methods illustrating adaptations for each expert group.

Delphi Round	Elders	Traditional Land Users and VGFN Employees, group A	VGFN Employees, group B	Government Experts
Delphi Round 4	<ul style="list-style-type: none"> • Oral, recorded summary of modified research workbook 4 • Unstructured interview • Gwich'in • Community researcher led, translator present • Tape recorded, translated, and verified 	<ul style="list-style-type: none"> • Modified research workbook 4 • Semi-structured interview • English/ Gwich'in • Community researcher led • Tape recorded, transcribed, and verified 	<ul style="list-style-type: none"> • Modified research workbook 4 • Self-administered • Written responses • English • Couriered and E-mailed • Principal researcher led, community researcher support • Mail, E-mail or fax information transfer 	<ul style="list-style-type: none"> • Research workbook 4 • Self-administered • Written responses • English • Couriered and E-mailed • Principal researcher led • Mail, E-mail or fax information transfer

3.4.5 Post-Delphi Round 1

A 28-page Delphi newsletter was published to provide continuity between rounds and a summary of Delphi Round 4 results (Table 3.15). Copies were distributed to every household and office in Old Crow. As well as Delphi Round 4 results, the newsletter contained reports from the principal researcher and the community researcher, a story about a camping trip, poetry, photos of the land, a tribute to a deceased Elder who participated in the Delphi project, an explanation of how to make dried meat, information on culturally significant plants, recipes, puzzles, and children's activities. The Delphi project hosted a dinner in Old Crow that coincided with a set of Yukon and federal government planning and management sessions in the

community. Twenty project experts gathered together to share a traditional meal, to listen to a brief presentation on project results, and to discuss Delphi experiences face-to-face. Data were collected according to the approaches outlined in Table 3.16.

Table 3.15: Post-Delphi Round 1 feedback materials illustrating adaptations for each expert group.

Delphi Round	Elders	Traditional Land Users and VGFN Employees, group A	VGFN Employees, group B	Government Experts
Post-Delphi 1	<ul style="list-style-type: none"> • Delphi Project Newsletter 2 • English • Oral introduction and overview • Delphi Project Dinner and Presentation • Interpretation • Community researcher in-person contact and principal researcher involvement via telephone and letter 	<ul style="list-style-type: none"> • Delphi Project Newsletter 2 • English • Oral introduction and overview • Delphi Project Dinner and Presentation • Community researcher in-person contact and principal researcher involvement via telephone and letter 	<ul style="list-style-type: none"> • Delphi Project Newsletter 2 • English • Couriered • E-mail introduction and overview • Delphi Project Dinner and Presentation • Community researcher in-person contact and principal researcher contact via e-mail, fax, telephone, letter 	<ul style="list-style-type: none"> • Delphi Project Newsletter 2 • English • Couriered • E-mail introduction and overview • Delphi Project Dinner and Presentation • Community researcher in-person contact and principal researcher contact, in-person, and via e-mail, fax, telephone, letter

Table 3.16: Post-Delphi Round 1 data collection and management methods illustrating adaptations for each expert group.

Delphi Round	Elders	Traditional Land Users and VGFN Employees, group A	VGFN Employees, group B	Government Experts
Post-Delphi 1	<ul style="list-style-type: none"> • Oral, recorded summary of modified research workbook 5 • Combination semi-structured and unstructured interview • Gwich'in • Community researcher led, translator present • Tape recorded, translated, and verified 	<ul style="list-style-type: none"> • Modified research workbook 5 • Semi-structured interview • English/Gwich'in • Community researcher led • Tape recorded, transcribed, and verified 	<ul style="list-style-type: none"> • Modified research workbook 5 • Self-administered • Written responses • English • Couriered and E-mailed • Principal researcher led • Mail, E-mail or fax information transfer 	<ul style="list-style-type: none"> • Research Workbook 5 • Semi-structured interview • English • Couriered and E-mailed • Principal researcher led • Tape recorded, transcribed, and verified

3.4.6 Post-Delphi Round 2

Three final reports were returned to Delphi experts at the beginning of this round (Table 3.17). A Delphi experts' *Photo Gallery* was created to extend the relationships initiated during the research beyond the lifetime of the project. This 33-page document presented a photograph of each expert and researcher, his or her contact information, and a quotation summarising his or her project experiences. A summary report entitled *Keep the Circle Strong* was developed to share what was learned about using the modified Delphi method. Practical and methodological issues were discussed and the advantages and limitations of this modified Delphi method were presented in a 99-page publication. Another 179-page report was generated to summarise the characteristics of an effective shared resource management partnership as developed by Delphi

experts. This document, *Constructing Co-operation*, provided a range of concepts, tools, and guidelines for resource managers and communities interested in improving the practice of SRM. Every Delphi expert received the same version of these reports; however, they were sensitive to cultural and communication differences among expert groups. The design of these reports followed procedures outlined in section 3.2.2.4 and several additional features are outlined below. Report covers were bright and colourful, variously portraying the Delphi project logo, Vuntut Gwitchin crafts, a map of north Yukon SRM areas, archival photographs, and contemporary photographs of local people, places, and animals. An English introduction and a Gwich'in introduction were presented as well as an overview of the publication's organisation and content. Every chapter in the final reports was condensed into a summary sheet to provide a quick overview of the chapter and super summary sheets were developed to present a simple and concise distillation of this overview (e.g., re-wording difficult sentences, breaking down complex ideas into a series of points, using colloquial English). Each report contained a community researcher report in which she presented her interpretation of project results and summarised her Delphi project experience. Expert quotes were featured prominently and colour pages were added as dividers between sections for easy navigation. Each report included 30-60 photographs of local people, plants, animals, and landscapes. Data collection methods for post-Delphi Round 2 are outlined in Table 3.18.

Table 3.17: Post-Delphi Round 2 feedback materials illustrating adaptations for each expert group.

Delphi Round	Elders	Traditional Land Users and VGFN Employees, group A	VGFN Employees, group B	Government Experts
Post-Delphi 2	<ul style="list-style-type: none"> • Delphi experts' <i>Photo Gallery</i> • <i>Keep the Circle Strong</i> - Delphi evaluation report • English • Gwich'in summary • Oral introduction and overview • <i>Constructing Co-operation</i> - SRM report • English • Gwich'in summary • Oral introduction and overview • Community researcher in-person contact and principal researcher involvement via telephone and letter 	<ul style="list-style-type: none"> • Delphi experts' <i>Photo Gallery</i> • <i>Keep the Circle Strong</i> - Delphi evaluation report • English • Gwich'in summary • Oral introduction and overview • <i>Constructing Co-operation</i> - SRM report • English • Gwich'in summary • Oral introduction and overview • Community researcher in-person contact and principal researcher involvement via telephone, e-mail, and letter 	<ul style="list-style-type: none"> • Delphi experts' <i>Photo Gallery</i> • <i>Keep the Circle Strong</i> - Delphi evaluation report • English • Gwich'in summary • Couriered • E-mail introduction and overview • <i>Constructing Co-operation</i> - SRM report • English • Gwich'in summary • Couriered • E-mail introduction and overview • Principal researcher contact via e-mail, fax, telephone, and letter 	<ul style="list-style-type: none"> • Delphi experts' <i>Photo Gallery</i> • <i>Keep the Circle Strong</i> - Delphi evaluation report • English • Gwich'in summary • Couriered • E-mail introduction and overview • <i>Constructing Co-operation</i> - SRM report • English • Gwich'in summary • Couriered • E-mail introduction and overview • Principal researcher contact via e-mail, fax, telephone, and letter

Table 3.18: Post-Delphi 2 data collection methods illustrating cross-cultural adaptations.

Delphi Round	Elders	Traditional Land Users and VGFN Employees, group A	VGFN Employees, group B	Government Experts
Post-Delphi 2	<ul style="list-style-type: none"> • Oral, recorded summary of modified research workbook 6 • Unstructured interview • Gwich'in • Community researcher led, translator present • Tape recorded, translated, and verified 	<ul style="list-style-type: none"> • Modified research workbook 6 • Unstructured interview • English • Community researcher led • Tape recorded, transcribed, and verified 	<ul style="list-style-type: none"> • Modified research workbook 6 • Self-administered • Written responses • English • Couriered and E-mailed • Principal researcher led • Mail, E-mail or fax information transfer 	<ul style="list-style-type: none"> • Research workbook 6 • Self-administered • Written responses • English • Couriered and E-mailed • Principal researcher led • Mail, E-mail or fax information transfer

3.4.7 In-Progress Evaluation

In-progress evaluations were conducted from the conclusion of Delphi Round 1 through Delphi Round 4. Feedback on in-progress evaluation was returned to experts in feedback workbooks, modified feedback workbooks, and final reports (Table 3.19). A summary of yes/no voting scores was reported and all experts' inputs were included using direct quotes in a section called *What Works and What Doesn't*. Feedback involved a researcher assessment of expert needs and an explanation of how the Delphi process was adapted in a section called, *A New Look for Delphi*.

Experts received in-progress evaluation questions in advance as part of either research workbooks, modified research workbooks, or oral, Gwich'in recordings. Data collection methods are outlined in Table 3.20.

Table 3.19: In-progress evaluation feedback materials illustrating adaptations for each expert group.

Delphi Round	Elders	Traditional Land Users and VGFN Employees, group A	VGFN Employees, group B	Government Experts
In-Progress Evaluation (Delphi Round 2 and Delphi Round 3)	<ul style="list-style-type: none"> • In-progress evaluation feedback contained in Modified Feedback Workbooks • English • Oral introduction and overview • Community researcher in-person contact and principal researcher involvement via telephone, e-mail and letter 	<ul style="list-style-type: none"> • In-progress evaluation feedback contained in Modified Feedback Workbooks • English • Oral introduction and overview • Community researcher in-person contact and principal researcher involvement via telephone, e-mail and letter 	<ul style="list-style-type: none"> • In-progress evaluation feedback contained in Modified Feedback Workbooks • English • E-mail introduction and overview • Principal researcher contact, e-mail, fax, telephone, letter 	<ul style="list-style-type: none"> • In-progress evaluation feedback contained in Feedback Workbooks • English • E-mail introduction and overview • Principal researcher contact, e-mail, fax, telephone, letter

Table 3.20: In-progress evaluation data collection methods illustrating adaptations for each expert group.

Delphi Round	Elders	Traditional Land Users and VGFN Employees, group A	VGFN Employees, group B	Government Experts
In-Progress Evaluation (Delphi Round 2 to Delphi Round 4)	<ul style="list-style-type: none"> • Oral, recorded research workbook • Semi-structured interview • Gwich'in • Community researcher led, translator present • Tape recorded, translated, and verified 	<ul style="list-style-type: none"> • Modified research workbook • Semi-structured interview • English/Gwich'in • Community researcher led • Tape recorded, transcribed, and verified 	<ul style="list-style-type: none"> • Modified research workbook • Self-administered • Written responses • English • Couriered and E-mailed • Principal researcher led • Mail, E-mail or fax information transfer 	<ul style="list-style-type: none"> • Research workbook • Self-administered • Written responses • English • Couriered and E-mailed • Principal researcher led • Mail, E-mail or fax information transfer

3.5 FRAMEWORK ANALYSIS

Framework analysis used the methods of Ritchie and Spencer (1994) and Merriam (1988). All responses relating to the top 11 critical influences on SRM were considered to develop a picture of the range of ideas and experiences contained in experts' contributions as a whole. Subsequently, through the process of 'charting', codes were rearranged according to new themes based on the top 11 most important influences on SRM and considerations about how to present and write up the study. This analysis was mainly thematic (for each theme across all respondents). Charts were laid out for each subject area and entries made for all participants using a paper-and-pencil technique or a Microsoft Excel spreadsheet (Table 3.21). Some charts ordered individual responses based on known characteristics that could affect input (e.g., cultural

affiliation, age, and agency affiliation) (Table 3.22). This made it possible to discuss not only Delphi experts' views in general, but the views of expert sub-groups (e.g., Elders' perspectives or government experts' attitudes). The level of detail recorded in these charts varied from codes, to keywords, to more lengthy descriptions. The original text was always referenced so the source could be traced. Illustrative passages for possible use as quotations were delineated by recording transcript page numbers or feedback workbook page numbers.

Subsequently, the data set was 'mapped and interpreted' as a whole (Ritchie & Spencer, 1994). Piecing together this overall picture involved several logical and creative pathways: reviewing the coding frameworks, charts, and participant quotes; searching for patterns, associations, and connections; or comparing accounts and experiences. Several types of findings emerged from this qualitative data analysis including: defining concepts (e.g., participatory SRM, effective representatives, or community), mapping the range and nature of phenomenon (e.g., key reasons why the integration of traditional knowledge and science are so difficult), finding associations (e.g., Vuntut Gwitchin experts feel disadvantaged in public meetings), providing explanations (e.g., why cross-cultural misunderstanding is prevalent), and developing strategies (e.g., an approach to identifying a common vision and shared goals).

Table 3.21: Sample thematic chart of summary characteristics of an effective SRM representative.

Capacity	Knowledge	Communication
<i>D3 - MDLp1 23:</i> adequate financial resources	<i>D3 - MDLp1 1:</i> resource related knowledge	<i>D3 - MDPp1 16:</i> sensitivity to cultural differences in communication
<i>D2 -MDL 7:</i> well respected, trusted member of the community	<i>D3 - MDLp1 31:</i> background understanding of Vuntut Gwitchin culture	<i>D3 - MDLp1 23:</i> bilingualism
<i>RO 19:</i> adequate training and education related to issues under consideration	<i>ER 11:</i> understanding of current legislative and constitutional frameworks	<i>D2 - COM 8:</i> attention to internal communication; generating dialogue with constituents
<i>ER 6:</i> previous cross-cultural experience	<i>WRM 8:</i> familiarity with government policies and procedures	<i>BR 18:</i> competency with a variety of participatory communication exercises
<i>ER 27:</i> commitment to ongoing learning	<i>AMP 13:</i> traditionalist, experience in bush skills and life on the land	<i>GC 6:</i> conflict mediation and resolution skills

Table 3.22: Sample thematic chart linked to participant characteristics and Delphi experts' motivation.

Expert Motivators	Blue Jay	Snowbird	Aurora	Fireweed	Gremlin	Driftwood	Dragonfly
Learning	PM3 PM10 PM 26 PO 14	PM10 PM 26 PO 14	PM 4 PM 5 PM 23 PI 8	PM 5 PM 10 PM23 PI 8	PO 4 PM 10 PE 22 PI 8	PM 10 PO 17 PO 19 PI 9	PM 10 PE 22 PI 9
Personal Relevance	PO16 PI 31 PI 39	PO16 PO 18 PI 31 PI 39	PO 8 PO 15 PI 12	PO 8 PO 15 PE 11	-----	PO18 PI 39	PO 18 PI 17 PI 39
Tension for Change	PM 2 PI 16 PI 38	PM 2 PI 38	PM 2 PE 3 PI 38	-----	PM 2 PI 38	PM 2 PM 4 PE 11	PM 2 PM 7 PI 38

CHAPTER 4

RESULTS

4.0 EXPERT SELECTION

4.0.1 Panel Composition

The Delphi expert selection process resulted in the nomination and review of 46 people, of whom 39 were invited to serve as panellists. A total of 15 Vuntut Gwitchin experts and 14 territorial and federal government agency experts consented to serve. The membership of the Delphi panel took into account a diversity of experience, knowledge, and interests related to north Yukon SRM. Experts comprised a heterogeneous group with respect to culture, language, education (formal/traditional), power base (professionals/land users; centralised authority/customary authority; bureaucracy/community), knowledge base (literate/oral; scientific/traditional), gender, age, and location.

The panel contained a cross-section of professions or occupations involved in land use and management in the north Yukon (Table 4.1). Each profession or occupation was represented by two or more experts to accommodate potential attrition. All members of the Delphi panel possessed regional affiliation by virtue of working or living in the north Yukon. There were a balanced number of experts from Vuntut Gwitchin culture and western culture (Table 4.2). There was a preponderance of male experts in the panel (Table 4.2).

Table 4.1: Distribution of Delphi expertise according to profession or occupation.

Profession or Occupation	Number of Experts
Elder*	3
Traditional Land User**	5
Land Claims Implementation	3
Heritage Management	3
Protected Areas Management	2
Field Services and Enforcement	2
Biologist	3
Senior Resource Manager***	6
Policy and Planning	2
TOTAL	29

* Elders are generally over 65 years of age, recognised as community and spiritual leaders, and acknowledged as particularly knowledgeable about and skilled in life on the land.

** Traditional land users are not yet Elders but are nonetheless recognised community experts in land-based activities such as hunting, fishing, and trapping.

*** Senior resource managers were in the fields of fish and wildlife, forestry, land use planning, land claims implementation, protected areas management, heritage management, and enforce

Table 4.2: Distribution of Delphi expertise according to gender and cultural affiliation.

Cultural Affiliation	Gender	Number of Experts	Total by Cultural Affiliation	Total by Gender
Vuntut Gwitchin	Female	4	14	Female Experts 11
Vuntut Gwitchin	Male	10		
Dominant Western	Female	6	14	Male Experts 18
Dominant Western	Male	8		
Other Aboriginal	Female	1	1	
Other Aboriginal	Male	0		
TOTAL			29	29

The VGFN Natural Resources Department employed five of the Vuntut Gwitchin experts, while two Vuntut Gwitchin experts were employed by federal and territorial government agencies (Table 4.3). Eight Vuntut Gwitchin experts had no agency affiliation; they were recognised as representatives of Vuntut Gwitchin culture and lifestyle. There was a greater number of territorial government agency experts compared to federal government agency experts (Table 4.3). Experts from three federal resource management agencies and six territorial agencies were involved in the research.

Table 4.3: Distribution of Delphi expertise according to agency affiliation.

Government Agency Affiliation	Number of Experts
Federal Government	4
• Environment Canada and the Canadian Wildlife Service	2
• Department of Indian Affairs and Northern Development	1
• Parks Canada	1
Territorial Government	12
• Yukon Renewable Resources, Fish and Wildlife Branch	5
• Yukon Renewable Resources, Field Services Branch	2
• Yukon Renewable Resources, Policy and Planning Branch	1
• Yukon Tourism, Heritage Branch	2
• Yukon Protected Areas Secretariat	1
• Yukon Executive Council	1
Vuntut Gwitchin Government	5
• Natural Resources Department	5
Vuntut Gwitchin Beneficiaries	8
• Elders	3
• Traditional Land Users	5
TOTAL	29

4.0.2 Panel Attrition and Expert Response Rates

No experts dropped out of the research during Delphi round 1 (Table 4.4). In Delphi Round 2, one government expert withdrew and in Delphi Round 3, one Vuntut Gwitchin expert from the VGFN Natural Resources Department withdrew. The passing of a Vuntut Gwitchin Elder in Delphi Round 3 reduced the total number of Vuntut Gwitchin experts to 13. In Post-Delphi Round 2, one Vuntut Gwitchin expert failed to participate. Response rate was consistently high throughout the study and averaged 98% overall (Table 4.4). When queried in post-Delphi Round 1, experts identified several factors motivating their continuing commitment and participation in the research (Table 4.5).

Table 4.4: Delphi expert response rates.

Delphi Round	Vuntut Gwitchin Experts	Government Experts	Response Rate
<i>Delphi Round 1</i>	15/15	14/14	100%
<i>Delphi Round 2</i>	15/15	13/14	97%
<i>Delphi Round 3</i>	14/15	13/13	96%
<i>Delphi Round 4</i>	13/13	13/13	100%
<i>Post-Delphi 1</i>	13/13	13/13	100%
<i>Post-Delphi 2</i>	12/13	13/13	96%
Average			98%

Table 4.5: Factors motivating Delphi experts' commitment and ongoing participation in this Delphi research project.

Motivation Factors
• Research addressed issues of professional and/or personal relevance
• Dissatisfaction with the current state of SRM in the Yukon and a desire for change
• Opportunity for sharing knowledge and experiences with other experts across cultural, communication, professional, personal, and/or distance barriers
• Project timing (e.g., timely issues, conditions in the Yukon favour change)
• Potential for useful outcomes and community benefits
• Potential for learning and growth
• Respect for other experts
• Ability to meet the requirements of Delphi participation
• Self-confidence in expertise
• Sense of responsibility to and solidarity with the Delphi group
• Sense of responsibility to organisations and/or communities
• Concern for professional reputation
• Avoidance of conflict and engagement in constructive dialogue
• Interest in learning about and taking part in a new structured communication process
• Opportunity to reflect on personal history of involvement in SRM issues
• Reminders, re-sending materials, encouragement, support, and positive personal feedback from the principal researcher and the community researcher
• Gifts, honorariums, and thank you notes
• Researchers' responsiveness to experts' in-progress evaluation by adapting the method to the needs of different expert groups
• The quality of the study design and study results

4.1 DELPHI ROUND 1 RESULTS

Content analysis and data reduction procedures reduced the 614 pages of expert input in Delphi Round 1 to eight key resource management issues. Experts identified the following issues when the VGFN, territorial government, and federal government occupy and use the same land, and share management rights and responsibilities including: cross-cultural understanding, a shared management process, shared decision-making, communication, building relationships, capacity development, knowledge systems, and maintaining relationships with the land and developing new opportunities. A summary of each issue follows.

4.1.1 Cross-Cultural Understanding

Developing cross-cultural understanding was considered by experts to be a critical prerequisite for SRM. They indicated that bringing Aboriginal and western cultures together can be difficult and requires skilled facilitation and cultural intermediaries. They considered that participants in SRM need to communicate their cultural perspectives, value systems, and core beliefs to their partners. In turn, these need to be acknowledged and respected with the recognition that some values may never be shared. Experts felt that opportunities for progress in SRM through re-education, negotiation, compromise and trade-offs need to be examined. Willingness to learn about other cultures, sensitivity to those cultures, and developing understanding through direct experience were identified as important components of cross-cultural understanding. Lack of cross-cultural understanding was identified as having potential to foster resource management conflicts, prevent the development of effective partnerships among

diverse interests, and hinder shared decision-making. Experts suggested that dismissiveness, assumptions of dominance and superiority, poor communication, and racism are key barriers.

4.1.2 Shared Management Process

Experts felt that effective shared management processes are required that promote equitable, co-operative, and meaningful partnerships between VGFN, territorial government agencies, and federal government agencies. Experts emphasised the need for legal and regulatory changes arising from land claims and self-government agreements to be reflected in the new resource management relationship between Aboriginal and non-Aboriginal people. According to experts, this requires that SRM participants abandon old negotiation positions and adversarial attitudes in favour of real power sharing, the development of a common SRM vision, and the identification of shared goals. The management process should be open, transparent, flexible, dynamic, holistic, and integrative in its approach. The diversity of entitled and responsible SRM interests must be identified and involved. This requires that each party designate effective representatives. Experts concurred that SRM can be greatly influenced by the characteristics of these individuals and as a result SRM representatives must be highly motivated, open-minded, and good communicators. They must have adequate training, knowledge, and experience related to SRM issues, as well as credibility with their constituents and other SRM parties. The equitable allocation of SRM responsibilities according to partners' strengths and resources, and of benefits according to identified needs, were identified as critical to SRM success. Experts recommended co-ordinating concurrent SRM activities when possible to prevent redundancy and overlap (e.g., co-ordination of research or community events). Experts believed that pre-existing management

structures and processes are unlikely to meet the new challenges of shared resource management. Predetermined SRM outcomes and token involvement of Aboriginal partners were considered to be common but unacceptable SRM practices. Each SRM regime should be adapted to unique local environmental, cultural, social, economic, and political conditions. It was expressed that a desirable SRM process balances government interests and concerns with First Nation interests and concerns. Such SRM relies on active community participation in decision-making and problem solving. Experts emphasised that SRM vision and goals need to be assessed and modified periodically as relationships among management partners evolve and resource conditions change. SRM should be viewed as a journey of learning-by-doing.

4.1.3 Shared Decision-Making

Experts indicated that it was important to determine how to make SRM decisions. They proposed SRM partners need to make the following choices: whether to take a decentralised community-based approach or a hierarchical top-down approach to SRM; whose values, priorities, information, and management approach have weight in decision-making; what scales of consideration are appropriate (e.g., local, regional, national, international); how power can be shared in practice; who has final SRM decision-making authority; and what types decision-making processes promote collaboration and lasting results. Experts highlighted key types of SRM decisions, namely: determining access to resources, allocating resources among diverse users, and controlling resource use through regulation and enforcement. Experts identified differences between First Nation and government priorities and values and explained that SRM often occurs in an environment of contrasting motives for participation, manifold desired

outcomes, and competing agendas. First Nation experts focused broadly on the importance of land protection and land use issues in SRM, while government experts concentrated on issues concerning individual species, partitioned issues among agencies and management processes, and focused on economic factors to the exclusion of other values and land uses. Experts emphasised the need to develop a stepwise decision-making process including issue identification, determining the underlying causes of issues, and developing joint actions to address causative factors. Bureaucracy, lack of First Nation capacity, lack of first-hand knowledge of the land on the part of government resource managers and decision-makers, wielding government power heavy-handedly, conflict between jurisdictions, and failure to respect Aboriginal rights were identified as factors currently impeding SRM in the north Yukon.

4.1.4 Communication

Experts explained that effective communication is fundamental to SRM and perceived miscommunication is a serious impediment to the development of SRM in the north Yukon. The three major communication challenges distinguished by experts were keeping SRM stakeholders informed and involved, creating opportunities to receive community and stakeholder inputs into SRM decision-making, and maintaining open and continuous dialogue among SRM partners. In addition, SRM groups should spend time considering the type, amount, and medium of internal and external communications. This means that SRM communication efforts in Old Crow must take culture and communication preferences into consideration; for instance, ensuring the use of non-technical language, the use of local media, and the provision of translation/interpretation services at public events. Methods to improve SRM communication need to be developed and

applied. A narrow range of group interaction methods and participatory techniques currently limit the operations of SRM groups. Experts indicated that co-ordinating information gathering, storage, and sharing is necessary to address the current lack of accessible, useable information for SRM, especially TEKMS.

4.1.5 Relationship Building

Experts suggested that building good relationships among SRM partners was critical. Many experts emphasised the need to work together and suggested that relationships must be founded on sincerity, authenticity, co-operation, collaboration, equality, accountability, trust, and respect. Effective relationships were described as those that preserve diversity and allow for disagreement and independence of ideas. Co-option, manipulation, paternalism, the learned dependency of First Nation communities, veiled colonialism, and abuse of power were identified as major factors that continue to undermine SRM relationships. For instance, government resource managers and First Nation leaders are often reluctant to transfer power, fearing loss of control, wealth, or privileges. Continuity and stability in the membership of SRM groups can promote effective partnerships, as can ongoing cross-cultural education opportunities and the periodic evaluation of working relationships.

4.1.6 Capacity Development

According to experts, developing capacity is a major requirement in forging effective SRM. Different types of capacity were determined to be essential, including: education and training of

SRM participants, adequate SRM funding (e.g., for travel, community consultation, implementation of SRM programs and services), infrastructure or facility development, and information management (e.g., co-ordinating collection, analysis, storage, and access of resource information). Experts described the challenges of forming partnerships between a small community with limited resources and capacity, such as Old Crow, and large government agencies with significant resources; in part, challenges arise because SRM processes remain western in form and function. The lack of First Nation capacity (e.g., financial resources and trained staff) prevents effective Aboriginal participation in SRM and limits their ability to fulfil SRM responsibilities. This can frustrate and burden government partners. Vuntut Gwitchin experts indicated that local capacity building is required in order to negotiate with government; to participate in resource development such as tourism, guide outfitting, forestry, mining, and oil and gas; and to ensure that TEKMS will be documented, interpreted, and applied at a community level. Educating Vuntut Gwitchin youth in TEKMS, Gwich'in language, and oral history was another critical component of capacity building, community development, and cultural survival identified by Vuntut Gwitchin experts. Government resource managers suggested that they require capacity building in terms of gaining experience on the land, improving their understanding of TEKMS, and enhancing their interactions with First Nation communities. Both Vuntut Gwitchin and government resource managers highlighted their limited ability to understand and communicate with each other. Finally, maintaining capacity for SRM requires putting reasonable limits on the number of SRM structures, rules, and regulations. Many experts suggested that SRM participants are overloaded by demands on their talents and time, leading to high rates of stress and fatigue.

4.1.7 Knowledge Systems

Experts established that TEKMSs and SBRMSs must be consolidated and applied to SRM. The majority of participants felt that neither system should assume superiority or dominance over the other and that each system should be recognised for legitimate, useful knowledge, which can make valuable contributions to SRM. Some government and Vuntut Gwitchin experts viewed each other's knowledge systems with scepticism, suspicion, and distrust. However, many experts maintained that TEKMSs and SBRMSs are complementary. Each has its own strengths and limitations. For instance, the baseline of scientific knowledge is limited and incomplete in the north. SBRMSs were considered to give a large spatial but short timeframe view, to under-emphasise the importance of the bush economy, and to partition resource management issues by government department, species, or discipline. Alternatively, TEKMSs were considered to give a long temporal view but are limited to local environments, are more qualitative than quantitative in nature, and are limited in addressing the impacts of external competing interests (e.g., sport, commercial, or resource development) or global influences (e.g., long range pollution, climate change, ozone depletion).

Experts explained that both systems can be challenging for people to understand and use. Scientific methods, terminology, and interpretation can be confusing for Vuntut Gwitchin and can conflict with traditional values, behaviours, and explanations. Likewise, resource managers found TEKMSs challenging to define, understand, and use. As a result, Delphi experts agreed that the use of TEKMSs in SRM is limited and sporadic, and concluded that SBRMSs tend to predominate SRM processes. Likewise, they indicated that while the information components of

TEKMSs are sometimes utilised, the spiritual and emotional elements, traditional values, and cultural practices contained in TEKMSs are commonly overlooked.

The misuse, abuse, and co-option of both knowledge systems, but particularly TEKMSs, were important issues put forward by experts. SBRMSs can be selectively called upon to support traditional values and community agendas, but are rejected when they contradict TEKMSs. On the other hand, TEKMSs are often appropriated from knowledge holders, misinterpreted, or distorted. Vuntut Gwitchin experts feared loss of control over knowledge that could be used to aid management and development interests that conflict with First Nation goals (e.g., oil and gas development, expanded caribou hunting on the Dempster highway, introduction of guide-outfitter sheep hunting in the Richardson mountains).

Vuntut Gwitchin experts were concerned that government resource managers do not understand the meaning and significance of TEKMSs from an Aboriginal point of view. Several experts expressed confusion about the definitions and characteristics of TEKMSs. Many government experts wanted to learn more about the characteristics of the Vuntut Gwitchin TEKMS; for example, a description of its component parts, how it is accumulated and verified in the community, who holds VGFN TEKMS, and how it is transmitted. Many government experts wanted to test and validate TEKMSs, while many Vuntut Gwitchin experts maintained that TEKMSs should not be subjected to external, empirical validation, but instead should be verified within the community.

Experts focused attention on the preservation and transmission of TEKMSs. They explained that SRM could play a significant role in preventing the potential or actual dissolution of Aboriginal culture. Since TEKMSs are undergoing erosion with the passing of Elders and mounting challenges to cultural survival (e.g., influence of radio and television on younger

generations, formalised western education system, western health care, non-traditional foods), documenting TEKMS was identified as an urgent task. However, experts also suggested that TEKMSs are difficult to document since funders rarely pay for projects to simply preserve TEKMSs, significant local organisational and research capacity building are required, and community-based projects are lengthy and expensive. Experts also focused on the transmission of TEKMSs to younger generations and recommended VGFN take a leading role in this regard; in particular, rebuilding the relationship between Elders and youth and focusing on improving Gwich'in literacy.

4.1.8 Maintaining Relationships with the Land and Developing New Opportunities

Participants emphasised that the lives of Vuntut Gwitchin are intimately connected to the land. Thus, preserving the ability to practice a traditional lifestyle is critical to cultural continuity. Land protection, heritage preservation, land use planning, and environmental monitoring were identified as key issues. Experts outlined different visions of the future in terms of acceptable levels of development facilitated by SRM. Dangers and opportunities related to development were voiced. Elders and traditional land users feared the potential of development to threaten subsistence activities, the relationship between people and the environment, and the integrity of northern ecosystems. At the same time, experts expressed interest in development to provide wage income, employment, and other benefits for First Nations and the people of Yukon as a whole. Some experts suggested that no development or management decision is appropriate unless it is good for local people and others suggested a balance between tradition and development needs to be discovered.

4.2 DELPHI ROUND 2 RESULTS

In Delphi Round 2, 28 experts produced 509 pages of transcript concerning the problems and opportunities underlying the eight SRM issues identified above. These responses were reduced to the top 25 positive influences and the top 25 negative influences on SRM (Table 4.6). Cultural biases, misinterpretation of words and actions, and an unwillingness to collaborate were considered to negatively influence the development of cross-cultural understanding (Table 4.6). Experiential learning and skilled facilitation were found to positively influence cross-cultural awareness and sensitivity in SRM (Table 4.6).

Experts determined that high quality, accessible resource information; the extensive participation of all stakeholders, particularly local resource user communities; team building among SRM partners; and the development of a common vision and shared goals can facilitate an effective shared management process (Table 4.6). Experts indicated that SRM decision-making is profoundly influenced by the balance of power between First Nation and government agencies. Communication, consensus, conflict resolution, and the characteristics and abilities of SRM representatives were identified as critical elements of shared decision-making (Table 4.6).

Experts determined that cultural and language barriers negatively influence SRM communication as does underestimating SRM communication needs (Table 4.6). Experts proposed that new communication tools and mediums are required, that SRM group members require advanced listening skills, and that the type, location, and scheduling of communication must be considered (Table 4.6).

Several factors impede relationship building in SRM according to experts (Table 4.6). Mistrust, a history of antagonistic relations between Vuntut Gwitchin and the dominant society,

and the lack of both First Nation and government capacity to understand each other, negatively influence relationship building among SRM partners. Long term continuity in SRM membership, strong leadership in the SRM group, and balancing authority, responsibility, and benefits among SRM partners were the key factors identified by experts as promoting relationship building (Table 4.6).

Inadequate financial resources, lack of cross-cultural education opportunities, and burdensome work expectations were the primary factors negatively influencing capacity in SRM according to experts (Table 4.6). Alternatively, experts suggested that training programs, realistic work plans, and adequate staffing levels could promote the capacity required for effective SRM (Table 4.6).

Several challenges and opportunities related to the use of knowledge in SRM were outlined by experts (Table 4.6). Problems with defining, conveying, and interpreting knowledge originating from SBRMS and TEKMS were highlighted. Preserving and transmitting TEKMS, synthesising TEKMS and SBRMS, and creating a common system to store and access knowledge from both systems were identified as factors that could positively influence the use of TEKMS and SBRMS in SRM.

In order to maintain relationships with the land and develop new opportunities, experts recommended acknowledging and respecting the diverse value systems and worldviews of SRM partners (Table 4.6). Developing and providing access to relevant SRM information was a key concern. Flexibility and compromise in developing SRM plans and joint implementation of these plans were identified as key positive influences (Table 4.6).

Table 4.6: The top 25 positive influences on SRM and the top 25 negative influences on SRM underlying the eight key issues identified in Delphi Round 1.

Issue	Effect	Influences on SRM
Cross-Cultural Understanding	<i>Negative</i>	<ul style="list-style-type: none"> • Cultural biases and stereotypes: pre-determined views about people; assuming groups have certain characteristics based on their racial, heritage, or cultural characteristics; making assumptions about how and what other people think
		<ul style="list-style-type: none"> • Misinterpretation of actions, events, or ideas because cultural filters prevent understanding
		<ul style="list-style-type: none"> • Unwillingness to share and explore each other's cultural views and values
	<i>Positive</i>	<ul style="list-style-type: none"> • Exposure to and education about other cultures to break down ignorance and gain awareness of other cultures
		<ul style="list-style-type: none"> • Skilled facilitation of a SRM group
		<ul style="list-style-type: none"> • Partnership building: spending time together and developing personal relationships
Shared Management Process	<i>Negative</i>	<ul style="list-style-type: none"> • Failure to develop a common vision and shared goals at the outset of a SRM process
		<ul style="list-style-type: none"> • Inadequate input and participation by all necessary SRM stakeholders
		<ul style="list-style-type: none"> • Use of inadequate or inappropriate resource information
	<i>Positive</i>	<ul style="list-style-type: none"> • Team building
		<ul style="list-style-type: none"> • Strong community based approach: extensive community participation in all aspects of SRM; informing and involving the community in ways that are meaningful and appropriate to them
		<ul style="list-style-type: none"> • Clear definition of each group's roles and responsibilities
		<ul style="list-style-type: none"> • Detailed understanding of the resource under consideration

Issue	Effect	Influences on SRM
Shared Decision-Making	<i>Negative</i>	<ul style="list-style-type: none"> • Prevalence of top down as opposed to bottom up decision-making: a lack of balance between community needs and interests and higher level needs and interests in favour of government agendas
		<ul style="list-style-type: none"> • Pre-determined process and outcomes: application of pre-existing decision-making models that are unsuited for a shared management context, fail to address local needs and realities, and determine decisions in advance
		<ul style="list-style-type: none"> • Lack of a consensus-based SRM decision-making process
	<i>Positive</i>	<ul style="list-style-type: none"> • Effective First Nation and government representatives involved in SRM
		<ul style="list-style-type: none"> • Conflict resolution: a process to make difficult choices and deal with deadlocks or impasses that meets the needs and requirements of all stakeholders
		<ul style="list-style-type: none"> • Effective communication among SRM partners
Communication	<i>Negative</i>	<ul style="list-style-type: none"> • Language barriers: information is not conveyed in understandable forms, misunderstandings related to language and terminology occur, and technical or complicated language is used
		<ul style="list-style-type: none"> • Cultural differences in communication styles and requirements among SRM partners and stakeholders
		<ul style="list-style-type: none"> • Underestimating the communication requirements of SRM
	<i>Positive</i>	<ul style="list-style-type: none"> • Development and use of effective SRM communication methods and mediums
		<ul style="list-style-type: none"> • Participants need to be comfortable and have meaningful opportunities to communicate
		<ul style="list-style-type: none"> • Participants need to learn active and reflective listening techniques

Issue	Effect	Influences on SRM
Relationship Building	<i>Negative</i>	<ul style="list-style-type: none"> • Failure to overcome historical tensions and suspicions stemming from past relations between First Nations and "white" society
		<ul style="list-style-type: none"> • Mistrust between SRM partners
		<ul style="list-style-type: none"> • Lack of capacity to participate in SRM
	<i>Positive</i>	<ul style="list-style-type: none"> • Equal power sharing: balancing authority, responsibilities, and benefits among SRM partners
		<ul style="list-style-type: none"> • Long term commitment, stability, and continuity of the people involved in SRM relationships
		<ul style="list-style-type: none"> • Strong leadership within the SRM group
Capacity Development	<i>Negative</i>	<ul style="list-style-type: none"> • Inadequate financial resources available to conduct SRM
		<ul style="list-style-type: none"> • Lack of formal and informal cross-cultural education opportunities for government resource managers and First Nation people
		<ul style="list-style-type: none"> • Too many demands on too few people capable of meeting them leading to fatigue and burnout in SRM practitioners
	<i>Positive</i>	<ul style="list-style-type: none"> • Appropriately designed and delivered education and training programs offered in the community and at outside institutions
		<ul style="list-style-type: none"> • Building work plans and deciding on priorities at local levels
		<ul style="list-style-type: none"> • Adequate staffing or human resources

Issue	Effect	Influences on SRM
Knowledge Systems	<i>Negative</i>	<ul style="list-style-type: none"> • Different knowledge systems suggest different and competing interpretations of events, courses of action, and visions of the future
		<ul style="list-style-type: none"> • Difficulties summarizing and presenting scientific knowledge and/or traditional knowledge in understandable and meaningful forms
		<ul style="list-style-type: none"> • Failure to explain and understand how the different knowledge systems (TEKMS and SBRMS) are generated, validated, preserved, and shared
	<i>Positive</i>	<ul style="list-style-type: none"> • There is no good definition of either knowledge system – each is described in general and imprecise ways
		<ul style="list-style-type: none"> • Preservation, documentation, and transmission of TEKMS
		<ul style="list-style-type: none"> • Consolidation of SBRMS and TEKMS: using all available knowledge and information to make decisions
		<ul style="list-style-type: none"> • Collaboration among various government agencies and the First Nation to collect, understand, and store knowledge and information related to both SBRMS and TEKMS
Maintaining Relationships with the Land and Developing New Opportunities	<i>Negative</i>	<ul style="list-style-type: none"> • Different value systems, views of the world, and desired benefits from the land/resources resulting in competing goals, values, and priorities
		<ul style="list-style-type: none"> • Different interpretations of existing legislation, laws, policies and procedures
		<ul style="list-style-type: none"> • Lack of access to and sharing of information, meaning important information is not used in SRM
	<i>Positive</i>	<ul style="list-style-type: none"> • Considering tradeoffs and compromises
		<ul style="list-style-type: none"> • Recognition and respect for other people's values • Joint delivery of programs and services

4.3 DELPHI ROUND 3 RESULTS

In Delphi Round 3, 27 experts produced 531 pages of transcript. Expert's voting and ranking resulted in a list that represented the group's judgement on the top 11 influences critical to the success of an SRM regime (Table 4.7). This produced a sub-set of five key SRM issues from those eight previously identified by experts that can be considered most important to SRM including: a shared management process, cross-cultural understanding, shared decision-making, knowledge systems, and communication (Table 4.7).

Table 4.7: The top 11 influences which can positively or negatively impact the success of a SRM regime as determined by Delphi experts' voting and ranking in Delphi Round 3.

Key SRM Issue	Important SRM Influences
Shared Management Process	<ul style="list-style-type: none"> • Strong community based approach: extensive community participation in all aspects of SRM; informing and involving the community in meaningful and appropriate ways
	<ul style="list-style-type: none"> • Failure to develop a common vision and shared goals at the outset of a SRM process
Cross-Cultural Understanding	<ul style="list-style-type: none"> • Skilled facilitation of a SRM group
	<ul style="list-style-type: none"> • Partnership building: spending time together and developing personal relationships
	<ul style="list-style-type: none"> • Cultural biases and stereotypes: pre-determined views about people, assuming groups have certain characteristics based on their racial, heritage, or cultural characteristics; making assumptions about how and what other people think
Shared Decision-Making	<ul style="list-style-type: none"> • Effective communication among SRM partners
	<ul style="list-style-type: none"> • Effective First Nation and government representatives involved in SRM
Knowledge Systems	<ul style="list-style-type: none"> • Collaboration among various government agencies and the First Nation to collect, understand, and store knowledge and information related to both SBRMS and TEKMS
	<ul style="list-style-type: none"> • Consolidation of SBRMS and TEKMS: using all available knowledge and information to make decisions
Communication	<ul style="list-style-type: none"> • Underestimating communication requirements in SRM
	<ul style="list-style-type: none"> • Development and use of effective SRM communication methods and mediums

4.4 DELPHI ROUND 4 RESULTS

In Delphi Round 4, 26 experts produced 515 pages of transcript concerning the characteristics of an effective SRM system related to the 11 critical SRM influences advanced in the previous round. Each expert focused on three influences. For each influence, the five most commonly suggested characteristics are presented below.

Seventeen experts discussed the characteristics of a strong community-based approach to SRM (Table 4.8). They felt Old Crow community members should be involved at key stages of the SRM process and effort must be directed at addressing the issue of community heterogeneity. One solution identified was to include representatives from a cross-section of the community in SRM groups. Another approach was to address the issue of learned dependency and participation indifference in the Old Crow community. Although VGFN has a major stake in SRM decisions in the north Yukon, experts also recommended expanding the concept of community to other important interests thereby ensuring equity and generating support for SRM decisions.

Fourteen experts described characteristics of an effective SRM system that develops a common SRM vision and shared goals at the outset of an SRM process (Table 4.9). Securing basic resources including funding and information was considered essential before SRM groups begin the difficult process of SRM negotiation. As a precursor to negotiations, experts indicated SRM groups must develop guidelines and ground rules to direct their co-operative work. According to experts, the development of an SRM strategy should not occur behind closed doors. At key stages, SRM groups should provide opportunities for Old Crow community members and concerned stakeholders to directly influence SRM problem-solving and decision-making. Experts recommended the SRM negotiation process should follow a stepwise approach: starting

with the development of a common vision, the SRM group should proceed to develop shared goals to achieve the SRM vision, followed by an action plan, work plan, and schedule to implement the shared goals. An adaptive management approach focused on learning and change was encouraged.

Table 4.8: The top five characteristics of an effective SRM system related to implementing a strong community-based approach.

SRM Influence	Characteristics of an Effective SRM System
<ul style="list-style-type: none"> Strong community-based approach: extensive community participation in all aspects of SRM; informing and involving the community in ways that are meaningful and appropriate to them 	<ul style="list-style-type: none"> While VGFN has a main stake in north Yukon SRM decisions, the concept of community should be expanded to include other local communities, regional, territorial, and national interests.
	<ul style="list-style-type: none"> SRM groups should include members from a cross-section of the VGFN (e.g., elders, women, youth, traditional land users, and leaders).
	<ul style="list-style-type: none"> Old Crow community members should be integrally involved at all major stages of the SRM process (e.g., design, implementation, and review)
	<ul style="list-style-type: none"> It is important to determine who can effectively speak on behalf of different facets of the community and to involve recognised experts.
	<ul style="list-style-type: none"> More Old Crow community members need to make an effort to get involved and contribute to SRM processes.

Table 4.9: The top five characteristics of an effective SRM system related to the development of a common SRM vision and shared goals

SRM Influence	Characteristics of an Effective SRM System
<ul style="list-style-type: none"> Failure to develop a common vision and shared goals at the outset of a SRM process 	<ul style="list-style-type: none"> Ensure that resources such as funding, information are available to SRM groups.
	<ul style="list-style-type: none"> The SRM group must develop guidelines and rules concerning how they can work together before they can begin the difficult task of establishing a vision and setting goals (e.g., SRM guiding principles, member code of conduct, decision-making procedures, and conflict resolution process).
	<ul style="list-style-type: none"> The long term SRM vision and goals must be broken down into small achievable steps including an action plan, a work plan, and a schedule of deliverables.
	<ul style="list-style-type: none"> Workshops should be held to involve community members and stakeholders directly in the development of the SRM vision, goals, and action plans.
	<ul style="list-style-type: none"> SRM groups need to monitor and evaluate both the SRM process and the SRM outcomes, and implement the needed changes.

Twelve experts ranked involvement of effective First Nation and government representatives in SRM in their top three list (Table 4.10). Delphi experts outlined several key qualities and competencies of SRM representatives. They felt that representatives must be knowledgeable about SRM issues and possess the capacity to work effectively in cross-cultural environments. This involves treating others with respect and establishing trust with SRM colleagues. Experts suggested SRM members must have credibility with the organisations or communities they represent. Experts noted that the authority of legitimate SRM representatives arises from their personal or professional standing, and the legal mandate of their organisation.

Table 4.10: Five characteristics of an effective SRM system related to the involvement of effective First Nation and government representatives.

SRM Influence	Characteristics of an Effective SRM System
<ul style="list-style-type: none"> Effective First Nation and government representatives involved in SRM 	<ul style="list-style-type: none"> SRM representatives must be knowledgeable on SRM issues or willing to gain that knowledge.
	<ul style="list-style-type: none"> SRM representatives must have the capacity to treat others with respect at all times and in all situations.
	<ul style="list-style-type: none"> SRM representatives must have the authority and mandate to participate in the SRM process.
	<ul style="list-style-type: none"> SRM representatives must be trusted by the organisations or communities they represent, as well as with other SRM members.
	<ul style="list-style-type: none"> SRM representatives need to know how Aboriginal and non-Aboriginal people can work together positively and collaboratively.

Seven Delphi experts ranked the development and use of effective SRM communication tools in their top three list (Table 4.11). A variety of media was identified as required to convey SRM messages, especially given the cross-cultural nature of north Yukon SRM. In this environment, SRM groups need to develop a common working language, support the use of Gwich'in, and ensure that technical information is conveyed in simple, meaningful, and concise terms. Communication efforts should aim not only at informing SRM audiences, but engaging them in dialogue and interactive learning. Reflection on the effectiveness of communication tools was considered necessary to adapt to changing needs and circumstances through time.

Table 4.11: Five characteristics of an effective SRM system related to the development and use of effective SRM communication tools and mediums.

SRM Influence	Characteristics of an Effective SRM System
<ul style="list-style-type: none"> • Development and use of effective SRM communication tools and mediums 	<ul style="list-style-type: none"> • Communication tools need to create opportunities for dialogue and interactive learning.
	<ul style="list-style-type: none"> • Use a variety of media to convey SRM information.
	<ul style="list-style-type: none"> • Determine how to deal with differences in meaning underlying language differences and how to support the use of Gwich'in.
	<ul style="list-style-type: none"> • Require government and technical experts to develop tools to present their information in clear, non-technical, concise, and visual ways.
	<ul style="list-style-type: none"> • SRM groups should evaluate how SRM communication requirements change over time and how the group's messages and ways of communicating need to adapt.

In addition to general communication requirements, six experts indicated that SRM groups should pay particular attention to internal SRM communication efforts (Table 4.12). Limiting the impact of communication barriers in the north Yukon context was particularly important to experts because of the added constraints imposed by distance. Experts emphasised that the interpersonal skills, and written and oral communication competencies of SRM representatives profoundly influence the SRM process. They felt that representatives and their organisations could demonstrate commitment to internal communication efforts by ensuring open information exchange and mutual support through contributions of funding and human resources to SRM. Effective internal communication was determined to involve co-operative and respectful relations among SRM partners that result in a clear understanding of diverse viewpoints. To ensure endorsement of SRM plans, experts recommended that SRM representatives undertake to involve high level decision-makers in the development of SRM recommendations.

Table 4.12: Five characteristics of an effective SRM system related to internal communication.

SRM Influence	Characteristics of an Effective SRM System
<ul style="list-style-type: none"> Effective communication among shared resource management partners. 	<ul style="list-style-type: none"> Breaking down communication barriers is especially key in the north Yukon where SRM partners are physically isolated from one another by long distances.
	<ul style="list-style-type: none"> Good internal communication requires several types of mutual support including sharing information, human resources, and financial responsibilities.
	<ul style="list-style-type: none"> The SRM group must communicate effectively with the decision-makers who are responsible for the approval of SRM recommendations.
	<ul style="list-style-type: none"> SRM group communication will succeed or fail based on individual efforts and attitudes; thus, representatives must take their communication responsibilities seriously.
	<ul style="list-style-type: none"> Communication must be based on co-operation, respect and understanding. Agreement with each other's positions and values is not a precursor to effective communication.

Five experts described five characteristics of a SRM system that effectively incorporates TEKMSs and SBRMSs (Table 4.13). Experts cautioned that SBRMSs currently form the foundation for many SRM processes, while TEKMSs are relegated a peripheral status. Thus, despite progress in acknowledging the legitimacy of TEKMSs, experts explained that SRM groups must focus on using TEKMSs in making decisions and plans. It was found that SRM groups can contribute to the consolidation of knowledge and management systems by supporting local efforts to preserve and transmit the Vuntut Gwitchin TEKMS and by identifying and involving recognised local experts in the SRM process. Systems for protecting the Vuntut Gwitchin TEKMS may encourage sharing it freely and without fear of negative consequences.

Table 4.13: Five characteristics of an effective SRM system that promotes the consolidation of diverse knowledge and management systems

SRM Influence	Characteristics of an Effective SRM System
<ul style="list-style-type: none"> Consolidation of SBRMS and TEKMS: using all available knowledge and information to make decisions. 	<ul style="list-style-type: none"> SRM should not emphasise one knowledge system over the other (e.g., do not use TEKMS simply to reinforce conclusions stemming from scientific investigations).
	<ul style="list-style-type: none"> Efforts to preserve and transmit TEKMS should be actively undertaken so that it remains vital and well integrated into community life.
	<ul style="list-style-type: none"> Make serious efforts to involve 'the best community people' in SRM decision-making, those who are most knowledgeable, experienced, and skilled in terms of life in the bush, traditional values, knowledge, practices, and beliefs (e.g., recognised experts, Elders).
	<ul style="list-style-type: none"> SRM groups have made headway in recognising and documenting TEKMS but must focus on finding ways to implement it in plans, policies, and programs.
	<ul style="list-style-type: none"> Systems for protecting traditional knowledge should be developed so First Nation people are more willing to share their knowledge, traditions, and beliefs (e.g., intellectual property rights).

Four experts advanced five characteristics of a SRM system that effectively addresses cultural biases and stereotypes (Table 4.14). Delphi experts suggested that SRM representatives' willingness to explain their own views and values and, in turn, to acknowledge, explore, and respect the views and values of their partners is fundamental to developing awareness and sensitivity. Experts recommended that these requirements can be addressed in part by creating intimate working environments, educating SRM representatives about the cultures of their partners, and holding SRM meetings on the land.

Table 4.14: Five characteristics of an effective SRM system that addresses cultural biases and stereotypes.

SRM Influence	Characteristics of an Effective SRM System
<ul style="list-style-type: none"> • Cultural biases and stereotypes: pre-determined views about people; assuming groups have certain characteristics based on their racial, heritage, or cultural characteristics; making assumptions about how and what other people think. 	<ul style="list-style-type: none"> • SRM group members must be willing to identify and explain their own views, values, and beliefs.
	<ul style="list-style-type: none"> • SRM group members must be willing to recognise, explore, and respect other people's views, values and beliefs.
	<ul style="list-style-type: none"> • Create opportunities for SRM group members to speak with each other in safe, non-threatening, confidential, and private ways.
	<ul style="list-style-type: none"> • SRM group members need to be and educated about the cultures of their partners (e.g., through experiential learning or training).
	<ul style="list-style-type: none"> • Hold meetings on the land instead of in a community hall or boardroom.

According to three experts, the key elements of skilled facilitation are the provision of professional support, adequate funding, and administrative support (Table 4.15). Delphi experts focused on the characteristics and roles of a SRM facilitator. They indicated that this person should function as a reliable keeper of the SRM process, should develop a productive and comfortable working environment, and, to ensure the sustainability of the SRM process, should monitor participation levels, group dynamics, and individual representative's concerns.

Table 4.15: Five characteristics of an effective SRM system that ensures skilled facilitation of the SRM group.

SRM Influence	Characteristics of a Successful SRM System
<ul style="list-style-type: none"> • Skilled facilitation of a SRM group 	<ul style="list-style-type: none"> • Adequate administrative and funding support are provided to SRM groups.
	<ul style="list-style-type: none"> • Appointment of a facilitator to ensure positive, constructive, and respectful interactions among SRM group members.
	<ul style="list-style-type: none"> • The facilitator should keep the SRM vision, goals, and objectives front and center throughout the SRM process.
	<ul style="list-style-type: none"> • The facilitator should create a comfortable setting for SRM discussions that allows people to express themselves freely and participate equally.
	<ul style="list-style-type: none"> • The facilitator needs to monitor SRM group members' attitudes, concerns, and involvement levels.

Three experts discussed the following five characteristics of an SRM system that effectively builds partnerships among diverse people (Table 4.16). Opportunities for informal and social interactions among SRM group members and a board or council approach to SRM were considered to promote partnership. Experts recommended that regionally based SRM offices and staff can increase the local visibility and credibility of an SRM regime. Experts explained that continuity in SRM membership can promote effective group functioning. Vuntut Gwitchin Delphi experts took a long-term view of partnership building by emphasising the education and involvement of youth in SRM.

Table 4.16: Five characteristics of an effective SRM system that promotes partnership building.

SRM Influence	Characteristics of an Effective SRM System
<ul style="list-style-type: none"> Partnership building: spending time together and developing personal relationships 	<ul style="list-style-type: none"> Government should have regionally based offices and staff who live in communities and work within local management structures.
	<ul style="list-style-type: none"> A board or council approach to SRM that facilitates people spending time together working and travelling.
	<ul style="list-style-type: none"> Provide opportunities for informal, social gatherings for the SRM group, and for the SRM group and the Old Crow community (e.g., field trips, community suppers, dances).
	<ul style="list-style-type: none"> Involve youth in the SRM process to expose them to cross-cultural learning and to develop the capabilities of future leaders.
	<ul style="list-style-type: none"> Ensure continuity and stability in the membership of SRM groups.

Three Delphi experts recommended a universal, computerised system for storing and accessing SRM information as one of the elements of successful SRM information management (Table 4.17). The system should include details on the source and handling of information and should be actively managed, monitored, and updated by local staff. An atmosphere of openness and trust should govern information exchange between SRM partners. According to experts, this can be facilitated by the joint development of guidelines concerning SRM research and information management.

Table 4.17: Five characteristics of an effective SRM system that promotes successful information management.

SRM Influence	Characteristics of an Effective SRM System
<ul style="list-style-type: none"> • Collaboration between various government agencies and VGFN to collect, understand, store, and share knowledge and information related to both SBRMS and TEKMS. 	<ul style="list-style-type: none"> • A system for storing and accessing SBRMS and TEKMS should be accessible to all partners in the SRM process (e.g., experts and non-experts). Making it computer based and accessible through the Internet is one solution. A large spatial component (e.g., GIS, maps, and models) is also necessary.
	<ul style="list-style-type: none"> • SRM partners should develop straightforward guidelines or protocols governing the collection, storage, access, and use of TEKMS and SBRMS.
	<ul style="list-style-type: none"> • The system should include information about when, where, and how information was collected and analysed; at what scale; and by whom so that the source of information is traceable.
	<ul style="list-style-type: none"> • The system should be managed by a dedicated staff, preferably local people, and constantly monitored and updated (e.g., collaborative identification of research needs).
	<ul style="list-style-type: none"> • Respect, trust and openness on behalf of government agencies and VGFN are necessary if knowledge and information are to be shared openly and freely.

Two experts discussed elements of SRM communication that are critical but often underestimated (Table 4.18). Experts recommended that SRM groups should identify and provide for an array of communication needs and styles in SRM. They felt that effective communication entails the use of advanced listening skills. According to experts, SRM representatives and particularly First Nation representatives, require support for communication initiatives with their communities and organisations. SRM groups must also communicate with external interests to develop support for SRM decisions.

Table 4.18: Five characteristics of an effective SRM system that addresses SRM communication needs.

SRM Influence	Characteristics of an Effective SRM System
<ul style="list-style-type: none"> Underestimating communication needs in shared resource management 	<ul style="list-style-type: none"> Identify and provide for the communication needs and preferences of the groups involved in SRM (e.g., factors related to culture, gender, age, education levels, etc.).
	<ul style="list-style-type: none"> Even though First Nation SRM representatives may use 'simple English' they still have important ideas and should be encouraged to speak and respected when they do.
	<ul style="list-style-type: none"> SRM representatives need support from the SRM group in terms of informing and involving the organisations, client groups, or communities they represent.
	<ul style="list-style-type: none"> SRM groups should ensure they communicate with all external interests and affected parties to ensure they understand SRM decisions and can have some influence on the outcomes.
	<ul style="list-style-type: none"> Advanced listening skills coupled with a desire to understand other points of view are required.

4.5 FRAMEWORK ANALYSIS

The top 11 influences critical to effective SRM identified by experts were used to focus the framework analysis. Content analysis results from all Delphi rounds were reviewed to reveal a comprehensive picture of what experts said concerning each influence. Nine categories emerged. In the analysis presented below, some SRM influences were combined since experts' inputs on each influence overlapped and were complementary. Partnership building and overcoming cultural biases and stereotypes were combined into a single category called cross-cultural understanding. The two influences concerning TEKMS and SBRMS were amalgamated in a

category called knowledge and management systems. Three influences relating to communication (underestimating SRM communication needs, development and use of effective SRM communication tools and mediums, and effective communication among SRM partners) were consolidated into a single communication category. Experts' inputs on the remaining four SRM influences were distinct and each influence stands alone in the following analysis including effective representatives, skilled facilitation, developing a common SRM vision and shared goals, and a community-based approach to SRM. Two additional topics emerged as necessary when reviewing expert input; namely, a category of guiding principles for SRM partnership and a category of SRM operating procedures and ground rules.

4.5.1 Effective SRM Representatives

Experts determined that effective SRM representatives share several characteristics (Table 4.19). Recognised authority arising from personal or professional standing and official mandates was considered a prerequisite for participation in SRM. SRM representatives must possess knowledge about SRM issues, an ability to build consensus, an ability to acknowledge and respect diverse views, and an ability to fairly represent their communities or organisations. Experts felt that commitment to long term solutions, to the welfare of the resources and communities involved in SRM, and to learning and change were key attributes. As well, accountability to constituents was considered crucial in order to build the support for SRM decisions and trust for the SRM group. Experts suggested that SRM representatives must be courteous, congenial, diligent, and have advanced communication skills and co-ordination skills.

Experts also identified traits specific to First Nation and government representatives (Table 4.19). Vuntut Gwitchin experts determined that not only should First Nation representatives be experienced in life on the land, holders of TEKMS, speakers of the local language, and recognised experts in VGFN culture, they should also have some western education and familiarity with government policies and processes. In addition, both Vuntut Gwitchin and government experts advised that First Nation representatives should be motivated primarily by an interest in the good of their community and should promote meaningful local involvement in the SRM process. Government experts suggested representatives of federal and territorial government agencies should have advanced scientific training and be open to change. Experts from both sub-groups indicated that government representatives must have extensive field experience in the areas under consideration and emphasised the need for these individuals to possess cross-cultural awareness and sensitivity.

In addition to the characteristics of effective SRM representatives, experts described several key factors that should be considered in the development of systems of representation (Table 4.20). Experts advocated that the governments participating in SRM must identify representatives who can speak on behalf of their agency or community and must address the issues of community heterogeneity. Establishing systems of representative accountability within the SRM group and/or the involved parties was considered vital. Experts recommended providing technical, financial, and personal support for representatives, in particular to support the work of First Nation representatives, and promoting stability in SRM group membership.

Table 4.19: General and specific characteristics of Vuntut Gwitchin representatives and government representatives involved in SRM.

Characteristics of Effective SRM Representatives	
General Characteristics of Effective Representatives	<ul style="list-style-type: none"> • Authority to participate in a SRM regime arising from legal, legislative, or constitutional mandates
	<ul style="list-style-type: none"> • Valued members of their community profession or organisation and respected by the other parties involved in SRM
	<ul style="list-style-type: none"> • Capacity to fairly represent the range of needs and interests of their constituents, not private or personal interests
	<ul style="list-style-type: none"> • Capable of acknowledging, respecting, and understanding the values, perspectives, and knowledge of their SRM partners
	<ul style="list-style-type: none"> • Able to seek common ground and consensus in SRM decision-making
	<ul style="list-style-type: none"> • Committed to long-term solutions, patience, and the guiding principles of SRM
	<ul style="list-style-type: none"> • Hard working and possessed of initiative
	<ul style="list-style-type: none"> • Committed to the welfare of the resources and communities involved in SRM and genuinely interested in SRM issues
	<ul style="list-style-type: none"> • Committed to evaluation, learning, and change in SRM
	<ul style="list-style-type: none"> • Knowledgeable about the environmental, social, cultural, political, and economic aspects of SRM
	<ul style="list-style-type: none"> • Courteous and personable
	<ul style="list-style-type: none"> • Communication skills (e.g., listening, oral and written communication)
	<ul style="list-style-type: none"> • Co-ordination skills (e.g., community or organisation events, research, SRM publications)
	<ul style="list-style-type: none"> • Accountable to constituents and the resource under consideration
Specific Characteristics of Vuntut Gwitchin Representatives	<ul style="list-style-type: none"> • Traditionalists
	<ul style="list-style-type: none"> • Familiarity with government policies and processes
	<ul style="list-style-type: none"> • Some western education or technical background
	<ul style="list-style-type: none"> • Motivated by interest in the good of the community and future generations
	<ul style="list-style-type: none"> • Ability to promote meaningful local involvement in SRM
Specific Characteristics of Territorial and Federal Government Representatives	<ul style="list-style-type: none"> • Advanced scientific training
	<ul style="list-style-type: none"> • Extensive field experience
	<ul style="list-style-type: none"> • Cross-cultural sensitivity and awareness
	<ul style="list-style-type: none"> • Openness to change

Table 4.20: Key factors to consider in the development of effective systems of representation.

Key Factors
• Equitable representative selection procedures
• Overcoming the heterogeneity of community perspectives
• Ensuring representative accountability
• Stability in SRM membership
• Development of strong SRM group-community communication linkages
• Development of representative support systems

4.5.2 Cross-Cultural Understanding

Experts identified several types of obstacles that hinder the development of cross-cultural understanding in SRM systems including stereotypes, dismissive or superior attitudes, limited exposure to other cultures, mistrust, and misuse of power (Table 4.21). Many misguided attitudes and false beliefs were identified and these were described as long-standing and deeply held, based on a history of confrontation and conflict between Aboriginal and non-Aboriginal groups. Fear, suspicion, ignorance, narrow-mindedness, and a fundamental lack of trust and co-operation were considered to be root causes of cross-cultural misunderstanding, personal prejudices, and unwillingness to develop awareness and sensitivity.

Table 4.21: Obstacles identified by Delphi experts as impeding the development of cross-cultural understanding in SRM.

Obstacles	Themes
Stereotypes	<ul style="list-style-type: none"> • Racism
	<ul style="list-style-type: none"> • Pre-determined judgements
Dismissive and superior attitudes	<ul style="list-style-type: none"> • Failure to acknowledge/respect each other's knowledge, practices, and beliefs
	<ul style="list-style-type: none"> • Failure to appreciate the unique challenges each SRM partner faces
	<ul style="list-style-type: none"> • SRM partners dismiss the validity and legitimacy of perspectives or values that are not their own
	<ul style="list-style-type: none"> • Non-Aboriginal views and values dominate SRM
Limited exposure to other cultures	<ul style="list-style-type: none"> • Lack of experiential learning opportunities
	<ul style="list-style-type: none"> • Ignorance of fundamental value differences
	<ul style="list-style-type: none"> • Failure to understand different relationships with the land
	<ul style="list-style-type: none"> • Ideological differences
Mistrust	<ul style="list-style-type: none"> • Fear
	<ul style="list-style-type: none"> • Cynicism
	<ul style="list-style-type: none"> • Narrow-mindedness
	<ul style="list-style-type: none"> • Failure to openly share resource information
Misuse of power	<ul style="list-style-type: none"> • Past abuses of power
	<ul style="list-style-type: none"> • Inequitable SRM power-sharing

Experts described several initiatives to establish and enhance cross-cultural understanding among SRM partners (Table 4.22). These approaches involved addressing external constraints related to time, funding, and the absence of high-level decision-makers in SRM processes. Experts encouraged SRM partners to undertake awareness-raising activities to better understand their own culture and how it differs from other cultures. The role of cultural liaisons, facilitators, and key SRM representatives, was identified as critical to building alliances among SRM partners and to representing learning and change to external SRM audiences. Relationship building initiatives were considered necessary to advance cross-cultural understanding by generating dialogue and establishing trust among diverse groups, and by addressing interpersonal factors such as age, gender, social status, and personality traits that diminish group performance and cohesiveness. Small group work and the use of new participation techniques other than meetings and conventional round-table discussions were deemed essential by experts. Experts emphasised that SRM participants require direct exposure to their partners' cultures through experiential learning opportunities, spending time in affected communities, and spending time out on the land. Cross-cultural training opportunities that are interdisciplinary and multicultural, as well as staff exchanges and job shadowing opportunities, were identified by experts as avenues for cross-cultural learning. Finally, experts recommended establishing community-based SRM program delivery in order to create long-term opportunities for cross-cultural interaction and learning by locating SRM offices and staff in affected communities.

Table 4.22: Initiatives and themes identified by Delphi experts that contribute to the achievement of cross-cultural understanding in a successful SRM system.

Initiatives	Themes
Addressing External Constraints	• Adequate time
	• Adequate funding
	• Involving high-level decision-makers
Awareness Raising Activities	• Awareness of self
	• Awareness of others
Utilising Cultural Liaisons	• Highly motivated SRM representatives that can promote systematic change
	• Facilitators
Relationship Building Enterprises	• Generating open discourse
	• Establishing trust among SRM partners
	• Addressing interpersonal factors influencing rapport between SRM representatives
	• Small group work
	• Application of a diversity of group interaction techniques
Direct Exposure	• Experiential learning opportunities
	• Spending time in the communities and on the land affected by SRM decisions
Cross-Cultural Training	• Interdisciplinary training program
	• Multi-cultural training program
	• Staff exchanges or job shadowing
Community-based SRM Program Delivery	• Regional offices
	• Local staff

4.5.3 Skilled Facilitation

Experts distinguished three main elements of skilled facilitation including the provision of SRM groups with professional support, adequate funding, and administrative support (Table 4.23; Table 4.24). Experts explained that an SRM facilitator requires a broad array of capabilities including an ability to treat all parties equally; knowledge of the cultural, resource, and community setting; an ability to relate to representatives on their own terms, thereby establishing trust and credibility; good communication skills; and, consensus-building skills including negotiating areas of conflict, inspiring empathy, constructing learning experiences for SRM participants, and enabling critical reflection (Table 4.23). Experts explained the role of a SRM facilitator by presenting a set of basic responsibilities this individual must assume (Table 4.23). Many of these responsibilities related to improving the functioning of the SRM group by unlocking the potential of individuals to interact, communicate, reflect, resolve conflict, and act collectively. Experts suggested the facilitator should enforce the principles and rules established by the SRM group, organise the logistics of SRM activities, and promote the long-term sustainability of the SRM process. According to experts, the pool of skilled SRM facilitators in the Yukon is very restricted and there are limited initiatives to acquire new talent. In their view, ensuring adequate professional support for SRM processes requires attention to facilitator development, including training programs, recruitment activities, and opportunities for critical peer assessment and for facilitator networking.

Table 4.23: Basic elements of skilled facilitation related to the capabilities, responsibilities, and development of professional SRM facilitators.

Elements	Themes
Capabilities	<ul style="list-style-type: none"> • Neutral and independent
	<ul style="list-style-type: none"> • Knowledgeable about SRM processes, cross-cultural processes, and the land base or resource under consideration
	<ul style="list-style-type: none"> • Trustworthy and credible
	<ul style="list-style-type: none"> • Skilled in oral and written communication
	<ul style="list-style-type: none"> • A good listener
	<ul style="list-style-type: none"> • A consensus builder
Responsibilities	<ul style="list-style-type: none"> • Team building
	<ul style="list-style-type: none"> • Enforce SRM principles and rules
	<ul style="list-style-type: none"> • Organise SRM logistics
	<ul style="list-style-type: none"> • Structure communication among SRM partners
	<ul style="list-style-type: none"> • Engage SRM partners in conflict resolution activities
	<ul style="list-style-type: none"> • Remain impartial
	<ul style="list-style-type: none"> • Assist critical reflection
	<ul style="list-style-type: none"> • Promote the sustainability of the SRM process
Facilitator Development	<ul style="list-style-type: none"> • Facilitator training
	<ul style="list-style-type: none"> • Facilitator recruitment
	<ul style="list-style-type: none"> • A support network for facilitators
	<ul style="list-style-type: none"> • Critical peer assessment

Experts extended the basic concept of skilled facilitation beyond competent SRM facilitators to include the elements of SRM funding and administrative support (Table 4.24). Experts indicated that the SRM process will stop without adequate SRM funding. However, paying the costs associated with SRM was considered difficult. According to experts there were inequities in the resources available to First Nations and territorial and federal governments, making the full, fair, and equal participation of all partners challenging. Documenting the costs associated with SRM and evaluating the cost-effectiveness of expenditures were considered necessary. Experts recommended a secretariat to increase SRM group functioning, credibility with partner organisations and external stakeholders, and prominence and visibility of SRM (Table 4.24).

Table 4.24: Basic elements of skilled facilitation concerning adequate funding and administrative support for SRM.

Elements	Themes
Adequate Funding	<ul style="list-style-type: none"> Funding is necessary to deliver on SRM obligations
	<ul style="list-style-type: none"> Evaluating cost effectiveness of SRM is required
	<ul style="list-style-type: none"> Inequitable access to financial resources affects participation in SRM
	<ul style="list-style-type: none"> Sources of SRM funding must be considered
Administrative Support	<ul style="list-style-type: none"> Sustains the performance of the SRM group
	<ul style="list-style-type: none"> Promotes process credibility
	<ul style="list-style-type: none"> Raises the profile of the SRM group

4.5.4 Guidelines for SRM Partnership

Experts identified numerous principles to guide the interactions and co-operative work of an SRM group, without which the good will and trust that are the foundation of an effective SRM system are unlikely to develop. It was recommended that SRM partners collaboratively develop a set of principles that include elements of Aboriginal and non-Aboriginal cultures. In the case of the Vuntut Gwitchin, territorial government, and federal government, the following principles were put forward by experts for consideration (Table 4.25).

Table 4.25: Principles to guide SRM groups as they interact, make decisions, and implement SRM plans and programs.

Guiding Principles
Co-operation: recognition of the diversity and validity of individual interests, yet a focus on identifying and respecting the collective will of the group
Respect: respect for self, respect for the group, respect for the land
Inclusiveness: incorporation of Aboriginal and non-Aboriginal worldviews, ways of knowing, and ways of doing into the SRM process
Sharing: open and honest communication, distribution of SRM benefits, and division of SRM responsibilities according to partners' strengths and abilities
Equity: prevention of discrimination in the SRM environment
Meaningful Communication: ongoing dialogue among SRM partners, between the SRM group and outside institutions, communities, and stakeholders, and among SRM groups
Accountability: SRM members must be accountable of SRM members to each other, the involved communities and governments, and the resource(s) under consideration
Trust: confidence in the reliability, truthfulness, and responsibility of SRM members
Listening: supportive, active, and reflective listening
Mutual Support: consensus, collaboration, and internal problem-solving

4.5.5 Operational Procedures and Ground Rules

Experts proposed that the operational procedures and ground rules in Table 4.26 could assist SRM groups in putting the principles espoused in section 4.5.4 into practice. Experts provided information on determining how participants interact, exchange information, solve problems, and make decisions in an SRM environment. Experts emphasised the importance of taking into consideration the distinct cultural and individual needs of participants.

Table 4.26: Operational procedures and ground rules to assist SRM group functioning.

Procedures and Ground Rules
• Thorough preparation for SRM activities and regular attendance at SRM events
• Application of creative decision-making aids and tools
• Use of culturally appropriate communication tools
• Use of Gwich'in at SRM events
• Development of reasonable timelines to accomplish SRM responsibilities
• Generation of an enjoyable, informal, comfortable working environment
• Development of a SRM group identity
• Sensitivity to the implications of words and actions
• Attention to SRM event locations and the scheduling of activities
• Development of a visitor policy
• Incorporation of elements of Gwitchin culture into operations
• Recognition and celebration of SRM accomplishments
• Establishment of conflict resolution procedures
• Elaboration of a consensus decision-making process

4.5.6 Knowledge Systems

Delphi experts described several factors prompting the consolidation of TEKMS and SBRMS in SRM including Aboriginal and non-Aboriginal groups' recognition of their pluralism and interdependency, policy requirements, legal mandates, and international obligations (Table 4.27). Despite these requirements and a general recognition of the inherent and practical value of consolidating TEKMS and SBRMS, experts illustrated several impediments relating to problems of acceptance, understanding, and implementation (Table 4.28). Experts also recommended initiatives to specifically address these three types of problems, thereby enhancing the prospects for melding different knowledge and management systems in SRM (Table 4.27).

Table 4.27: Reasons for the new alliance between TEKMS and SBRMS in the context of north Yukon SRM including regional, national, and international considerations.

Reasons for an Alliance
<ul style="list-style-type: none"> • Recognition of pluralism and the interdependency of TEKMS and SBRMS in the sustainable use of resources
<ul style="list-style-type: none"> • Policy requirements that mandate the incorporation of TEKMS into resource management, monitoring, and assessment
<ul style="list-style-type: none"> • Legal, legislative, and constitutional requirements
<ul style="list-style-type: none"> • Land claim agreements
<ul style="list-style-type: none"> • International agreements and human rights mandates

Table 4.28: General and specific problems inhibiting the consolidation of TEKMS and SBRMS in the context of north Yukon SRM.

General Problems	Specific Problems
Problems of Acceptance	<ul style="list-style-type: none"> • Loss of TEKMS
	<ul style="list-style-type: none"> • Dismissiveness based on concerns about the legitimacy and value of those knowledge and management systems different from one's own
Problems of Understanding	<ul style="list-style-type: none"> • Inconsistent definitions of TEKMS and the proliferation of terms to describe it
	<ul style="list-style-type: none"> • Linguistic and cultural barriers
	<ul style="list-style-type: none"> • The different role of knowledge holders in their respective cultures
	<ul style="list-style-type: none"> • Differences related to the characteristics of each knowledge and management system
	<ul style="list-style-type: none"> • Lack of understanding of the Vuntut Gwitchin attachment to traditional lands
	<ul style="list-style-type: none"> • Failure to recognise the role and importance of values in decision-making
Problems of Implementation	<ul style="list-style-type: none"> • Potential misuse of TEKMS
	<ul style="list-style-type: none"> • Peripheral treatment of TEKMS
	<ul style="list-style-type: none"> • Contradictory observations, interpretations, and conclusions arising from each system
	<ul style="list-style-type: none"> • Lack of information sharing systems
	<ul style="list-style-type: none"> • Lack of guidelines to direct the use of TEKMS
	<ul style="list-style-type: none"> • Time and funding constraints

Table 4.29: Initiatives to address the problems inhibiting consolidation of TEKMS and SBRMS in the context of north Yukon SRM.

General Problems	Specific Initiatives to Overcome Problems
Problems of Acceptance	<ul style="list-style-type: none"> • Documentation and transmission of TEKMS
	<ul style="list-style-type: none"> • Recognise the limitation of one's own knowledge and management system, and acknowledge and respect alternatives
	<ul style="list-style-type: none"> • Validation of knowledge systems
Problems of Understanding	<ul style="list-style-type: none"> • Learn about TEKMS not only from published sources but directly from the people who embody it
	<ul style="list-style-type: none"> • Recognise similarities and complementarity
	<ul style="list-style-type: none"> • Create opportunities for mutual learning
	<ul style="list-style-type: none"> • Share value and belief frameworks with SRM partners
Problems of Implementation	<ul style="list-style-type: none"> • Involve knowledge holders directly in SRM problem-solving and decision-making
	<ul style="list-style-type: none"> • Develop guidelines and protocols to direct the use of TEKMS
	<ul style="list-style-type: none"> • Employ community-based or participatory TEKMS research methods
	<ul style="list-style-type: none"> • Recognise intellectual property rights
	<ul style="list-style-type: none"> • Balance power dynamics in SRM partnerships
	<ul style="list-style-type: none"> • Develop a system for storing and accessing information related to SRM

4.5.7 SRM Negotiation Process

Two phases and eight key steps in the negotiation of SRM plans and agreements were identified from analysis of experts' input (Table 4.30). The first phase comprised four steps and involved collaborative development of a common, long-term vision to provide an overall framework for SRM that is broad enough to encompass a range of desired outcomes. These initial four steps related to preparatory communication initiatives, involving key external stakeholders, designing a process for establishing the common SRM vision, and enshrining the common SRM vision in some form of social contract. Experts suggested a second, four-step phase involving development of a strategy to accomplish the SRM group's common vision (Table 4.30). The four steps are: identification of current issues and trends, development of goals to achieve the SRM vision, development of an action plan to implement the goals (including a work plan to divide tasks equitably among SRM partners and of a schedule of these deliverables), and an ongoing monitoring and evaluation program.

Table 4.30: Two phases and eight key chronological steps SRM groups should follow in the negotiation of SRM plans and agreements.

Phase	Key Steps
Development of a common, long-term SRM vision	• Communication initiatives
	• Identification and involvement of key external stakeholders
	• Visioning process (e.g., structured brainstorming, problem analysis, conceptual frameworks, strengths/weaknesses/opportunities/threats (SWOT) analysis, etc.)
	• Enshrining the common vision in a social contract
Development of a SRM strategy	• Identify current issues and trends
	• Develop short- and medium-term goals to achieve the SRM vision
	• Develop an action plan to accomplish the SRM goals
	• Implement an ongoing monitoring and evaluation process to assess the SRM process and outcomes

4.5.8 Community-Based Approach to SRM

Delphi experts discussed the need to redefine the concept of community used in north Yukon SRM. They recommended shifting from a local sphere of concern that treated the Old Crow community as a homogenous group, to an expanded concept of community that recognises different types of communities and heterogeneity within Old Crow. Numerous terms delineating different levels of community-SRM interactions were used in the discussion of community-based SRM, including consultation, participation, involvement, and local control. Experts focused their examination of community-based SRM on members of the Old Crow community, those people who are not involved formally on behalf of VGFN in SRM regimes. Reasons for implementing a

community-based approach to SRM included the empowerment of local people and promotion of their equitable involvement in the management of local lands and resources. Community-based SRM was described as an avenue to utilise existing cultural capital such as local management institutions and knowledge systems, and to increase management effectiveness through sharing financial and other resource burdens. Experts felt this approach promoted local ownership of the SRM process and thereby enhances people's commitment to the implementation of SRM decisions. Three key community linkages were identified: linkages with the local SRM representative(s), the SRM group, and external stakeholders. A community participation plan was considered necessary to realise the benefits of community involvement as repeated, token use of 'participation terminology' was felt to have reduced the practical and ethical significance of this approach. Experts indicated that an SRM group should pay particular attention to the involvement of three groups from the Old Crow community in SRM decision-making including recognised local experts, Elders, and youth.

Delphi experts discussed community participation in the three major phases of SRM including decision-making, implementation, and monitoring and evaluation (Table 4.31). Most experts advocated increased community participation in north Yukon SRMs, while a few regarded the additional investment of time, expertise, and money unnecessary. Several important activities to promote effective community participation were described for each of the three SRM phases (Table 4.31).

During SRM decision-making, experts suggested promotional and awareness-raising events to ready community members for participation. A realistic timeframe for community participation should be established and the characteristics of SRM meetings should be considered including their location and whether or not they are public. Experts suggested creating new

opportunities for local participation other than the conventional 'community hall meetings', thereby encouraging the participation of marginalised community members. Vuntut Gwitchin experts cautioned against the domination of community participation opportunities by local elites or limited, vocal interests. Government experts worried that parochialism could sometimes threaten the efficacy of community participation. Elders were concerned about the undue influence of people disenfranchised from Vuntut Gwitchin culture. Experts also indicated that effective community participation in SRM relies heavily on active, two-way dialogue between the community and the SRM group.

Experts felt three activities should be considered by SRM groups during the implementation of SRM decisions (Table 4.31), including: returning benefits to local people (e.g., employment, training, wider community involvement, increased sense of cultural identity, decentralisation of decision-making, and community-based development); strengthening community institutions; and, ensuring equity in the distribution of benefits. Experts identified several roles for community members in the monitoring and evaluation of the SRM process and outcomes (Table 4.31). They discussed the need to monitor community participation and the outcomes and impacts of SRM for local people, as well as evaluating the positive and negative features of completed SRM plans and generating lessons to apply to future initiatives.

4.5.9 SRM Communication

Delphi experts in this study identified four general characteristics of SRM communication: it should be multidimensional, multi-media, sensitive to communication differences, and adaptive (Table 4.32). They suggested that communication initiatives should generate dialogue within each SRM party, among SRM partners, and between the SRM group and the Old Crow

community, outside institutions, external stakeholders, and the general public. Experts recommended that SRM communication should involve a wide array of communication media, including traditional, modern, and local media in order to interest the broadest possible SRM audience. Sensitivity to communication differences was also considered essential. This entails addressing linguistic barriers through the development of a common working language and the provision of translation and interpretation services. Experts pointed out that it was critical to address the ideological differences underlying language since superficially congruent words often have different meanings for people with different cultural and educational backgrounds. Elders' communication was of particular concern. Vuntut Gwitchin experts indicated that Elders are often misunderstood or overlooked in SRM decision-making. Differences in communication styles among SRM participants who speak English were also considered serious. The importance of periodically seeking evaluation of communication strategies from various SRM audiences and adapting communication efforts to their changing needs was identified.

4.31: Three phases of community participation in SRM and the essential activities to undertake each phase.

Phases	Activities
Community Participation in SRM Decision-Making	<ul style="list-style-type: none"> • Initiate a promotional and preparatory phase as a precursor to community participation
	<ul style="list-style-type: none"> • Establish a realistic timeframe for local participation
	<ul style="list-style-type: none"> • Consider the characteristics of SRM meetings
	<ul style="list-style-type: none"> • Develop alternative community participation mechanisms
	<ul style="list-style-type: none"> • Work to overcome the learned dependency of community members
	<ul style="list-style-type: none"> • Address community power dynamics
	<ul style="list-style-type: none"> • Address parochialism
	<ul style="list-style-type: none"> • Determine internally who can speak on behalf of the community
	<ul style="list-style-type: none"> • Ensure active dialogue between the SRM group and community members
Community Participation in SRM Implementation	<ul style="list-style-type: none"> • Ensure benefits are realised at the local level
	<ul style="list-style-type: none"> • Strengthen community institutions
	<ul style="list-style-type: none"> • Ensure equity in the distribution of benefits
Community Participation in SRM Monitoring and Evaluation	<ul style="list-style-type: none"> • Monitor Vuntut Gwitchin participation in the SRM process
	<ul style="list-style-type: none"> • Monitor the implementation of SRM decisions
	<ul style="list-style-type: none"> • Monitor SRM outcomes and impacts
	<ul style="list-style-type: none"> • Jointly evaluate the positive/negative aspects of completed SRM plans
	<ul style="list-style-type: none"> • Generate lessons that can be applied to the design of future plans

Table 4.32: The general and specific characteristics of effective SRM communication.

General Characteristics	Specific Characteristics
Multi-Dimensional	• With-in party communication
	• SRM group communication
	• Community communication
	• Institutional communication
	• Stakeholder communication
	• General public communication
Multi-Media	• Use of combination of traditional, modern, and local media
Sensitivity to Communication Differences	• Address linguistic barriers
	• Provide translation and interpretation services
	• Understand ideological differences
	• Develop a common working language
	• Involve Elders more effectively
	• Be aware of differences in communication styles
Adaptive	• Evaluation of communication initiatives with SRM audiences
	• Modification of SRM communication plans based on audience feedback

4.6 IN-PROGRESS DELPHI EVALUATION

On average, 90% of Delphi experts indicated that they were satisfied with the four Delphi rounds examining SRM (Table 4.33). Most remaining experts expressed no judgement, reserving their opinion for the overall evaluation. Two experts, who felt that an additional investment of time was unwarranted, were dissatisfied in Delphi Round 4.

Most experts felt able to express themselves effectively using the communication approach tailored for their expert group (Table 4.33). The highest level of dissatisfaction was in Delphi Round 2 when five Vuntut Gwitchin experts expressed dissatisfaction with the use of self-administered surveys and adopted a semi-structured interview approach. After this change, the satisfaction level increased.

Most experts felt they were given enough time to reflect on feedback and complete Delphi tasks each round (Table 4.33). Only 80% of experts felt this way in Delphi Round 2, the shortest Delphi round, when 3 to 4 weeks were allowed to return input. In Delphi Round 3 and Delphi Round 4, the satisfaction level increased to an average of 96%, when experts were allowed 5 to 7 weeks to respond. Overall, 89% of experts found the amount of time they invested in the Delphi process reasonable (Table 4.33). Those experts who found the time commitment unreasonable explained that in Delphi Round 2 and Delphi Round 4, which took place in May/June and October/November, the project conflicted with subsistence activities such as trapping and hunting, and fieldwork activities such as research and enforcement. Experts indicated they spent from 5 to 30 hours reading and reflecting on feedback and responding to Delphi questions.

Experts were generally satisfied with the introductory materials and instructions provided each round, and with the feedback they received (Table 4.33). Those dissatisfied with feedback complained about pulsed timing of feedback, biased quote selection, biased summary statement presentation, and that the responses of Vuntut Gwitchin experts and government experts were not distinguished. Adaptations undertaken as a result of expert input appeared to affect a positive increase in satisfaction levels as the project progressed.

The majority of Delphi experts expressed satisfaction with the facilitation and co-ordination provided by the principal researcher and the community researcher (Table 4.33). An average of

94% of experts indicated they felt valued as participants in the project (Table 4.33). When asked if they felt like part of a team, an average of 84% of experts indicated they did, while an average of 15% of experts indicated they did not. Of those experts who did not feel like part of a team, all but one was a government expert. The experts felt least isolated in Delphi Round 4. The project had a personal and professional impact on experts (Table 4.33). An average of 87.5% of experts indicated they learned new things from the project and two-thirds of experts said the project promoted personal or professional change (Table 4.33).

4.7 OVERALL METHODOLOGICAL AND IMPACT EVALUATION

4.7.1 General Evaluation of the Delphi Method

In post-Delphi Round 1, experts' general evaluation of the Delphi method was favourable (Table 4.34). Experts were satisfied with the modified Delphi method and indicated their expectations for the project were fulfilled. They described their experience as (throughout the dissertation, all Delphi participant quotes appear in italics), *productive*, *open*, *positive*, and *informative*. Experts considered the makeup of the Delphi panel to be representative of the range of interests, organisations, and individuals involved in north Yukon SRM and that members were highly respected within their professions and communities. Experts indicated they were satisfied with the panel selection process and were confident in the expertise of other Delphi participants. Experts felt the project made good use of their expertise, although 8% of government experts felt the research did not make use of their technical, resource-based knowledge or their problem-solving skills.

Table 4.33: A summary of expert responses to select in-progress evaluation questions by Delphi round (round 1 n=29; round 2 n=25; round 3 n=24; round 4 n=23).

In-Progress Evaluation Question	Delphi Round	Yes (% of experts)	No (% of experts)	No Judgement (% of experts)
<i>Were you generally satisfied with this Delphi round?</i>	Round 1	93	0	7
	Round 2	80	0	20
	Round 3	100	0	0
	Round 4	87	9	4
<i>Were you able to express your ideas effectively using interviews or self-administered workbooks?</i>	Round 2	76	20	4
	Round 3	96	0	4
	Round 4	92	4	4
<i>Were you given enough time to reflect on and carry out this Delphi round?</i>	Round 2	80	8	12
	Round 3	96	0	4
	Round 4	96	4	0
<i>Was the time you needed to invest in completing this Delphi round reasonable?</i>	Round 2	84	8	8
	Round 3	96	4	0
	Round 4	87	13	0
<i>Were you satisfied with the introductory materials and instructions provided?</i>	Round 2	88	4	8
	Round 3	92	0	8
	Round 4	91	9	0
<i>Were you satisfied with the Delphi feedback you received?</i>	Round 2	88	0	12
	Round 3	92	8	0
	Round 4	100	0	0
<i>Were you satisfied with the facilitation and co-ordination provided this round?</i>	Round 2	92	0	8
	Round 3	96	4	0
	Round 4	100	0	0
<i>Did you feel valued as a participant in this round?</i>	Round 2	92	0	8
	Round 3	96	0	4
	Round 4	91	0	9
<i>Did you feel like you are working as part of a team this round?</i>	Round 2	84	16	0
	Round 3	80	20	0
	Round 4	87	9	4

In-Progress Evaluation Question	Delphi Round	Yes (% of experts)	No (% of experts)	No Judgement (% of experts)
<i>Have you learned new things from the Delphi project?</i>	Round 3	83	4	13
	Round 4	92	4	4
<i>Do you want to make personal or professional changes as a result of your participation?</i>	Round 3	67	21	13
	Round 4	66	17	17

The majority of experts supported anonymity because it increased their freedom of expression, honesty, and ability to participate comfortably. However, some government experts were not concerned with anonymity and suggested they would have been equally forthright and outspoken without it. Most experts liked participating independently as it allowed time for reflection, encouraged structured thinking, and overcame personal, professional, and psychological barriers to participation. Two government experts indicated they felt lonely and isolated. All experts indicated they had adequate freedom to determine the nature of their participation in the Delphi project. For example, experts said that timelines were generous, enabling them to adjust their workloads and schedules, while others indicated that the process was flexible and allowed them to add new ideas and clarify previous contributions.

Experts felt the Delphi method enabled them to reflect on their knowledge and experiences to produce in-depth responses. However for some experts, the topics presented were too broad and too numerous to permit specific and detailed treatment of issues. Most experts believed that they were given adequate opportunity to modify their judgements, re-evaluate priorities, or elaborate on positions after considering other's input. Experts believed the Delphi method promoted in-depth communication among project members. They indicated the Delphi produced awareness of self and others, of the diversity of views on SRM, and of people's differences and similarities.

Two government experts favoured face-to-face communication because in this forum ideas can be challenged and debated, and idea exchange is faster and more spontaneous. Most experts thought that the Delphi process effectively revealed people's underlying beliefs, reasoning, and assumptions. Experts noted sensitive, controversial, and emotional issues were raised; that experts were more forthcoming than in meetings; and that experts discussed feelings, attitudes, and spiritual beliefs genuinely.

Although Delphi required a major investment of time and effort, Delphi experts indicated the commitment requirements were reasonable. Experts considered the time provided to review feedback and respond to Delphi questions was adequate. Most experts indicated they had an equitable chance to participate in the Delphi project; although a few government experts felt disadvantaged by work commitments and other time constraints. All but one expert believed that their contributions influenced the feedback and were presented in a thorough, unbiased manner.

Table 4.34: Experts' general evaluation of the Delphi method in terms of satisfaction, the expert selection process, anonymity, independence, the opportunity for reflection, group communication, project timing, and fairness (n = 26).

Topic Area	Question	Yes (% of experts)	No (% of experts)	No Judgement (% of experts)
Satisfaction	<i>Overall, are you satisfied with the Delphi method used in this research?</i>	96	4	----
	<i>Were your expectations for the project fulfilled?</i>	88	8	4
Expert Selection	<i>Are you satisfied with the expert selection process?</i>	88	8	4
	<i>Are you satisfied with the makeup of the Delphi group?</i>	96	4	----
	<i>Did the project make good use of your expertise?</i>	92	8	----
Anonymity	<i>Did you like participating anonymously in the project?</i>	85	15	----
Independence	<i>Did you like participating independently in the project?</i>	92	8	----

Topic Area	Question	Yes (% of experts)	No (% of experts)	No Judgement (% of experts)
Independence	<i>Did you have enough freedom to participate when, where, and how you wanted in the research?</i>	100	----	----
Reflection	<i>Were you given adequate opportunity to develop your ideas in depth?</i>	81	15	4
	<i>Were you given adequate opportunity to reflect on and revise your views based on other experts' input?</i>	92	8	----
Group Communication	<i>Did the Delphi method promote in-depth communication among Delphi experts?</i>	92	8	----
	<i>Did the Delphi method reveal experts' underlying beliefs, assumptions, and lines of reasoning?</i>	88	12	----
Timing	<i>Did the research project require a reasonable time commitment from you?</i>	96	4	----
	<i>Was there enough time available to review and reflect on feedback materials?</i>	96	4	----
	<i>Was there enough time available to review and respond to Delphi questions?</i>	100	----	----
Fairness	<i>In your opinion, were you able to participate equitably in the Delphi discussion?</i>	88	12	----
	<i>Do you feel that you had freedom to add or clarify issues?</i>	85	4	12
	<i>Do you feel that your contributions were handled fairly and that they were adequately reflected in the feedback?</i>	96	4	----

4.7.2 Evaluation of Cultural Adaptations

Experts gave an overall positive assessment of the methodological adaptations devised to address cultural considerations (Table 4.35). Vuntut Gwitchin experts indicated the presence of a community researcher greatly enhanced their participation in the Delphi project. In particular, they felt that the community researcher was respectful, trustworthy, reliable, skilled, helpful, patient, easy to work with, knowledgeable, a good communicator, and supportive. Government experts expressed similar opinions of the principal researcher.

Elders indicated that translation and oral recording of feedback materials and Delphi questions greatly improved their ability to understand what other experts said and to take part in the project. They also felt that speaking Gwich'in allowed them to meaningfully communicate their perspectives to other experts.

Experts were very satisfied with Delphi tasks and indicated they stimulated thinking, encouraged creativity, were challenging, required in-depth and structured responses, and allowed people to share what they had experienced and learned. For instance, traditional land users were encouraged to share knowledge gained from Elders and life on the land, while government experts were prompted to challenge conventional thinking and to approach their responses in a thoughtful and co-ordinated way.

All experts were satisfied with introductory materials and instructions and described them as a helpful, essential guide to understanding the large volume of Delphi feedback and undertaking Delphi tasks each round. For example, experts explained that introductory materials and instructions reminded experts of *the big picture* and provided continuity, clarified the purpose and objectives of each round, and focused experts on immediate requirements. Most experts

were satisfied with the design and organisation of the research workbooks. One Vuntut Gwitchin expert wanted additional white space and blank sheets included *for people to put their initial ideas and thoughts down*.

Eighty-eight percent of experts were satisfied with the feedback materials provided in the project. One government expert found the project newsletters to be unnecessary as *they were clearly a community publication*. Another government expert felt the delivery of feedback should be more evenly distributed across time. One Vuntut Gwitchin expert indicated he desired an oral presentation of results each round in addition to written feedback. Participant quotes, summary statements, and numerical summaries were preferred forms of feedback. While in general experts liked the use of graphs and tables, several experts, in particular Vuntut Gwitchin experts, found them *confusing, uninformative, and hard to read*. Feedback was successful in communicating both the Delphi group's perspective and individual expert's ideas to Delphi members. Feedback assisted most experts in answering subsequent Delphi questions and it influenced most experts' opinions and understanding. Two senior government experts indicated none of the ideas presented by experts were novel and consequently feedback did not influence their opinions. Eighty-eight percent of experts were satisfied with the design and organisation of feedback workbooks. One government expert found the feedback to be too lengthy and she desired more visual elements and comic relief *to lighten up the feedback and balance out the difficult stuff*. Another government expert wanted additional summary sheets interspersed throughout the feedback workbooks to improve readability. One Vuntut Gwitchin expert found some of the words used in the feedback difficult to understand although, in general, he found that they were written in *clear and straightforward language*.

All experts liked receiving participant biographies primarily because it increased confidence in the expert group. This had the effect of increasing experts' commitment to the project and experts' belief in the credibility and validity of outcomes. All experts liked receiving background information including experts' views of the land and resource management and a bilingual glossary of common terms because they sensitised experts to the Delphi group's diversity, introduced each person's basic values and perspectives concerning resource management, and developed common ground for cross-cultural communication. Ninety-six percent of experts liked the use of code names, while one Vuntut Gwitchin expert felt that in a small community the use of code names threatened anonymity. Experts suggested that code names added fun and elements of people's personalities to the project. Experts indicated that code names led to the creation of Delphi identities. For instance, some experts suggested they *lived vicariously* through their code names, others began to relate code names to *the way different experts think*, and other experts followed people's views and values as they developed over the rounds. Vuntut Gwitchin experts also liked code names because they related to the land, northern animals, and Vuntut Gwitchin culture. Many felt this demonstrated caring and concern for the environment and explained that this made them more receptive to other's comments. By the end of the project, most experts felt as if they were working as part of a team, although three government experts continued to feel isolated and alone in Whitehorse.

Table 4.35: Experts' assessment of methodological adaptations undertaken to address cultural considerations (Elders n=2, TLU and FNEA n=9; Gov't and FNEB n=15).

Adaptation	Question	Total Yes	Total No	Total NJ*	Breakdown of Positive Responses (# of experts)			Breakdown of Negative Responses (# of experts)		
					Elders	TLU* and FNEA*	Gov't* and FNEB*	Elders	TLU and FNEA	Gov't and FNEB
Researchers	<i>Are you satisfied with the facilitation and co-ordination provided by the community researcher and/or the principal researcher?</i>	100%	----	----	2	9	15	----	----	----
Translation	<i>Did oral, Gwich'in translation of feedback help you understand better what other people said?</i>	100%	----	----	2	n/a	n/a	----	----	----
	<i>Did Gwich'in translation of the research questions help you understand better what we were asking?</i>	100%	----	----	2	n/a	n/a	----	----	----
	<i>Did talking in Gwich'in when you answered questions improve your participation in Delphi?</i>	100%	----	----	2	n/a	n/a	----	----	----
Delphi Questions	<i>Overall, were you satisfied with the Delphi research questions?</i>	96%	4%	----	2	9	14	----	----	----

Adaptation	Question	Total Yes	Total No	Total NJ	Breakdown of Positive Responses (# of experts)			Breakdown of Negative Responses (# of experts)		
					Elders	TLU* and FNEA*	Gov't and FNEB*	Elders	TLU and FNEA	Gov't and FNEB
Delphi Questions	<i>Did the Delphi questions stimulate your thinking and draw out your opinions?</i>	88%	12%	----	2	8	13	----	1	2
	<i>Did the questions allow you to bring your values, knowledge, concerns, and/or experiences into the Delphi discussion?</i>	92%	4%	4%	2	9	13	----	----	1
Design of Research Workbooks	<i>Were the introductory materials and instructions adequate to help you do the required work?</i>	100%	----	----	2	9	15	----	----	----
	<i>Were you satisfied with the design and organisation of the research workbooks?</i>	96%	4%	----	2	8	15	----	1	----

Adaptation	Question	Total Yes	Total No	Total NJ	Breakdown of Positive Responses (# of experts)			Breakdown of Negative Responses (# of experts)		
					Elders	TLU ^a and FNEA ^b	Gov't and FNEB ^d	Elders	TLU and FNEA	Gov't and FNEB
Delphi Feedback	<i>Were you satisfied with the Delphi feedback materials?</i>	88%	12%	----	2	8	13	----	1	2
	<i>Did you like the use of numerical summaries?</i>	100%	----	----	2	9	15	----	----	----
	<i>Did you like the use of graphs to present feedback?</i>	77%	23%	----	---	7	14	2	3	1
	<i>Did you like the use of tables to present feedback?</i>	81%	15%	4%	1	8	12	1	1	2
	<i>Did you like the use of participant quotes?</i>	100%	----	----	2	9	15	----	----	----
	<i>Did you like the use of summary statements?</i>	100%	----	----	2	9	15	----	----	----
	<i>Did feedback help you understand the Delphi group's perspective on issues?</i>	96%	4%	----	2	9	14	----	----	1
	<i>Did feedback help you understand and assess other expert's ideas?</i>	100%	----	----	2	9	15	----	----	----

Adaptation	Question	Total Yes	Total No	Total NJ	Breakdown of Positive Responses (# of experts)			Breakdown of Negative Responses (# of experts)		
					Elders	TLU ^a and FNEA ^b	Gov't ^c and FNEB ^d	Elders	TLU and FNEA	Gov't and FNEB
Delphi Feedback	<i>Did the feedback help you answer subsequent Delphi questions more effectively?</i>	96%	4%	----	2	9	14	----	----	1
	<i>Did the feedback influence your opinions and understanding?</i>	92%	8%	----	2	9	13	----	----	2
Design of Delphi Feedback Workbooks	<i>Were you satisfied with the design and organisation of the feedback workbooks?</i>	88%	12%	----	2	8	13	----	1	2
	<i>Were you satisfied with the design and organisation of Delphi newsletters?</i>	92%	4%	4%	2	9	13	----	----	1
Relationship Building	<i>Did you like receiving expert biographies?</i>	100%	----	----	2	9	15	----	----	----
	<i>Did you like receiving background information on expert's views of the land and resource management?</i>	100%	----	----	2	9	15	----	----	----
	<i>Did you like the use of code names?</i>	96%	4%	----	2	9	14	----	----	1

Adaptation	Question	Total Yes	Total No	Total NJ	Breakdown of Positive Responses (# of experts)			Breakdown of Negative Responses (# of experts)		
					Elders	TLU ^a and FNEA ^b	Gov't and FNEB ^d	Elders	TLU and FNEA	Gov't and FNEB
Relationship Building	<i>Did you feel as if you were working as part of a team?</i>	88%	12%	----	2	9	12	----	----	3
Remuneration	<i>Did receiving gifts and/or honorariums make you feel valued as a participant in this project?</i>	92%	----	8%	2	9	13	----	----	----

* NJ = no judgement

^a TLU: Traditional Land Users; ^b FNEA: First Nation Employees, group A; ^c Gov't: Territorial and Federal Government Experts;

^d FNEB: First Nation Employees, group B

4.7.3 Evaluation of Communication Adaptations

Experts positively evaluated the methodological adaptations undertaken to address communication constraints in this research (Table 4.35). Government experts liked the use of e-mail and courier to communicate with the principal researcher. They found these methods to be *efficient, convenient, and effortless*, and suggested they improved continuity and encouraged interaction with the principal researcher. In addition, experts appreciated having both a 'hard' copy and an electronic copy of project materials. Vuntut Gwitchin experts explained that a community researcher was key to successful communication with experts in Old Crow.

Experts were satisfied with data collection methods used in the project. Government experts liked using a self-administered format. Although some found writing challenging, they admitted this data collection method yielded a better product by allowing for complex, challenging questions and requiring background preparation, reflection, structured thinking, clear and concise

responses. Vuntut Gwitchin experts liked using an interview format since it complimented their oral tradition and allowed them to interact with an interviewer. Elders were happy to participate using their own language and in a *story-telling* communication style that was comfortable and familiar. The interview format allowed Vuntut Gwitchin experts to *speak from [their] hearts* and it *maintained the truthfulness* of their input. Vuntut Gwitchin experts indicated that having a skilful community research was key to their positive interview experience; *she made people feel at ease, was somebody we could trust, was somebody who was going to respect what we had to say, and made the experience friendly*. Government experts liked interviews; they provided an opportunity to interact with the principal researcher, gave relief from written responses, were spontaneous, and stimulated experts to clarify or expand upon responses. Two government experts did not like responding to interviews and felt the quality and quantity of their answers suffered. Overall, experts felt that the data collection methods they used allowed them to effectively express themselves in the research.

Although all experts were given the opportunity to contact other project experts, only half of experts did so. Of these thirteen individuals, nine were Vuntut Gwitchin experts. Most experts felt they had adequate opportunity to voice concerns and to react to differing viewpoints. Three experts disliked the Expert Talk Back forum and indicated it required *too much extra effort in an already demanding process*.

Table 4.36: Delphi experts' assessment of methodological adaptations undertaken to address communication constraints (Elders n=2, TLU and FNEA n=9; Gov't and FNEB n=15).

Adaptation	Question	Total Yes	Total No	Total NJ*	Breakdown of Positive Responses (# of experts)			Breakdown of Negative Responses (# of experts)		
					Elders	TLU* and FNEA*	Gov't and FNEB*	Elders	TLU and FNEA	Gov't and FNEB
Media	<i>Did you like the use of e-mail to communicate in this project?</i>	100%	----	----	----	----	15	----	----	----
	<i>Did you like the use of a mail courier to communicate in this project?</i>	100%	----	----	----	----	15	----	----	----
	<i>Did you like communicating in-person with the community researcher?</i>	100%	----	----	2	9	----	----	----	----
Data Collection	<i>Overall, were you satisfied with how information was gathered from you in this project?</i>	96%	----	----	2	9	14	----	----	1
	<i>Did you like using a self-administered format?</i>	87%	13%	----	----	----	13	----	----	2
	<i>Did you like using an interview format?</i>	85%	8%	8%	2	9	11	----	----	2

Adaptation	Question	Total Yes	Total No	Total NJ	Breakdown of Positive Responses (# of experts)			Breakdown of Negative Responses (# of experts)		
					Elders	TLU ^a and FNEA ^b	Gov't ^c and FNEB ^d	Elders	TLU and FNEA	Gov't and FNEB
Data Collection	<i>Did using interviews and/or self-administered surveys allow you to express yourself effectively in the project?</i>	92%	8%	----	2	9	13	----	----	2
	<i>Did using interviews and/or self-administered surveys enable you to participate comfortably and openly in the project?</i>	92%	8%	----	2	9	13	----	----	2
Expert Contact List	<i>Did you ever contact other participants to discuss the project?</i>	50%	50%	----	2	5	6	----	4	9
Monitoring Participant Satisfaction	<i>Were you given adequate opportunity to voice concerns and/or react to differing points of view in the project?</i>	88%	8%	----	2	8	13	----	1	2

* NJ = no judgement

^a TLU: Traditional Land User; ^b FNSA: First Nation Employees, group A; ^c Gov't: Territorial and Federal Government Experts;

^d FNSB: First Nation Employees, group B

4.7.4 Specific Merits and Limitations

A framework analysis of experts' in-progress evaluation and post-Delphi Round 1 responses produced specific sets of merits and limitations related to the Delphi method applied in this research (Table 4.36; Table 4.37). Experts discussed advantages of the modified Delphi method related to structured and reflective thinking, diminished barriers to participation, an increase in the quality and quantity of ideas produced, overcoming practical constraints related to cost and distance, improving communication, building relationships, enhanced learning opportunities, and community benefits (Table 4.36). Some experts outlined disadvantages of the modified Delphi method concerning high levels of participant commitment, feelings of isolation, decreased continuity and synergy, limited relationship building potential, constrained communication potential, and reduced camaraderie (Table 4.37).

Table 4.37: Experts' assessment of the specific merits of the modified Delphi method.

Merits
• Allows time for reflection
• Promotes structured thinking
• Promotes in-depth thinking
• Allows for independent thinking
• Allows experts to re-think and revise their views during the process
• Reduces psychological barriers (e.g., shyness, intimidation, fear)
• Reduces professional barriers (e.g., seniority, affiliation)
• Reduces interpersonal barriers (e.g., age, status, gender, cultural affiliation)
• Increases the quantity of ideas produced
• Increases the quality of ideas produced
• Relies on the rationality of group judgement
• Overcame logistical and organisational constraints
• Overcame financial constraints
• Overcame geographic barriers
• Prevents domination of the process and outcomes by dominant or vocal individuals
• Deterred 'majority rules' thinking (e.g., follow the leader, the bandwagon effect) and reduces the potential for false agreement by encouraging the expression of minority views
• Gives participants equal status in the group
• Provides a safe and comfortable forum for participation
• Promotes in-depth communication (e.g., expression of feelings or underlying beliefs)

Merits
<ul style="list-style-type: none"> • Provides an opportunity for all experts to contribute to the process
<ul style="list-style-type: none"> • Encourages experts to give all contributions equitable consideration
<ul style="list-style-type: none"> • Allows for different communication styles and preferences
<ul style="list-style-type: none"> • Allows experts to discuss controversial, sensitive, or personal issues
<ul style="list-style-type: none"> • Supplies experts with freedom to determine where, when, and how to participate
<ul style="list-style-type: none"> • Eliminates conflict while still allowing for disagreement
<ul style="list-style-type: none"> • Focuses attention directly on the issues under investigation
<ul style="list-style-type: none"> • Produces precise documented records of the distillation process through which informed judgement is achieved
<ul style="list-style-type: none"> • Makes full and effective use of experts' knowledge, experience, and skill
<ul style="list-style-type: none"> • Is a flexible, responsive method which can be modified to meet specific needs and changing circumstances
<ul style="list-style-type: none"> • Produces a sense of teamwork and collaboration among participants
<ul style="list-style-type: none"> • Initiates relationship building through promoting trust and sharing
<ul style="list-style-type: none"> • Feedback is tailored to a specific audience who will listen, read, and respond to it
<ul style="list-style-type: none"> • A participatory research process (e.g., local expert selection, community researcher, ability of experts to influence research design)
<ul style="list-style-type: none"> • A research process that increases local capacity through training and employment
<ul style="list-style-type: none"> • An accountable research process that returns results to participants and the community on an ongoing basis

Table 4.38: Experts' assessment of the specific limitations of the modified Delphi method.

Limitations
• Participant centred process relying heavily on the commitment and motivation of experts
• Creates feelings of isolation and loneliness
• Has temporal costs and restricts continuity
• Restricts potential for synergistic interactions
• Restricts ability to challenge others' thinking
• Restricts ability to seek clarification and elaboration from other experts
• Limits relationship building potential between participants and between organisations
• Realistic estimates of the level of participant commitment are difficult to develop
• Can mask subtle differences in participants' thinking
• Reduces the pleasures of working face-to-face as a group (e.g., humour, food, group activities, travel on the land)

4.7.5 Evaluation of Project Impacts

Experts indicated the Delphi project had numerous positive impacts (Table 4.38). Experts characterised Delphi as an effective cross-cultural communication process and believed it represented progress in this area compared to face-to-face interactions. Experts indicated that SRM communication is typically *heavy on government methodologies and styles* and that *[government] processes often fall down in the community*. In addition, they explained that most SRM in the Yukon currently takes the form of *mediated dispute resolution*, which is *an unhealthy and unproductive way of communicating for shared resource decision-making* that

wastes time, money, and resources on fighting when we should be co-managing. Experts characterised the Delphi method as *a quiet conversation* during which *there was a lot of listening, sharing, and trust established.* Experts suggested that communication barriers were removed, discussion occurred in a non-confrontational way, relationships were fostered, and cross-cultural learning occurred. Vuntut Gwitchin experts explained that anonymity, independence, receiving feedback, and participating using interviews encouraged them *to talk and share.* All but one Vuntut Gwitchin expert indicated that the Delphi method improved their participation level and developed collective understanding. They indicated it represented a new way of integrating values and beliefs with technical information, one that allows people to *give all types of input effective consideration and apply all types of knowledge to the decision-making process.* Vuntut Gwitchin experts were satisfied *no one could use the process for bad reasons* and that it *presented new possibilities for working together where confrontation and debate between government and Indians [were] minimised.* Two government experts maintained that face-to-face group interactions were superior cross-cultural communication forums. Several experts suggested using the Delphi in combination with face-to-face interactions.

Experts considered the Delphi to be an educational process, which provided for learning about self and others, SRM, and a new communication process. Eighty-five percent of experts indicated that the Delphi increased their knowledge of SRM and caused them to reflect on previous cross-cultural interactions and SRM experiences. Because of their long history of involvement in SRM, three government experts felt they did not learn anything new from the Delphi project. Seventy-three percent of experts felt that the Delphi promoted personal and/or professional change.

Table 4.39: Experts' evaluation of the Delphi project's impact on cross-cultural communication, learning, change, and participation (Elders n=2, TLU and FNEA n=9; Gov't and FNEB n=15).

Question	Total Yes	Total No	Total NJ [*]	Breakdown of Positive Responses (# of experts)			Breakdown of Negative Responses (# of experts)		
				Elders	TLU ^a and FNEA ^b	Gov't and FNEB ^c	Elders	TLU and FNEA	Gov't and FNEB
<i>Was this an effective cross-cultural communication process?</i>	96%	4%	----	2	9	14	----	----	1
<i>Compared to face-to-face group interactions, does this process represent progress in cross-cultural communication?</i>	88%	4%	8%	2	9	12	----	----	1
<i>Did this Delphi process improve your ability to participate in cross-cultural communication?</i>	91%	9%	----	2	8	----	----	1	----
<i>Was this Delphi process educational?</i>	92%	----	8%	2	9	13	----	----	----
<i>Did participation in this Delphi process increase your knowledge of SRM?</i>	85%	12%	4%	2	8	12	----	----	3
<i>Did participation in this Delphi process promote personal and/or professional changes?</i>	73%	19%	8%	1	7	11	1	1	3

^{*} NJ = no judgement

^a TLU: Traditional Land User; ^b FNSA: First Nation Employees, group A; ^c Gov't: Territorial and Federal Government Experts;

^d FNSB: First Nation Employees, group B

Experts outlined several impacts resulting from their participation (Table 4.39). Framework analysis of in-progress evaluation, post-Delphi Round 1 responses, and post-Delphi Round 2 responses revealed general impacts relating to cognitive enhancement, moral development, empowerment and equity promotion, relationship building, and personal and professional

change. Cognitive enhancement consisted of two types of learning: the learning of participants within the Delphi process and transfer of this learning to individuals, communities, and organisations outside of the Delphi process. Moral development involved advances in experts' ability to make judgements about right and wrong, and to set aside egoistic demands and act in the common good. According to some experts, the Delphi project was empowering and improved equity. It enhanced their freedom of expression, reduced discriminatory factors, and gave a voice to previously marginalised individuals. Experts believed that the Delphi method prompted them to initiate change and to take action, and provided an opportunity to have genuine influence over the future of north Yukon SRM. Experts indicated that the Delphi project enhanced relationships among Vuntut Gwitchin experts, territorial government experts, and federal government experts. They discussed the development of cross-cultural awareness and sensitivity, trust, willingness to co-operate and collaborate, empathy, a sense of collective accomplishment, an increase in morale, and a feeling of social solidarity. Experts discussed different types of personal and professional changes initiated during the project related to self, family, community, work, and society. Impacts concerning social communication were described by experts; the project fostered information sharing, collective thinking, and open and honest dialogue that enhanced common knowledge and mutual understanding.

Table 4.40: General and specific impacts of the Delphi process on participants.

General Impacts	Specific Impacts
Cognitive Enhancement	• Learning about SRM issues (e.g., SRM process and outcomes)
	• Learning about the problems and opportunities underlying SRM issues and their consequences
	• Learning about possible ways to resolve problems and realise opportunities and how to implement these new approaches
	• Learning about a new method to communicate, work together, and make decisions
	• Learning about self
	• Learning about personal interests in relation to shared goals
	• Learning about other individual's and group's interests, values, and perspectives, as well as the beliefs, assumptions, and rationales underlying them
	• Learning to practise holistic or integrative thinking
	• Learning about another culture and lifestyle
	• Learning about alternative knowledge and management systems
	• Learning outside the Delphi process by Old Crow community members
	• Lasting reference material to share with other SRM regimes, agencies, and First Nations to broaden the impact of project findings
Moral Development	• Enhanced experts' sense of responsibility to their communities or agencies
	• Enabled experts to acknowledge other's perspectives and to understand and appreciate them
	• Developed a sense of solidarity with other Delphi members and commitment to the Delphi group
	• Prompted experts to integrate new knowledge and understanding into personal outlooks
	• Developed problem-solving and critical thinking skills

General Impacts	Specific Impacts
Empowerment	<ul style="list-style-type: none"> Enhanced experts' sense of self-respect Enhanced expert's respect for others Improved expert's self-confidence Stimulated individual's sense of their own value and dignity Enhanced expert's sense of self-reliance Strengthened expert's cultural and spiritual identity Enhanced individual's ability to participate (e.g., improved participant equality by reducing discriminatory factors) Gave people an opportunity to have authentic influence
Relationship Building	<ul style="list-style-type: none"> Accelerated the relationship building process by effectively overcame suspicion, cynicism, and mistrust Developed cross-cultural awareness and sensitivity Enhanced trust among Delphi members Increased experts' willingness to co-operate and collaborate in the future Promoted empathy for other's views and values Developed a sense of collective accomplishment and a positive precedent for future collaborative efforts Identification of shared values, common interests, and similar views among previously adversarial groups/individuals Raised expert's morale concerning participation in SRM Prompted thinking, discussing, and acting together Enhanced common knowledge and awareness Improved Vuntut Gwitchin experts' ability to understand scientists and resource managers and improved government expert's ability to understand Elders and traditional land users
Action	<ul style="list-style-type: none"> Encouraged experts to take action and to initiate change within their families, communities, or workplaces Stimulated experts to assess their personal effectiveness as SRM representatives, community members, or resource managers Improved people's desire and ability to work in cross-cultural environments Encouraged experts to share what they learned with colleagues and community members

General Impacts	Specific Impacts
Action	<ul style="list-style-type: none"> • Encouraged experts to promote organisational or institutional change concerning the design and practice of SRM
	<ul style="list-style-type: none"> • Encouraged Vuntut Gwitchin experts to spend more time on the land
	<ul style="list-style-type: none"> • Encouraged Vuntut Gwitchin experts to take a more active role in educating youth about Vuntut Gwitchin culture, language, and life ways
	<ul style="list-style-type: none"> • Encouraged some experts to 'go back to school' and gain additional training in SRM related topics
	<ul style="list-style-type: none"> • Prompted experts to consider taking on new leadership roles in their communities, agencies, or on SRM bodies
	<ul style="list-style-type: none"> • Encouraged experts to seek cross-cultural learning opportunities, especially experiential ones

4.7.6 Delphi Research Product Evaluation

Experts' evaluation of the Delphi research products in post-Delphi Round 2 was positive (Table 4.41). All experts expressed satisfaction with the three final reports and endorsed the findings of the Delphi study. The reports were considered accessible, informative, and comprehensive. Experts felt reports would be valuable as ongoing reference and learning material for experts, their organisations and communities. Experts described several reasons for their satisfaction related to the content and design of the publications (Table 4.41).

Table 4.41: Experts' evaluation of the content and design of the final Delphi reports.

Feature	Vuntut Gwitchin Experts	Government Experts
CONTENT	<ul style="list-style-type: none"> • A lot of useful information 	<ul style="list-style-type: none"> • Good point form summaries
	<ul style="list-style-type: none"> • Careful, thoughtful work is evident 	<ul style="list-style-type: none"> • Emphasised and clarified key points
	<ul style="list-style-type: none"> • Good synthesis of results from the entire Delphi project 	<ul style="list-style-type: none"> • A valuable reference for anyone considering doing Delphi
	<ul style="list-style-type: none"> • Reports were easy to read, understand, and use 	<ul style="list-style-type: none"> • Easy to read and find information
	<ul style="list-style-type: none"> • Good integration of contributions from different types of experts 	<ul style="list-style-type: none"> • An accessible summary of the entire process including information about the Delphi method and SRM
	<ul style="list-style-type: none"> • Good description of a new tool for cross-cultural communication, learning, and decision-making 	<ul style="list-style-type: none"> • Broadly applicable results; good recommendations and ideas that can be applied to other SRM processes
	<ul style="list-style-type: none"> • Good description of key SRM barriers and their solutions 	<ul style="list-style-type: none"> • Encapsulates the thinking of a broad range of experiences and expertise
	<ul style="list-style-type: none"> • Good description of the specific characteristics of a successful SRM regime 	<ul style="list-style-type: none"> • Very thorough, thoughtful, comprehensive, and well written
	<ul style="list-style-type: none"> • Gwitchin translation made it accessible to a much wider audience 	<ul style="list-style-type: none"> • Well-condensed treatment of the complex process of successfully working together
	<ul style="list-style-type: none"> • Provides information at two levels of interest, summaries and detailed treatment of issues 	<ul style="list-style-type: none"> • A useful tool for work as a resource manager and SRM representative
	<ul style="list-style-type: none"> • Clear, straightforward, simple use of language 	<ul style="list-style-type: none"> • A great tool for anyone considering using the Delphi method and evaluating its application
DESIGN	<ul style="list-style-type: none"> • Summary sheets provided a comprehensive, easy-to-read overview of each section 	<ul style="list-style-type: none"> • Friendly, attractive, inviting format
	<ul style="list-style-type: none"> • Extensive use of participant quotes added interest 	<ul style="list-style-type: none"> • Summary sheets provide a useful overview
	<ul style="list-style-type: none"> • Colourful dividers helped people navigate the reports 	
	<ul style="list-style-type: none"> • Extensive use of photographs added interest and meaning 	

Feature	Vuntut Gwitchin Experts	Government Experts
DESIGN	<ul style="list-style-type: none"> • Logo was a good representation of the work of the Delphi group 	
	<ul style="list-style-type: none"> • Slogan emphasised the importance of partnership 	
	<ul style="list-style-type: none"> • Titles are good because they emphasise collaboration and co-operation 	
	<ul style="list-style-type: none"> • Good organisation made it easy to understand and to find information 	
	<ul style="list-style-type: none"> • Covers are colourful and eye catching 	
	<ul style="list-style-type: none"> • Covers are touching and meaningful 	
	<ul style="list-style-type: none"> • Large lettering and friendly font made it easy to read 	

CHAPTER 5

DISCUSSION

5.0 OVERVIEW

The two related goals of this research were to develop a method for First Nation people and government managers to explore the characteristics of effective SRM and to use this method to identify the essential elements of SRM for the north Yukon. The approach developed in this study was to take a standard Delphi method and modify it to accommodate cross-cultural communication among Vuntut Gwitchin experts, territorial government experts, and federal government experts. This modification was based on the principal researcher's previous research experience with VGFN and Yukon government agencies, recommendations from staff in the VGFN Natural Resources Department who aided in project design, recommendations from the community researcher and local translators, and experts' in-progress evaluation feedback. The following discussion focuses on three aspects: findings about the modified Delphi method, including its major accomplishments and key characteristics of the process that contributed to success; the impact of the present Delphi process on participants; and the essential elements of SRM in the north Yukon as identified by Delphi experts. Future applications and additional modifications of the Delphi method employed in this research will then be discussed.

5.1 DELPHI ACCOMPLISHMENTS

The accomplishments of any Delphi inquiry must be evaluated against the aims of the study that it was part of (Bijl, 1996). In the present study, the modified Delphi method was successful in bringing experts with diverse backgrounds together to work on a complex, common problem when it was not practical or desirable for them to do so in person. Both qualitative and quantitative findings in this study indicated that the modified Delphi method succeeded in engendering participation, facilitating cross-cultural communication, and generating critical ideas and structured thinking.

5.1.1 Expert Participation

This study succeeded in securing and sustaining the commitment of experts. Approximately two-thirds of potential panellists consented to serve in this Delphi study, an acceptance rate commensurate with the literature (Goldschmidt, 1996). The overall expert attrition rate of 10% in the present study was well below the general reported range; one-third to one-half of individuals are expected to quit a Delphi project (Alder & Ziglio, 1996). Other researchers have found that dropouts were unmotivated, critical of the Delphi methodology, and skeptical of initial results (Bedford, 1972; Sackman, 1975). However, follow-up with non-respondents in the present study indicated they dropped out of the project for personal reasons related to family, work, and educational commitments, not because of lack of interest in the topic nor because of dissatisfaction with the study design or its implementation.

High response rates indicate that participants believe a Delphi study is worthwhile, well-designed, and effective (Turoff, 1970; Bijl, 1992). In this research, the average response rate each round of 98% was well above those published in the literature, which ranged from 82% to 27.4% (Judd, 1972; Davis, 1975; Schneider, 1972; Schafer, Moeller, & Getty, 1974; Smil, 1975; Schoeman & Mahajan, 1977; Smith, 1978; Baradecki, 1981; van Beek, 1996). The high response rate in the present study was especially extraordinary because experts reported that their participation was time consuming and the study lasted for six rounds (i.e., a standard Delphi inquiry extends for two to three rounds).

In the present study, experts' evaluation comments also reinforced the value of the modified Delphi method as a tool to engender participation. Experts expressed satisfaction with participating in this project and most indicated they would take part in another Delphi study. Experts reported that the modified Delphi process improved their ability to participate in cross-cultural communication, removed serious participation barriers (e.g., psychological or professional barriers), and promoted participant equality (Table 4.34; Table 4.38). Experts also felt that the project made full use of their expertise, stimulated their thinking, and kept them interested and involved.

5.1.2 Cross-Cultural Communication

Communication is the process of acting on information (Goldhaber, 1993; Beebe, Beebe, & Redmon, 1999). Turoff and Hiltz (1996) described the Delphi method as a communications structure that produces critical examination of issues. Linstone and Turoff (1975:3) found Delphi to be an effective method for *structuring group communication so that the process is effective in*

allowing a group of individuals, as a whole, to deal with complex problems. The present Delphi study structured effective cross-cultural communication among Vuntut Gwitchin experts and government experts (Table 4.34; Table 4.35; Table 4.36). Experts explained that they were able to express themselves *honestly, openly, sincerely, thoughtfully, and actively* (Table 4.36; Table 4.39). The process allowed them to bring their values, knowledge, concerns, and experiences into the Delphi discussion (Table 4.35; Table 4.36). However, communication is not merely presenting information to others but includes responding to information in action, word, or thought (Beebe & Masterson, 2000). This process was realised using the modified Delphi method as evidenced by the fact that it operated as a dynamic communication process in which information generated by the group in one round was considered, then refined and elaborated upon in the next. Feedback clearly influenced experts' opinions and understanding. Experts reflected on and revised their views, voiced concerns, and reacted to differing viewpoints as the project progressed.

Group communication involves an interaction among a group of people who "share a common purpose or goal, who feel a sense of belonging to the group, and who exert influence on one another" (Beebe & Masterson, 2000:4). The Delphi group in the present study was united by the common purpose of identifying the essential elements of north Yukon SRM. Not only did the group focus on issues of mutual concern, but most experts felt a sense of belonging to the group, developed a group identity, and developed a sense of ownership of the process and outcomes (Table 4.35; Table 4.37). Experts were able to influence the design, content, and direction of the present Delphi process. Experts influenced each other's thinking as described above.

Cross-cultural communication is a process that must overcome substantial barriers, including differing assumptions, values, backgrounds, experiences, and areas of expertise (Gallagher,

1988). Rotondi and Gustafson (1996) indicated that when participants disclose the 'how and why' of their views, in-depth communication is occurring. The modified Delphi method provided experts with a deep understanding of each other's thinking. Communication in the present study went beyond the exchange of opinions and biases to reveal the conceptual basis of beliefs (i.e., the reasons, assumptions, and rationale underlying experts' thinking) (Table 4.34). Experts indicated that the modified Delphi process helped them to understand and assess the Delphi group's perspectives as well as the ideas of individual experts. It was described as an effective cross-cultural communication process that improved upon experts' experiences in face-to-face groups (Table 4.39).

5.1.3 Idea Generation

The modified Delphi method was an effective tool for exploring the nature of SRM issues and generating different ways to address them. It allowed experts to deal systematically with a complex task and therefore represents a novel, interesting way of analysing and discussing SRM issues. It improved both the generation of critical ideas and the structured collection and processing of information from experts. Results of the present study indicated that no single person possessed the scope or detail of understanding about SRM that emerged from the project. Experts believed that the quantity and quality of ideas produced in this Delphi study were superior to those developed in face-to-face communication. Experts' evaluation was supported by the scope and depth of the data collected in the six rounds of this exercise. On the basis of both the large quantity of materials produced by participants (e.g., an average of 21 pages of transcript

per person during each Delphi round) and the quality of their input, it appears that the modified Delphi method fostered focused idea generation.

Kurth-Schai (1984) developed criteria to assess the Delphi's idea generating potential in terms of efficiency and effectiveness. Efficiency was defined in terms of the time and effort required from experts and effectiveness was defined in terms of the production of high quality data. These criteria have been used to assess participation in other Delphi procedures (McClanahan, 1988; Passig, 1997). Although participation in this study required six rounds of reflection and response, experts' evaluation revealed the study was efficient. The time commitment, the duration of the study, and the length of each round was perceived by experts as reasonable. The introduction and instructions were described as clear and focused. Experts described feedback as easy to read and understand. They said that research questions, although challenging and requiring creative, integrated thinking, were straightforward and unequivocal. The modified Delphi process was also effective in eliciting participation, as evidenced by the scope and depth of the data collected. It was the researcher's opinion, supported by various people who studied the results including the analysis team, translators, and the community researcher, that the results were surprisingly fruitful in terms of their detail, direction, and level of disclosure.

5.2 KEY CHARACTERISTICS OF THE DELPHI APPROACH

Numerous characteristics of the modified Delphi method contributed to its accomplishments. These characteristics can be divided into two broad categories relating to expert selection and motivation, and group interaction as described below.

5.2.1 Expert Selection and Motivation

This Delphi application was effective because it identified genuine experts and sustained their participation. The expert selection process succeeded because it expanded the standard concept of expert and used effective expert selection procedures and expert selection criteria. Expert characteristics were also basic determinants of success. The Delphi panel included a representative range of the views and expertise involved in north Yukon SRM and experts were highly motivated to participate in the project.

5.2.1.1 The Concept of Expert

Redefining the concept of expert was key to the effectiveness of this research and separates this study from many others. Authors such as Simon (1965), Jillison (1975a), Baradecki (1981), and Speight and Thomas (1995) have restricted the possession of expertise to professionals with advanced education. Institutionalised western systems of resource management are founded on technical disciplines and are divided into specialisations with mutually exclusive roles (Wolfe et al., 1992). People who derive power from academic credentials, money, or political office assume these roles (Johannes, 1993; Sadler and Boothroyd, 1994; Brockman et al., 1997). However, there is a rising awareness that specialisation cannot solve the problems of our society. Increasing refinement and sophistication "without provision for integration of knowledge and power at the most local levels exacerbates not only alienation but inefficiency and confusion" (Sadler and Boothroyd, 1994:3). Quaille-Hill and Fowles (1975) criticised Delphi studies for employing respondents whose purview is overly restrained and they encouraged researchers to adopt an interdisciplinary orientation and to involve generalists. Needham and deLoe (1990) also suggested experts should be identified in a variety of ways in terms of their closeness to a

problem or issue. This study successfully extended the concept of expertise beyond individuals with formal education and professional status (e.g., scientists, academics, and resource managers) to those who derived expertise from alternative knowledge systems, lived experience, and familiarity (e.g., Elders, traditional land users, and Old Crow community members).

5.2.1.2 Expert Selection Procedures

Systematically selected Delphi experts perform more efficiently and effectively than a convenience sample (Quaille-Hill & Fowles, 1975; Needham & deLoe, 1990). Systematic expert selection procedures contributed to the success of the Delphi method used in this study. In addition to the judgement of researchers, the judgement of senior bureaucrats and VGFN leaders was used to nominate qualified individuals according to formal selection criteria. The modified Delphi method was effective in identifying 46 potential panellists and resulted in a more representative and authoritative expert group than could have otherwise been distinguished. Similarly, Bijl (1996), in a Delphi study on mental health and mental health care in the Netherlands, determined that consultation with non-participating mental health care experts was an excellent approach for identifying Delphi panel members. Czinkota and Ronkainen (1997) utilised the recommendations of leaders in the international policy, business, and academic communities to successfully identify participants in their Delphi study on international business and trade.

In the present study, nominations were also solicited from invited experts to confirm and expand the expert panel. Of the more than 150 Delphi studies consulted in this research, none required nominations from identified experts. Yet these people, who are by definition experts in the subject of inquiry, are in an excellent position to suggest potential panellists. Involving

Delphi experts in the determination of panel membership was especially relevant since this study determined that experts' confidence in the composition of the Delphi group significantly affects their motivation to participate.

5.2.1.3 Expert Selection Criteria

The use of formal, objective criteria for selecting experts in the present study ensured that the right people were identified and involved and that the Delphi group produced responses that were more meaningful than if non-experts had participated. The combination of externally and internally assessed criteria employed in this research was useful in determining each potential panellist's expertise and ability to participate. Although selection criteria may vary from one application to another depending upon the context and aims of the study, expertise is the key requirement. Expertise was defined in this study by four components, which may warrant consideration in other applications. The first criterion, representative experience, was used to select experts who encompassed all relevant viewpoints, so that the range of important SRM issues could be distinguished and explored. The next component of expertise, recognised authority, was useful in distinguishing experts held in high regard within their professions, disciplines, and communities. The third criterion, sufficient expertise, ensured the participation of experts with knowledge of and practical engagement with north Yukon resource management issues. Last, experts required advanced skills in written and/or oral communication and in expressing priorities through voting and ranking procedures. This criterion was useful in getting experts to consider their ability to participate in a participant-centred process that requested extensive response and evaluation. Although not directly related to expertise, another useful criterion employed in this study was experts' willingness to contribute to the exploration of

Delphi issues. This functioned as an accountability measure and assured researchers that experts would dedicate sufficient time to the Delphi exercise.

Even though explicit criteria are important (Ziglio, 1996), the Delphi literature is replete with examples of expert opinion being consulted without disclosure of selection criteria and expert selection being driven by convenience and expediency (Baradecki, 1984; Miller, 1984; Richey et al., 1985a; Needham & deLoe, 1990). Often, researchers rely uncritically on respondents who are readily available, whose reputation is informally known to the researcher, or who meet minimal informal criteria of involvement in the area of interest. This places heavy reliance on subjective definitions of expertise and subjective assessments of which individuals are experts (Heath, Neimeyer, & Pedersen, 1988; Speight & Thomas, 1995). This leaves Delphi studies vulnerable to selection bias (Goldschmidt, 1996).

5.2.1.4 Panel Composition

The composition of the Delphi panel in the present study had a positive effect on research outcomes. The panel represented a broad cross-section of the agencies, professions or occupations, and cultures involved in north Yukon SRM issues and reflected the diversity of interests, opinions, and knowledge held by different types of people. This expert sample was sufficient in terms of experts' education or training, experience, and practical engagement with the issues under investigation. It was credible in terms of experts' standing within their discipline, profession, and/or community. There was a preponderance of males in the expert group and only four experts originated from federal resource management agencies. Males outnumbered females in the Delphi group due to the prevalence of men in natural resource management positions; Vuntut Gwitchin cultural norms regarding the role of women in hunting,

fishing, and trapping (dominant land-based activities); and, the direction of senior bureaucrats and VGFN leaders on who should participate in the research. Territorial government experts outnumbered federal government experts in the Delphi group, mostly reflecting the greater number of territorial agencies currently involved in various north Yukon SRM arrangements (e.g., Rampart House Historic Site, LaPierre House Historic Site, Yukon Protected Areas, and wildlife management planning). Some experts whose participation was desirable declined to participate in this research because of work and family responsibilities, travel commitments, illness, and time constraints. Namely, five nominees from Parks Canada and the Department of Indian Affairs and Northern Development were unable to serve on the panel. This lesser number of federal government representatives may be a minor source of bias in this study's Delphi panel.

5.2.1.5 Expert Motivation Factors

Bertin (1996) maintained that structured communication using the Delphi method is possible only when success is achieved in motivating experts' participation. In general, Rotondi and Gustafsen (1996) found that the more motivated a participant, the more willing he or she was to invest the time and effort necessary to complete a Delphi exercise. If experts are unmotivated, they are likely to abandon the research (Baradecki, 1984). According to the literature, expert motivators include a study's importance and relevance, the quality of the research design, participation incentives, the workload required, and the mental and emotional stimulation involved (Baradecki, 1981; Goldschmidt, 1996; Turoff & Hiltz, 1996). Experts in the present study were highly motivated to participate. Ten major motivational factors were identified and are described in detail below. Awareness of these factors may aid researchers in assessing

whether or not to use the modified Delphi method and may provide ways to increase experts' motivation during a study, thereby ensuring long-term commitment and in-depth contributions.

5.2.1.5.1 Personal and Professional Relevance

Experts were personally and professionally interested in the subject of the present Delphi study because they were engaged in SRM issues during the course of work and daily living. Examining the case of north Yukon SRM allowed experts to reflect on the history of northern land claims and self-government, and the successes and failures of Yukon SRM. Many participants believed that north Yukon SRM issues were serious, yet solvable, and viewed their Delphi involvement as taking action to address important issues. High ego involvement appeared to be a significant motivator in the present study. Therefore, as Baradecki (1984) and Bedford (1972) found, indifference, low ego involvement, or apathy may cause experts to drop out.

5.2.1.5.2 Dissatisfaction with the Status Quo

Many experts were dissatisfied with the current state of north Yukon SRM and believed change was essential. They expressed a sense of urgency, citing evidence of deteriorating SRM practice or of new SRM regimes that required direction. For many, previous SRM experiences were characterised by frustration, conflict among SRM partners, poor communication, ineffective management decisions, limited sharing, and a general failure to co-operate. Vuntut Gwitchin experts wanted to address local level SRM issues, including inadequate community participation, failure to incorporate Vuntut Gwitchin TEKMS into SRM programs and plans, and inadequate SRM communication efforts. Other experts wanted to improve relationships between Vuntut Gwitchin and non-Aboriginal resource managers. Similarly, Rotondi and Gustafsen

(1996:39) determined that a "tension for change" or dislike of the current conditions around which a Delphi exercise focuses can increase participants' motivation.

5.2.1.5.3 Project Timing

The majority of experts felt it was a good time to address SRM issues since conditions favoured change. Organisations, governments, and communities in the Yukon were interested in improving SRM practice and the necessary human and financial resources were available to do so. Some experts also believed that no other group currently existed to examine SRM issues in the way their Delphi group could (e.g., cross-cultural, collaborative, structured communication). These findings confirm those from a study on planning social services for the elderly in Italy, where experts were motivated by a unique project well-timed to initiate change (Bertin, 1996).

5.2.1.5.4 Potential for Growth

Many experts in the present study were motivated by the potential to learn and grow personally and/or professionally in positive ways as a result of their participation. Experts expected to increase their knowledge by learning from the variety of Aboriginal and non-Aboriginal perspectives contained within the Delphi group and by participating in a promising new method for overcoming communication and cultural barriers. Some experts had little opportunity to conduct research on, or read current literature about, SRM and saw the project as an opportunity to advance their understanding. The project gave some experts the chance to reflect on and evaluate personal SRM experience. Some experts were interested in transferring new knowledge to their communities and organisations in order to promote institutional change. Likewise, Rotondi and Gustafson (1996) determined that experts will devote effort to a Delphi

exercise that provides opportunities for growth such as an increase in knowledge or certainty of belief.

5.2.1.5.5 Confidence in the Expert Group

Confidence in the expert group motivated experts to invest time and effort in the project. Delphi experts respected each other's knowledge, skill, and experience and believed that other project members would contribute valuable insights. They believed in each other's ability to contribute meaningfully to the Delphi discussion and expressed confidence in the authority and influence of other experts. Confidence in the expert group also led experts to believe members would be listened to outside of the process. This potential to enlarge the impact of the project on society and the dissemination of study results was an important motivator. Other studies have also found that working with a peer group (Bijl, 1996; Turoff & Hiltz, 1996) and possessing confidence in experts' ability to implement change will motivate participants (Bijl, 1992; Rotondi & Gustafson, 1996).

5.2.1.5.6 Confidence in the Delphi Approach

Understanding what the modified Delphi method was, how it would be applied, and the advantages of the approach were important motivators in this study. Experts were supplied with background material on the Delphi method (e.g., information on other applications), a schedule of project activities, a detailed project description (e.g., purpose, methods, expected outcomes), and detailed instructions for participating in each round. This information gave experts confidence in the efficacy of the technique and their ability to fulfil Delphi participation

requirements. These strategies were important in addressing what Bertin (1996) described as the resistance connected with accepting a novel, unconventional method of inquiry.

5.2.1.5.7 Concern for Performance

Experts' concern for personal performance was an important motivator in the present research. Many government experts cared about how they appeared to other members of the Delphi group. Even though Delphi contributions were anonymous, biographies disclosed the membership of the group. Other experts indicated that both personal standards (e.g., a desire to do one's best or to honour commitments) and professional standards contributed to sustained commitment. Similarly, Rotondi and Gustafson (1996) found that wanting to look good to the Delphi group increases experts' motivation.

5.2.1.5.8 Participation Incentives

Gifts, honorariums, and thank-you notes motivated experts to complete the required tasks in this study. Although experts could not be remunerated at a level commensurate with their expertise and effort, these tokens of recognition and appreciation made experts feel valued. They functioned as a source of gratification, which Borrini-Feyerabend et al. (2000) suggested is vital in sustaining expert commitment. Goldschmidt (1996) also attributed high response rates to payments to participants and suggested incentives are effective because they encourage full attention to study tasks.

5.2.1.5.9 Sense of Responsibility

Many experts in this research were motivated by a sense of responsibility to other members of the Delphi group. Impressed by the extent of others' contributions and appreciative of the amount of time and energy people invested, experts *didn't want to let other people down* and *wanted to fulfil [their] designated role*. The use of code names and participant quotes was key; they allowed experts to recognise and appreciate the contributions of other experts. Delphi experts also felt a sense of responsibility as nominated representatives of their communities and agencies. For instance, Elders and traditional land users were honoured to act as VGFN experts and felt compelled *to bring traditional and community views forward to scientists and managers in a good way*. Government experts felt obligated *to work hard and provide substantial input* since their peers and supervisors nominated them as experts. Therefore, using nominations from external authorities and invited experts, and informing experts who specifically nominated them, can positively influence experts' participation.

5.2.1.5.10 Useful Outcomes

Tangible benefits motivated experts' participation in the present Delphi study. Most participants believed this was not only an academic exercise, but a process with concrete, *real world* outcomes. Experts placed great importance on receiving feedback materials, including progress reports, feedback workbooks, newsletters, and final reports. On the basis of evaluation feedback, the value of this received information had to be at least equal in experts' minds to the effort they expended. Experts believed the process could function as a vehicle to establish and enhance cross-cultural relations, and could result in useful educational materials for communities, government agencies, and SRM organisations. Turoff and Hiltz (1996) also

concluded that Delphi panellists could be motivated to participate if they obtained value from the information they received.

5.3 MANAGING GROUP INTERACTIONS

5.3.1 Communication

Basic features of the Delphi method combined with methodological adaptations undertaken in the present study overcame numerous cultural, psychological, and professional communication barriers. These are discussed below in terms of cultural differences, interpersonal differences, the impacts of non-verbal communication, the influence of environmental factors, and logistical barriers. The present research provided opportunities for clear delineation and equitable consideration of differing views in a non-threatening environment. It overcame many of the communication problems arising from face-to-face group dynamics. The diversity that often makes face-to-face group communication difficult was thereby circumvented and instead became a definite strength of this Delphi study.

5.3.1.1 Cultural Differences

Culture, a learned system of knowledge, behaviour, attitudes, beliefs, values, and norms, has a profound effect upon a person's interaction with others (Beebe & Masterson, 2000). Different cultures foster different beliefs and attitudes about communication (Bantz, 1993). Cultures vary widely in communication style and the appropriateness of topics of conversation (Beebe & Masterson, 2000). Individuals from different cultures interpret situations, behaviours, and

concepts differently from one another and, when these people interact, cultural differences interfere with communication and contribute to underlying tension (McCroskey & Richmond, 1990; Klopff, 1998). By way of example, culturally diverse groups may have difficulty establishing roles and norms for group communication (Pedersen, 1994). Cross-cultural researchers such as Gallagher (1988) and Scollon and Scollon (1981) determined that face-to-face group interactions present serious barriers to Athapaskan cross-cultural communication. Thus, face-to-face, cross-cultural communication is highly complex and relies heavily on the competencies of group members.

Methodological adaptations undertaken in this study and basic features of the Delphi method succeeded in overcoming many of the cultural differences that might have impeded communication in a face-to-face group. The modified Delphi method provided an equitable opportunity for all experts involved in the process to contribute and to have those contributions considered by others.

5.3.1.1.1 Community Researcher

The community research played a pivotal role in enhancing Vuntut Gwitchin experts' communication potential (Table 4.35). Qualities and skills that made the community researcher successful are discussed in section 5.3.4, but a few characteristics that helped bridge cultural differences are discussed below. The community researcher shared the language, conversational norms, and communication style of Vuntut Gwitchin experts. She was herself a recognised expert in Vuntut Gwitchin culture, knowledge, practices, and beliefs. These characteristics increased experts' ability to participate openly, comfortably, and meaningfully in interviews. The community researcher understood how local people shared information and how local people

related to each other while speaking, including factors such as questioning styles, the use of narrative, pausing and silence, eye contact, and non-verbal emotional cues. Interviews by the community researcher increased the depth, sophistication, and emotional content of experts' responses. Interviewees felt able to express complex cultural concepts (e.g., the relationship between humans and caribou, or Vuntut Gwitchin obligations to nature) and strong emotions (e.g., feelings of attachment to the land, spiritual beliefs, the impacts of racism), and to have them understood by a knowledgeable, empathetic interviewer. (Note that to counteract unspoken assumptions of shared meaning, the community researcher encouraged experts to clarify and provide additional detail in their responses.) Shared communication norms also allowed the community researcher to follow local protocols about the presentation of self, courtesies, and the distribution and content of talk. She demonstrated consideration and proper respect (e.g., when asking for an interview, reminding experts to review feedback, thanking people for their contributions) and minimised confusion and misunderstanding during interactions with Vuntut Gwitchin experts (e.g., when giving instructions, explaining Delphi feedback, or asking research questions). In spite of the preponderance of males among experts, it was appropriate for the community researcher to be female. Vuntut Gwitchin project advisors indicated that, due to customary norms and local protocols, a middle aged, married woman would have greatest access to local females' perspectives and would have equivalent access to local mens' perspectives compared to a male researcher. The community researcher employed in this project was also known to be very knowledgeable about men's activities (e.g., hunting and fishing), as she and her husband were active partners on the land.

5.3.1.1.2 Language

The present study addressed linguistic barriers, which inhibited Elder's comprehension and expression, through the provision of translation and interpretation services. Elders had an equitable opportunity to contribute to the group discussion and to consider other experts' contributions (Table 4.35). One Elder said: *This project was a good way. It was good for old people. We could tell stories of all different type. It let me tell what I know.* The communication costs associated with Elders' participation were reduced. Speaking Gwich'in in interviews allowed Elders to put forward their values and perspectives in full detail. Although Elders understood written Gwich'in, they preferred receiving oral recordings of feedback because of their immersion in the oral tradition.

The age, experience, and skill of translators and interpreters were important. Older, experienced language experts who were *raised in the traditional way and also received western schooling* were able to bridge cultures effectively. They could understand the sophisticated metaphors and terminology contained in Elders' stories and legends, yet could communicate (with assistance from the principal researcher) the meaning of scientific concepts contained in Delphi feedback.

5.3.1.1.3 Data Collection Methods

Researchers such as Guedon (1974), Gallagher (1988), and Bantz (1993) criticised over-reliance on meetings, workshops, and conferences to facilitate communication among Aboriginal and non-Aboriginal groups. They suggested that alternative techniques were required to improve Aboriginal participation. Semi-structured and unstructured interviews allowed Vuntut Gwitchin experts to *speak their mind, show their true opinions, and talk openly about what was important*

in the present study. Vuntut Gwitchin experts recalled public speaking in cross-cultural settings as a negative experience, which made them feel *fearful, awkward, cautious, reluctant, overwhelmed, uneasy, embarrassed, stupid, and misunderstood*.

Vuntut Gwitchin experts believed they provided more comprehensive, explicit, and thoughtful responses in interviews compared to face-to-face group environments (Table 4.36). Interviews gave them a chance to express their ideas without interruption or distraction. Interviews addressed Vuntut Gwitchin experts' concerns about public criticism, open debate, and face-to-face confrontation. Experts could react strongly to important points without public exposure, thereby respecting cultural conventions against telling another person what to do or think. Receiving questions in advance and having a period for reflection encouraged Vuntut Gwitchin experts *to provide well thought out responses*; for instance, many experts brought extensive notes into interviews to prompt their thinking. After further reflection, other experts requested follow-up interviews to clarify or elaborate on previous contributions.

Cultural translation of research questions was critical in facilitating effective interviews with Vuntut Gwitchin experts. Clear, understandable questions that satisfied Vuntut Gwitchin communication expectations (i.e., concise, simply worded, conducive to narrative responses) resulted in meaningful answers. Pre-testing and evaluation of interview questions by the community researcher and local translators were critical. In-progress evaluation feedback also improved interviews; Vuntut Gwitchin experts emphasised the use of open-ended questions in preference to closed-ended questions since they gave local experts freedom to decide which subjects were important and how to present information. The use of various probes (e.g., silent probes, echo probes, and affirmative probes) and supplementary questions were also useful in stimulating experts to expand or clarify and to re-orient those who diverged widely off topic.

Text-based responses were well suited to government experts' communication competencies and preferred communication medium (i.e., e-mail). Government experts were satisfied with data collection methods and were able to express themselves effectively (Table 4.36). Using the self-administered survey format encouraged structured thinking in this study; participants *crystallised and distilled* their ideas and presented comments more *carefully* and *thoughtfully* than in face-to-face interactions. Structured thinking was prompted by a lengthy period for reflection on feedback, research questions provided well in advance of response deadlines, detailed instructions for completing Delphi tasks, a step-wise approach to exploring issues, and written responses. The modified Delphi method also increased government experts' awareness of how they presented information. Review and editing of responses, as well as an understanding of the Delphi group membership, focused government experts on presenting ideas in a consumable manner; for instance, they used illustrative examples and plain language, elaborated in detail on their assumptions and beliefs, and revealed emotional information.

5.3.1.1.4 Feedback

Poor listening habits are a major source of defensiveness, incongruity, perfunctory exchanges, and tangential responses in face-to-face, cross-cultural group settings (Johnson & Belcher, 1998). The literature indicates that inadequate listening skills undermine members' task focus and impair group productivity (Beebe & Masterson, 2000). Active and reflective listening is essential to effective group communication and performance (Kumar, 1994; White, Nair, & Ascroft, 1994). Three types of listening include (in increasing order of complexity and difficulty) hearing, analysing, and empathising (Glatthorn & Herbert, 1984; Belcher & Johnson, 1995). The

present Delphi study decreased cultural barriers to effective listening and promoted supportive communication.

Cultural biases that influenced experts' ability to listen effectively in face-to-face groups were addressed by this research (e.g., stereotyping, negative judgements, ethnocentrism). Anonymity encouraged the two highest levels of listening by allowing experts to consider issues from diverse viewpoints without prejudicing their receptivity or interpretation. Since communication was available in written form for repeated review, experts could *tune in to everyone's ideas* and used critical thinking to analyse the content of others' responses (Table 4.34; Table 4.36). When experts reflected on Delphi feedback, they were able to suspend judgement, empathise, and become sensitive to alternative viewpoints (Table 4.35).

Face-to-face communication is often impeded by the verbal dynamics of the group, including behaviours such as a person's tendency to let her or his thoughts wander before the speaker is finished, assigning different meanings to the same word, making simple but untrue generalisations, and engaging in fact-inference confusion (Allen, 1995). By encouraging full attention to the content of experts' messages, the modified Delphi method increased the potential for in-depth and supportive communication and diminished confusion and inaccuracy (Table 4.34). This was important in a cross-cultural setting where extensive ideological and perceptual differences existed.

Cultural translation of feedback and careful design of feedback workbooks reduced communication barriers related to cultural differences in this study. The advice of the community researcher and local translators was extremely valuable in rewriting feedback so it *made sense* to Vuntut Gwitchin experts. This involved using simpler words, more straightforward sentence construction, shorter statements, and defining complex terms that could not be simplified. It also

required adding features to augment Vuntut Gwitchin experts' interest in and comprehension of written feedback such as additional instructions, photographs, colourful covers and dividers, a larger font size, an informal font style, increased white space on each page, increased use of personal pronouns, and frequent use of headings and key words. In their evaluation of Delphi products, Vuntut Gwitchin experts emphasised the value of cultural translation and design features in enhancing their appreciation and understanding of feedback materials (Table 4.41). By way of example, one expert said: *I liked all the pictures you included in the booklets and the colourful, friendly style. [The workbooks] were easy to understand. When I look at those pictures on the culture and the land, they are telling me things. You have to have pictures in order to learn, especially for Vuntut Gwitchin ... They make me think more about other people's ideas and my own ideas.*

The structure and design of feedback also improved government experts' understanding of Vuntut Gwitchin experts' views and values compared to face-to-face groups (Table 4.35). In this Delphi study, summary statements served to organise, clarify, and distil experts' input. By including the quotations of Vuntut Gwitchin experts, government experts could study Elders' and traditional land users' words in detail and elicit their meaning. In addition to qualitative feedback, quantitative data presentation in the form of voting, ranking scores, graphs, and tables improved government experts' sense of individual and group perspectives (Table 4.35).

5.3.1.2 Individual Differences

The modified Delphi method addressed individual differences that affect communication and performance among members of face-to-face groups (Beebe & Masterson, 2000). Factors related to differences in status, power, and personality were addressed by Delphi experts and are

discussed herein. Although gender also affects communication -- men and women have different communication patterns, use language differently and interpret non-verbal behaviours differently (Mayo & Henley, 1981) -- experts in this study did not explicitly address this factor.

Anonymity was key in releasing experts from psychological and professional barriers arising from individual differences. Anonymity allowed the free expression and impartial evaluation of ideas by removing many of the common biases normally occurring in face-to-face group processes. Anonymity encouraged experts *to come out, to speak their minds openly, and to provide uncensored responses*. It also caused experts to focus on the merit of ideas rather than the characteristics of the people who introduced them. Experts were able *to consider all points of view equitably and to review ideas critically*. As one expert explained, *no matter who you were, you could present your ideas and people had the opportunity to fully consider your opinion*. Anonymity also reduced the impact of cultural variations in perceptions of power, status, and personality.

5.3.1.2.1 Status

Status is defined as an individual's position of importance (Beebe & Masterson, 2000). People with higher status generally have more prestige and command more respect than do people of lower status (Shaw, 1981; Bantz, 1993). Status affects group communication, cohesiveness, satisfaction, and the quality of group decision-making (Hurwitz, Zandar, & Hymovitch, 1953). Although status and power are not independent (Beebe & Masterson, 2000), they are addressed separately in this discussion. Status affects who talks, how frequently, and to whom. It influences the roles individuals assume in a group: Brilhart and Galanes (1997) found that group members are more likely to ignore the contributions of low-status members; Hurwitz

et al. (1953) determined high status group members have the greatest influence on the distribution of talk within a group's conversation; and Shaw (1981) concluded that high status group members have the strongest influence on group decisions. However, the effects of status may be impacted on an individual basis by both internal and external factors and may vary from group to group both within and between cultures. Results of this Delphi study demonstrated that the impacts of status differences on group interactions were greatly reduced and, in most cases, eliminated (Table 4.34). The modified Delphi method enhanced the equality of Delphi members, released higher and lower status individuals (as determined by self-reporting) from their characteristic inhibitions, and afforded every member similar privileges.

Experts were able to put forward opinions and feelings in the project without worrying about their reputation, image, or status. Experts presented ideas that they would otherwise be reluctant to produce; if an idea presented in the present Delphi study turned out to be unsuitable, no one lost face. High-status people were more willing to produce risky or questionable ideas and to change their minds on issues. For instance, senior bureaucrats changed their ranking of SRM elements between rounds based on other experts' input. Junior group members were not over-awed by higher-ranking individuals and could express themselves without intimidation. For example, some lower status group members participated vigorously in Expert Talk Back by directly challenging the thinking of distinguished experts. Anonymity let participants share their expertise without having to act as official representatives of their organisations or interest groups, increasing the potential for creativity and innovation. These findings confirm Rotondi and Gustafson's (1996) conclusions that anonymity makes it easier to change positions based on new insights and to produce more critical thinking on issues.

5.3.1.2.2 Power

The definition of power and its relationship to other factors such as status are widely debated. At its core, power is defined as the ability of a person to exert control or authority over others (Shaw, 1981). Power is about influence and is reflected "in an individual's ability to get other [people] to conform to his or her wishes" (Beebe & Masterson, 2000:90). Typically in face-to-face groups, certain members have more power than others for obvious reasons such as large status differences or for subtler reasons such as personal attractiveness. Influential individuals can negatively affect face-to-face group processes through the misapplication of power (Franz, 1998). The communications literature suggests that powerful individuals often dominate face-to-face group discussions, forfeiting the creativity, synergy, and increased knowledge that comes with full participation (Beebe & Masterson, 2000). It is a well-documented drawback of group work that some individuals tend to abdicate power by fading into the group, sporadically attending meetings, and relying too much on other group members to generate solutions (Maier, 1967). Conditioned power is another abuse of authority that can impair group work. It is defined as power which is deliberately cultivated by persuasion, oppression, or education (White et al., 1994). Individuals may be particularly susceptible to conditioned power if they originate from cultural traditions that suggest deference is correct or normal (White et al., 1994). Galbraith (1983), Usher (1987), and Berkes (1994) suggested that conditioned power has resulted in the learned dependency of Aboriginal communities.

Experts in the present study indicated that struggles for power were common in SRM environments and resulted in restricted communication, poor group decisions (e.g., ephemeral, one-sided, difficult to implement), a reduction in group cohesion, and an emphasis on individual rather than group agendas. The modified Delphi method minimised the negative impact of power

on group deliberations. Anonymity, independence, and long-distance communication prevented biased consideration of ideas or concepts because of the person who introduced them (Table 4.35). Experts were able to consider feedback and respond independently, making choices and setting priorities for themselves. As a participant-centered communication approach, the Delphi approach required that every expert actively contribute to the discussion. The present Delphi process prevented individuals from abdicating power by over-reliance on others to accomplish group tasks. The modified Delphi approach overcame the effects of conditioned power. While VGFN was in the process of reclaiming local power, experts indicated that to varying degrees community members still failed to participate and had *indifferent*, *acquiescent*, or *apathetic* attitudes. Some Vuntut Gwitchin experts were provided a unique opportunity to break away from conditioned power; they were able *to really speak out and take part for the first time*.

The theories of French and Raven (1962), Shaw (1981), and Beebe and Masterson (2000) can help explain the effects of power on group processes and how the Delphi approach employed in the present research addressed them. An individual's power base comprises the sum of resources that he or she can use to influence others. The five power bases identified by these scholars include legitimate power, referent power, expert power, reward power, and coercive power. The modified Delphi method was effective in overcoming the effects of group power dynamics and succeeded in maximising the positive sources of power for all group members. As Marshall (1987) found, groups with equal power distribution show higher quality communication, problem-solving, and decision-making than groups with unequal power distribution.

All Delphi experts had legitimate power, which arises from being elected, appointed, or selected by others. Subjecting individuals to an expert selection process that involved independent assessments and formal selection criteria gave all group members legitimacy. The

modified Delphi process capitalised on the impact of referent power defined as the power of interpersonal attraction that stems from being held in high regard (when people are attracted to those they admire and want to emulate) (Beebe & Masterson, 2000). Soliciting panel nominations from experts, naming members of the Delphi group, and developing biographies revealed the depth of expertise contained in the project. These initiatives inspired confidence in the group and the findings because they demonstrated the involvement of credible and respected individuals.

The conventional definition of 'expert' power is an individual's ability to influence others based on the knowledge and information s/he possesses. Delphi experts observed that in face-to-face group settings, individuals who possess conventional 'expert' power that arises from formal education or professional experience exert great influence on a group, while those with 'expert' power arising from alternative education and experience are often subordinated. The concept of expert was redefined in the present study and the Delphi method was modified to accommodate a redefinition of 'expert' power. The influence of conventional 'expert' power was thereby removed. This Delphi study facilitated the recognition and acceptance of Vuntut Gwitchin knowledge, values, and experiences, and allowed divergent or minority views to be articulated and fairly considered.

This study eliminated the negative effects of reward power (based on an individual's ability to reward desired behaviours) and coercive power (based on an individual's ability to punish others for their actions), which can cause people to forgo pursuit of their own will by the promise of punishment or benefit. Delphi prevented autocratic decision-making and the use of power for personal gain. Group members were released from fear of rejection or reprisal as a result of speaking out and from pressure to accept the ideas and positions of dominant group members.

5.3.1.2.3 Personality

Personality affects group performance both in terms of the personality characteristics contained within a group and the personality mix arising from group interaction (Haythorn, 1953; Hackman & Morris, 1975; Driskell, Hogan, & Salas, 1987). The expert selection process outlined in sections 5.2.1.2 and 5.2.1.3 addressed the influence of personality characteristics. Personality variables such as the effort group members were willing to exert on Delphi tasks, the knowledge and skill of group members, and their ability to accomplish Delphi tasks (e.g., expressing priorities through voting and ranking or oral and written communication) were used to identify appropriate experts. Anonymous participation addressed the interaction of personality with process in this study. The complementarity of personalities contained in the Delphi group had little effect on communication; process losses that typically occur with group interaction were avoided. The Delphi process brought together individuals with interpersonal histories characterised by friction and conflict. Individuals with incompatible personality types also took part without disrupting the Delphi process.

5.3.1.3 Environmental Factors

Paulus and Nagar (1987) determined that spatial and architectural features of an environment can strongly shape group interaction and development. While features that increase social contact may facilitate group interaction (Sommer & Ross, 1958; Stokols, 1976), they can also produce negative reactions and social avoidance (Shaw, 1981). For instance, in situations where individuals' desired level of privacy and control over situations (e.g., interpersonal distances or territoriality) is violated, strong negative reactions are observed (Altman, 1975). The effects of environmental factors are pronounced in cross-cultural settings since individuals are less likely to

have shared norms (Hall, 1976). As a consequence of misunderstanding, they relate in less positive, rewarding ways. For example, people from high contact cultures prefer being in close proximity to others, and people from low contact cultures prefer more personal space, have less eye contact, and are uncomfortable being approached by others (Beebe & Masterson, 2000). The Delphi approach used in the present study minimised the impact of negative environmental factors on group communication.

The ability of the modified Delphi method to overcome negative environmental factors was particularly important for Vuntut Gwitchin experts. Individual interviews with a community researcher provided a more *comfortable, relaxed, friendly, safe, natural, and easy* participation forum than cross-cultural meetings or workshops. The community researcher shared cultural conventions about spatial and architectural environmental factors including personal proximity, touching, eye contact, and seating arrangements and, as a result, provided positive social contact. Some Vuntut Gwitchin experts noted that one-on-one interviews felt natural because they resembled traditional methods for teaching and transmitting knowledge in the Vuntut Gwitchin culture. Government experts also felt that face-to-face interviews with the principal researcher were *very trusting, safe, and comfortable*, in part because of positive environmental factors.

Experts' ability to influence environmental factors by exerting control over the communication setting was important in ensuring positive interactions with researchers. Interviews took place both inside (e.g., experts' homes and offices, the Whitehorse Public Library, the Yukon college campus, and the community researcher's home) and outside (e.g., bush camps, meat caches, backyards, and berry patches). Vuntut Gwitchin experts indicated their ability to choose the interview setting gave them clarity and focus, allowed them *to speak from the heart, not just the head* and stimulated their thinking about *what was important*. Similarly,

experts using self-administered surveys decided where and when they took part in the project. People were more frank, open, and willing contributors because of the freedom, convenience, and informality that the modified Delphi process provided.

5.3.1.4 Non-Verbal Communication

People use non-verbal communication cues to transmit information about interpersonal relationships (Mehrabian, 1972). Non-verbal communication includes factors such as physical posture, movement, and gestures; facial expression; vocal tone; and personal appearance (Ekman & Friesen, 1972). Non-verbal cues are used to interpret unspoken messages such as whether one is liked or disliked by others, a person's level of power or influence, and others' interest in and responsiveness to one's ideas. Non-verbal communication comprises a rich display of information and feeling, yet non-verbal cues are often ambiguous and difficult to interpret even among individuals from the same culture (e.g., gender differences in sending and receiving non-verbal messages) (Beebe & Masterson, 2000). According to the literature on intercultural group dynamics, there are substantial differences in the way non-verbal behaviours are interpreted between cultures (Beebe & Masterson, 2000). For instance, there are different non-verbal cues to communicate emotion (e.g., facial expression, tone of voice, or posture) and different regulators or non-verbal cues to help control the flow of communication (e.g., pausing, gestures, or silence). It is challenging for groups to function successfully when there are non-verbal cultural differences in communication (Dodd, 1997). Non-verbal cues are easily misunderstood and can give rise to tension and conflict among group members. Face-to-face interactions require participants to be other-oriented and to understand cultural differences in non-verbal cues. In the absence of these competencies, severe communication distortion may result (Scollon & Scollon,

1980). The present application of the Delphi method eliminated the possibility of misinterpreting the non-verbal behaviour of other group members by eliminating non-verbal communication. The loss of any potential benefit from non-verbal cues was worthwhile because of the dramatic improvement in verbal and written communication that the Delphi approach wrought (i.e., experts expressed feelings clearly in words as opposed to subtle body or voice cues that are easily misinterpreted cross-culturally).

5.3.1.5 Logistics

The modified Delphi method overcame logistic barriers by assembling a large group of experts over an extended time period without ever meeting. It is unlikely experts' assistance could have been recruited to a comparable degree in any other manner. For example, it is certain that many would not have been able or willing to attend a series of six workshops, even if researchers had adequate funding to bring experts together. Long-distance participation sustained the commitment of a wide range and high calibre of experts. The Delphi approach used in the present study overcame formidable distance barriers that challenge working relationships in the north Yukon. For example, government resource managers can reach Old Crow only by air service at an average ticket costs of \$600 (from Whitehorse). The modified Delphi process also made efficient use of experts' time (i.e., no travelling), was logistically simple (i.e., reduced challenges related to scheduling, meeting space, and accommodations), and was cost effective compared to alternatives (e.g., no travel costs, no meeting costs). In the words of one Delphi expert, *this process took less time, money, and organisation to come up with useful results.*

5.3.2 Conflict Management

Conflict is "the interaction of interdependent people who perceive incompatible goals and interference from each other in achieving these goals" (Folger & Poole, 1984:4). Differences in understanding, perceptions, attitudes, values, and preferred actions are at the root of most conflict (Beebe & Masterson, 2000). Although conflict can be valuable in making groups evaluate ideas and seek alternative solutions, it can also be detrimental by keeping groups from completing tasks as well as often interfering with communication and productivity (Wall & Nolan, 1987). White et al. (1994) have argued that if participatory resource management and development are to succeed, groups must learn to manage conflict so that it contributes positively to these processes. Poorly managed conflict is common in SRM and acts as a major drain on resources and effort, damages relationships, and restricts and distorts information flow. It results in poor decisions, low commitment to implementation, and fosters future tension and mistrust (Lozare, 1994).

Conflict results from differences between group members, and greater differences tend to increase conflict (Fisher, 1970). The work of Miller and Steinberg (1975) and Lozare (1994) identified three types of conflict: pseudo or perception conflict when people misunderstand or misinterpret each other; simple or goal conflict when people disagree about issues, desired states or standards; and ego-conflict when personalities clash or people become defensive because they feel they are being personally attacked. Differences between group members occur because people have different sets of information, values, beliefs, or communication styles arising from particular interpersonal or cultural characteristics (Lozare, 1994; Klopff, 1998).

The present Delphi research properly managed conflict. It maintained task focus and avoided negative conflict, while still allowing for divergence of opinion and the generation of alternatives. The modified Delphi process functioned as a conflict resolution mechanism by increasing the quantity and quality of communication. Delphi eliminated open and acrimonious debate and overcame a pattern of relations in the north Yukon characterised by restricted information-sharing and limited collaborative effort (Kofinas, 1998).

This Delphi project addressed pseudo conflict by establishing a supportive group climate as opposed to a defensive one (Table 4.35). Through the use of anonymity and the methodological adaptations discussed in section 5.2.1.1.4 Delphi promoted 'active listening'. By providing a project glossary, by asking members to explain the meaning of key terms, and by providing the Expert Talk Back forum for experts to seek clarification and elaboration, misinterpretation was reduced.

It is not desirable to eliminate simple or goal conflict, but it is necessary to positively manage it (White et al., 1994). The present Delphi study achieved this in several ways. It clarified perceptions by revealing assumptions, underlying beliefs, and lines of reasoning. It kept the discussion focused on issues, not people or personalities. It used a structured communication approach to organise the discussion. Although many topics were raised in the present research, the Delphi method concentrated attention on the most important issues. This Delphi project focused experts on shared interests, areas of agreement, and commonalties (e.g., the top 11 influences on SRM). It succeeded in facilitating the expression of divergent views and supported the sharing of controversial, sensitive, and personal information (Table 4.36; Table 4.37). The present research promoted access to a range of viewpoints (Table 4.37). Experts were encouraged to consider the diversity of individual thinking as well as the group's judgement, and

to reassess previous contributions based on new understanding. Several scholars have recommended this co-operative style of conflict resolution (Brown, 1983; Galbraith, 1983; Fisher & Ury, 1981; Lozare, 1994; Dodd, 1997). The modified Delphi approach also managed disagreement by identifying a variety of solutions to overcome obstacles. This was positive because, as Beebe and Masterson (2000:281) pointed out, group members who adamantly pursue a particular solution can create a competitive climate that degenerates into "verbal arm-wrestling" and focuses on winning instead of problem solving.

An ability to separate people from problems and to manage feelings and emotions is key in developing a positive climate in which differences can be resolved (Miller & Steinberg, 1975; Fisher, Ury, & Patton, 1991). This Delphi study addressed ego-conflict by providing a stable emotional climate. Verbal and non-verbal communication cues that signal emotional argument and prompt defensiveness such as hyperbole, insulting or patronising words, volume of speech, tone of voice, and aggressive gestures or postures were eliminated. Instead, the modified Delphi method focused on stimulating dialogue and on supportive communication that was descriptive rather than evaluative or judgmental. The Delphi approach used in the present study let group members express relevant concerns, even those that were highly emotional (e.g., impacts of racism, residential school abuse, feelings about the land, fears about loss of power, frustrations about requirements for change), but prevented conflict from escalating into personal attacks and counter attacks (Table 4.37).

Although most people do not like conflict and avoid it, and others think that conflict does not occur in effective groups, conflict is not inherently undesirable in group interaction (Putnam & Wilson, 1982). Avoiding disagreement can limit the quality of group communication and decisions. When a group strives to minimise conflict and uncritically reach consensus, the

phenomenon social psychologists call 'groupthink' occurs (Janis, 1971). In this situation, group members are likely to conform to a respected leader's opinion, apply pressure to individuals who do not conform to majority views, believe their group is invulnerable, or consider disagreement counterproductive (Beebe & Masterson, 2000). While effectively managing conflict, the modified Delphi process also reduced 'groupthink'. It accomplished this by encouraging critical, independent thinking, involving every expert in the discussion, expanding the number of ideas available for consideration, diminishing the impact of interpersonal dynamics as described in section 5.3.1.2, displaying results in a way all experts could understand and use, and ensuring experts were motivated, not apathetic, about their tasks.

5.3.3 Group Climate

Research suggests that Delphi co-ordinators must pay attention not only to accomplishing Delphi tasks, but to building relationships among group members (Beebe & Masterson, 2000). Rotondi and Gustafson (1996:35) concluded that a Delphi group needs to have "an in-depth conversation ... which provides participants with a deep understanding of each other's thinking." However, this can be challenging for a standard Delphi process which requires brief written comments, long delays between rounds, and a limited number of exchanges (Ziglio, 1996). Several factors contributed to the development of a positive group climate and in-depth relationships among group members in the present study.

5.3.3.1 Mutual Understanding

The Delphi approach used in this study aimed to remove barriers between experts that may have inhibited the development of open and in-depth communication (e.g., at the outset, many experts knew relatively little about each other). The study was of adequate duration so that participants could critically explore their own thinking as well as that of other group members. Biographies, the background report on experts' views of the land and resource management, and the bilingual project glossary promoted mutual understanding and lowered group members' inhibitions to detailed sharing (Table 4.35). Biographies reduced feelings of disconnection, gave experts a better understanding of their Delphi audience, and increased confidence in the Delphi group. Background reports also reduced isolation, and provided experts with common ground, focused attention on SRM issues, and set the tone for the level of disclosure and structured thinking required. The bilingual glossary provided a common working language and emphasised the need for explicit Delphi contributions (e.g., by revealing that the meaning underlying common words often differed between Vuntut Gwitchin experts and government experts).

The use of open-ended research questions elicited abundant detail, lengthy responses, and forceful arguments. Experts went beyond exchanges of opinions and revealed the conceptual basis of their thinking (Table 4.34). Although the interpretation and analysis of qualitative data was complex and time consuming, emphasis on it in this study was warranted. Combined with easy-to-understand voting and ranking scores, qualitative feedback helped experts to understand one another's similarities and differences, and enhanced the group's potential for creativity and insight (Table 4.35). The use of code names and participant quotes promoted dialogue among participants. Experts could follow others' thinking from round to round and could respond specifically to others' contributions in Expert Talk Back. For instance one participant explained:

I began to relate to individual code names and the way that experts think. I followed their views and values developing over the rounds. I could tell if what a person said was consistent or changed.

5.3.3.2 Team Building

Using quotes injected experts' voices, characters, and styles into the discussion. This created a sense of belonging, allowed experts to recognise their own input, and made experts feel their contributions were valuable. The degree of complementarity revealed by these quotes induced interpersonal affinity among members and increased participants' commitment to the group. For instance, people commented on how much they admired or were touched by other participants' contributions. Contact with other Delphi members at the project dinner further revealed experts' similar and complementary traits. This supports Beebe and Masterson's (2000) theory that people form cohesive teams because they are attracted to the individuals who compose them.

Avenues for experts to exchange ideas inside and outside the process reduced participants' isolation and increased their commitment level. In-progress evaluation and Expert Talk Back provided participants with an opportunity to present concerns, ask questions about the group's task, suggest improvements, and explain what they liked about the process. By listening and responding to these evaluations, researchers let experts know their involvement was important enough to influence the design of the study. This level of expert control inspired feelings of ownership and responsibility for the success of the process. Experts also spoke directly to each other in these forums, expressing curiosity about who was associated with code names, speaking words of encouragement to motivate participation, and expressing words of appreciation for the effort invested by others. These exchanges generated feelings of good will and camaraderie

among group members. Expert contact lists allowed participants to discuss the project directly with other members of the Delphi group. Having side conversations simultaneous with, yet independent of, the primary discussion was a source of support and stimulation for some experts.

The project logo and slogan, feedback materials, and code names increased participants' enthusiasm for the project, helped experts feel closer, and engendered a feeling of teamwork (Table 4.35). Researchers' regular contact with experts and expressions of support also improved group climate by making individuals feel appreciated and closely monitored. Personalised and frequent attention positively impacted experts' satisfaction and group performance.

5.3.3.3 Trust

Experts observed that the modified Delphi process quickly overcame barriers to the development of trusting relationships. Trust was established as experts developed mutual respect and the group became more cohesive. Most importantly, the Delphi method reduced the level of risk involved in trusting other experts. Anonymity overcame mistrust and protected experts from future harm because it allowed experts to share their perspectives honestly and openly. Self-disclosure was an important element in establishing and maintaining trust. The Delphi method allowed experts to deliberately communicate personal and private information about themselves to others much earlier than would be expected in face-to-face groups. Powell (1990) noted that self-disclosure in face-to-face settings passes through five predictable levels, including cliché communication, facts and bibliographical information, personal attitudes and ideas, personal feelings, and peak communication. Based on the researcher's observations in the present study, the Delphi group quickly reached level four of the self-disclosure process and certain experts ascended to peak communication when they shared personal insights that could have resulted in

rejection (e.g., divergent attitudes, spiritual beliefs, intimate feelings). This is exceptional since scholars suggest a high level of self-disclosure usually takes time to develop (Powell, 1990).

5.3.3.4 Continuity

According to the literature, one of the major obstacles to the development of a synergistic group climate in a Delphi exercise is lack of continuity (Rotondi & Gustafson, 1996). The major contributing factor is time lag between members' responses and subsequent feedback; postal communication is a primary cause of this delay. The use of electronic mail (e-mail), postal courier, and facsimile machine to transfer information reduced turn-around time in this research.

E-mail was a powerful, simple-to-use tool. It permitted lengthy, typed communication and allowed tables, graphs, pictures, and figures to be sent effortlessly. On the basis of experts' comments, electronic mail also made it easy to organise and store Delphi materials for future reference. However, results revealed that e-mail should not be the sole communication medium. Receiving hard copies of Delphi materials via postal courier was also important to experts. This provided a portable, working copy of Delphi questions and feedback, saved experts from printing lengthy attachments, and provided a colourful, bright reminder of the project. Receiving a priority mail package focused expert's attention on Delphi tasks. It was easier for experts to consume long documents in booklet form, rather than on a computer screen.

Continuity was improved for Vuntut Gwitchin experts by in-person delivery of project materials from the community researcher. It was not suitable to use electronic communication with these experts, due to restricted Internet and fax access, and limited familiarity with computers. Vuntut Gwitchin experts also had clear expectations about respectful communication. They did not like to receive *papers in the mail*, preferring that project materials were hand-

delivered. This signified the work was important and worthwhile, focused experts' attention on Delphi tasks, provided a chance to build rapport between experts and the community researcher, and presented occasions to ask questions, seek clarification, and discuss ideas or concerns.

5.3.4 Delphi Researcher Qualities and Skills

Effective leadership is the product of interactions between individual characteristics and situational factors related to culture, time constraints, group membership, and the nature of group tasks (Korten, 1972). In addition to positive situational factors, based on experts' evaluation of researchers, several personal qualities and skills emerged as keys to success in this Delphi application, and are discussed below (Table 5.1). All of the following comments, unless explicitly stated otherwise, refer to both the community researcher and the principal researcher.

Table 5.1: Summary of Delphi researcher qualities and skills that contributed to the success of the present Delphi application.

Delphi Researcher Qualities and Skills	
Qualities	• Credible or trustworthy
	• Congruence between words and actions
	• Open
	• Authentic
	• Sense of humour
	• Expressive and emotive
	• Empathetic
	• Democratic leadership style
	• Flexible
	• Homogeneity with experts
Skills	• Observational skills
	• Written and oral communication skills
	• Listening skills
	• Teaching skills
	• Co-ordination skills

5.3.4.1 Qualities

Results indicated that credibility or trustworthiness were critical characteristics. This included: knowledge and/or experience in the area of study (e.g., SRM and the north Yukon); competence to complete the required tasks arising from previous experience, education, and/or training (e.g., cross-cultural awareness, community-based research skills); a strong belief in the project and its purpose; an ability to pursue these goals in the face of changing circumstances and adversity; an ability to act impartially; and, genuine caring for the experience of experts. In experts' view, researchers' credibility was a major factor prompting people to share openly, to trust the process, and to remain committed.

Congruence between word and action was an important researcher trait. For example, researchers in this Delphi study set up expectations of a focused, efficient, and effective process by maintaining high personal work standards and following through with commitments to experts. Congruency was also achieved by monitoring participant satisfaction, revealing all experts' comments, concerns, and recommendations for the project, and responding directly to these suggestions with detailed explanation and action.

Openness and authenticity were important researcher qualities in this study, particularly to Vuntut Gwitchin experts. The genuine enthusiasm of the researchers for the project and their interest in the issues under consideration had a positive influence on experts' motivation. A sense of humour was a noteworthy quality. Experts explained that humour released tension when they were fatigued, the tasks were difficult, or they needed relief from serious thinking. The researchers' ability to express personal feelings and emotions in Delphi newsletters, introductory letters each round, thank-you notes, reminder e-mails, and final reports was important. For example, Vuntut Gwitchin experts appreciated and respected researchers' reports about their

Delphi project experience, accounts of life on the land, poetry, and personal stories. Emoting stimulated experts to address and express their positive or negative feelings about the modified Delphi process and SRM issues.

It was critical that Delphi researchers demonstrated empathy and an ability to see issues from another person's perspective. This aided in the development of a cohesive, productive relationship between the community researcher and the principal researcher. Empathy was an important factor in understanding group climate and adapting the method to suit experts' needs. Understanding traditional land users' perspectives on word usage, sentence construction, and publication design aided the modification of Delphi feedback. Understanding experts' sense of isolation helped improve contact procedures and relationship building initiatives. Understanding First Nation staff's frustration with computers prompted adaptation of data collection methods. Empathy was also critical in engendering in-depth communication. Delphi experts' belief that researchers could see issues from their perspective and could communicate their ideas accurately to the Delphi group encouraged candour and detailed contributions.

In the present study, researchers adopted a democratic leadership style. This was important since it demonstrated researchers' faith in the group, avoided the underutilisation of expertise, and involved experts directly in shaping the modified Delphi approach. In this way, researchers elicited people's ideas to determine the content and direction of the study and demonstrated that they harboured no hidden agendas. Delphi researchers acted as co-learners and collaborators in the communication process. This had the effect of increasing experts' sense of teamwork and ownership of the process and outcomes (Table 4.36).

Flexibility was a key prerequisite for researchers in the present study. Researchers played a dual role, also acting as facilitators and co-ordinators. Although the process was systematic, it

was incumbent upon researchers to adapt to changes in each other's opinions, circumstances, or the group. The principal researcher had to learn to move at the community researcher's pace and to effectively redesign research strategies, while the community researcher had to learn new ways of communicating and interacting. The project had to accommodate seasonal land-based activities; important Old Crow community events, celebrations, and crises; research and fieldwork programs; government meetings, workshops, and conferences; and experts' family, work, and travel commitments. Flexibility was also required in addressing process issues such as data collection methods, contact procedures, and workbook organisation and design. Accommodating experts' needs renewed their energy and enhanced satisfaction. As Kiser (1998) emphasised, being able to effectively modify plans and gauge experts' ability and willingness to take part are hallmarks of effective facilitation.

These findings revealed another key factor in Delphi communication: the degree of homogeneity among interacting individuals. Homogeneity between interviewer and interviewee facilitated communication in the present study. Homogeneity relates to cultural characteristics, and to similarity in professional, social, and economic status, as well as interests, values, and power base. For instance, if evaluated, the community researcher would meet the criteria for expertise laid out for Vuntut Gwitchin experts in the Delphi study. She was essentially working with a group of peers. She was Vuntut Gwitchin; had lived in Old Crow for 22 years and in the western Arctic for her lifetime; was over 50 years of age; was held in high regard in the community by Elders, traditional land users, leaders, and professionals; was considered highly skilled and knowledgeable concerning Vuntut Gwitchin TEKMS and life on the land; was employed by a SRM council for 5 years; and had post-secondary 'western' education. The community researcher's level of homogeneity with Vuntut Gwitchin participants facilitated

communication and participation. Researchers of inter-group relations have documented numerous reasons that homogeneity is a facilitative factor: it increases interpersonal attraction and the desire to interact; it minimises social conflict; and it enhances the probability of mutually rewarding interactions (Festinger, Schacter, & Back, 1950; Moreland & Zajonc, 1982; Hourihan, 1984).

5.3.4.2 Skills

Delphi researchers required several skills to ensure effective and efficient application of the modified Delphi method. They required good observational skills to track what was happening in the project, to measure progress, and to determine appropriate interventions. For example, researchers monitored experts' interview experience and followed the development of teamwork and in-depth communication. Researchers monitored themselves to assess whether they were fully engaged in helping the Delphi group achieve project objectives. Researchers carefully observed and evaluated interactions with each other to nurture a rewarding working relationship and to enhance each other's ability to complete required tasks (e.g., knowledge building, confidence building, personal support).

Well-developed written and oral communication skills were also valuable assets. Clear and purposeful communications improved expert performance by maintaining task focus and by enabling experts to complete Delphi tasks and consume Delphi feedback. For instance, researchers needed to convey technical information or cultural concepts in an accurate, understandable manner. Regular communication provided experts with continuity, a sense of belonging, and addressed lukewarm participation. Researchers' ability to provide for differences in language, communication style, and preferred communication media was critical in structuring

in-depth communication. Active and reflective listening skills were required. For instance, in interviews researchers needed to probe experts' thinking, seek clarification, and challenge experts to explain their basic values, beliefs, and feelings. Frequent, in-depth dialogue among the principal researcher and community researcher by phone and e-mail was also vital. This fostered efficiencies, learning-by-doing, and personal growth. Dialogue resulted in intense project review and modification based on the effectiveness of outcomes.

Researchers in the present study required teaching skills to impart new knowledge, new skills, and new perspectives to each other, project employees, and to the Delphi group. Throughout this study, the principal researcher and the community researcher were involved in mentoring each other. For instance, the principal researcher needed to learn about Vuntut Gwitchin communication norms, cultural values, and participation needs, while the community researcher needed to learn about computers, interviewing techniques, and report writing. Local translators required direction in language use, data management, report writing, and recording equipment operation. Local publishers required direction in newsletter layout and design. Teaching Delphi experts about the Delphi method and the design and purpose of this application was also necessary.

Co-ordination skills were another prerequisite for success in the present study. Long-distance project administration was challenging and required detailed planning and organisation. This involved tasks such as co-ordinating the work of the community researcher, translators, transcribers, analysis team, and publisher; fund raising; scheduling feedback delivery and interviews; managing experts' participation; organising a Delphi project dinner; designing and ordering gifts; and disbursing honorariums.

5.4 DELPHI IMPACTS

Participation in the present Delphi study had a number of positive impacts on experts (Table 4.40). These impacts were categorised into three themes including social learning, empowerment, and action. Social learning encompassed cognitive enhancement and moral development. Empowerment involved connecting with self. Action involved personal and professional change. It is important to note that these impacts are not independent of the outcomes of this Delphi project. By fostering change, the modified Delphi process influenced experts' participation, communication, and thinking, which in turn affected the nature of the products they created (i.e., the essential elements of SRM). These impacts are elaborated below (Table 5.2).

The long-term benefits of this single experience can only be speculated upon, but it is reasonable to expect improvement in future cross-cultural communication experiences based on the learning and personal development initiated by this study. For example, one government expert attributed the Delphi project with generating *a much, much higher level of trust in the community of Old Crow. Things are way more co-operative ... people are willing to put their cards on the table instead of keeping them close to their chest*. By virtue of the well-respected, prominent individuals involved, this Delphi study had the potential to impact on society. Arousing interest about a Delphi project and its findings will be assisted by an influential Delphi panel who can inspire confidence in the validity of results, enlarge the dissemination of study results, and promote their implementation.

5.4.1 Social Learning

Research by Fiorino (1990), Laird (1993), and Webler, Kastenholz, & Renn, (1995) determined that participation in group communication can enhance social learning, the process by which changes occur in the social condition. For example, this could include changes in popular awareness or in how individuals see their personal interests linked to shared interests. Social learning occurs both immediately within the participation process and outside the process by the non-participating population (e.g., Old Crow community members or resource managers' colleagues). According to White et al. (1994) social learning is a prerequisite for individual change. Social learning consists of two major components: cognitive enhancement and moral development (Schwebel, Maher, & Fagley, 1990; Stafford, 1999). Cognitive enhancement means the acquisition of knowledge such as gaining technical competence or learning about the values, preferences, impressions, and feelings of others (Webler et al., 1995). Moral development involves an ability to make judgements about right and wrong and to put aside egoistic demands for the greater good (Kurtines & Gerwitz, 1987; Webler et al., 1995). Based on expert evaluation and researcher observations, social learning was facilitated by the present Delphi process.

5.4.1.1 Cognitive Enhancement

After participating in six Delphi rounds, experts indicated that *there was a lot of learning about SRM processes and outcomes and a new technique for working together*. The project increased experts' knowledge, increased experts' skills, and changed their attitudes. The amount of learning experts gained from participation in the Delphi project depended on their starting point, motivation, and degree of participation (e.g., some senior bureaucrats who considered

themselves highly experienced in SRM *only heard a few new things*). Learning was continuous as the Delphi revealed additional thinking on new topics during each round. Learning was mostly private and informal (through listening, reading, and reflecting), except for interactions with the community researcher and the principal researcher. Learning ranged from increased self-awareness to developing mutual understanding.

Experts learned about how other people viewed various aspects of SRM, including: key SRM issues, the state of problems and opportunities underlying SRM issues and their impacts on SRM practice, approaches to resolving SRM problems and to realising SRM opportunities, and strategies to implement these actions (Table 4.39). Experts learned about other individuals' and group's interests and values, as well as explanations of the rationale, beliefs, and assumptions underlying them. For instance, government experts learned about *Aboriginal cultural values and beliefs* and Vuntut Gwitchin experts were *educated from the scientific view*. Experts learned about a new method for *cross-cultural communication and decision-making*, for *improving participation and reducing conflict*, for *integrating local, traditional, and technical knowledge*, for *building relationships with individuals from different social, cultural, and educational backgrounds* and for *working together on a level playing field*. Experts learned about others' needs and feelings, other cultures and lifestyles, alternative knowledge and management systems, and Aboriginal and non-Aboriginal views of the land, family, community, and spirituality. The Delphi process promoted self-reflection and introspection; experts gained personal awareness and insight.

According to experts, the modified Delphi method also promoted cognitive enhancement outside of the process, specifically in the Old Crow community. Transferring learning was important because, although all community members have a major stake in the conduct and

outcome of SRM, not everyone could participate in Delphi. Publishing and distributing two Delphi newsletters to all households in Old Crow, contributing to a monthly community newsletter, providing copies of all research reports to relevant VGFN departments, local schools, and libraries, hosting a Delphi dinner, and making local presentations allowed people outside the Delphi process to learn about what happened inside the process. Local people's formal and informal interactions with project participants also allowed them to learn directly about the Delphi project; for instance, traditional land users recalled discussing Delphi project results on hunting and fishing trips or while cutting wood with younger men, and while picking berries or cutting meat with other women. Elders indicated that they discussed the project with family members, in SRM meetings, at church, and at community events. Vuntut Gwitchin experts repeatedly expressed a desire for the community to learn and benefit from the project because it produced relevant, useful information. Overall, government experts appeared less concerned with transferring learning to their organisations. This could be due in part to the absence of technically-oriented extension materials in the project. Nevertheless, several government experts described sharing project materials and discussing Delphi results with colleagues.

5.4.1.2 Moral Development

The present study encouraged moral development by drawing experts away from self-interested thinking and offering an opportunity to work co-operatively with peers to address common issues (Table 4.40). Because, as described in section 5.3, the Delphi process increased experts' ability to describe their ideas and opinions and for others to hear what was said, the process enabled experts to identify and understand the ideas, values, beliefs, and feelings of others. The modified Delphi approach facilitated collaborative and equitable interactions.

Experts reported developing respect for the experiences and perspectives of other participants, particularly cross-culturally. By engaging in structured thinking, active listening, and in-depth dialogue, experts began to integrate new knowledge into their personal outlooks and to consider issues from the perspective of others. Critical awareness of personal views was activated in the present study, and, in some individuals, this prompted a change in attitude and thinking. Participation in the present Delphi process enhanced people's sense of responsibility to their communities and/or agencies, to other SRM interests, and to the land, regardless of how this impacted on personal interests and values (although, this was not tested by requiring experts to act accordingly). The project developed a sense of common purpose and commitment. Elders and traditional land users described a satisfying sense of solidarity and togetherness that developed during the project.

5.4.2 Empowerment

Empowerment means enhancing people's ability to assert themselves and to take initiative (Rahman, 1993). According to Fals Borda (1988), empowerment enables people to have a voice and impact on decisions that affect them. Scholars such as Ryan and Robinson (1990), Seymoar and Ponce de Leon (1997), and Dickson (2000) view empowerment as the foundation of identity and self-respect, and a prerequisite for respect for other cultures. Empowerment is conceptualised as both a condition of moving out of oppression or affecting a change in personal circumstances, and a positive, holistic outcome of self-discovery (White, 1994). The present Delphi research caused empowerment in both senses (Table 4.40). This impact was most profound for Vuntut Gwitchin experts and particularly for Elders and traditional land users.

Perhaps this is because government experts already operated from a position of power (e.g., legislative authority, access to resources, access to information) and First Nation staff held power differentially in the community (e.g., a local elite with increased access to SRM decision-making).

The modified Delphi process gave experts confidence to engage in group communication and to successfully interact with people different from themselves. Individuals gained the self-assurance to interact as equals regardless of cultural, power, status, or personality differences within or between cultural groups. The present Delphi study helped experts to believe that they were intellectually capable and had the communication competencies to participate in and influence important discussions. This was especially true for Vuntut Gwitchin experts, many of whom previously viewed participation in cross-cultural communication with fear and scepticism.

Genuine participation brought experts a solid sense of self, which they described as increased self-respect or a sense of their own value and dignity. Strengthening self-respect allowed experts to speak honestly, emotionally, and critically. This Delphi application also enhanced Vuntut Gwitchin experts' pride in their cultural and spiritual identity. A number of comments in interviews referred to experts' growing pride in traditional knowledge, bush skills, and lived experience. An ability to share their knowledge increased Vuntut Gwitchin experts' sense of worth; scientists and resource managers learned from Vuntut Gwitchin experts and respected their ideas and insights.

The modified Delphi process developed Vuntut Gwitchin experts' sense of self-reliance, particularly for Elders and traditional land users. For instance, experts indicated their attitudes changed from apathy to interest concerning SRM issues, dependence to independence in terms of decision-making, from powerlessness to assertiveness in terms of participation, and from

alienation to involvement in terms of communication. For example, a traditional land user said: *This project gave me a chance to say what I wanted and I wasn't scared to say it. All other times I sit way back in the corner listening where nobody can hear me. I feel strong and happy that people will consider and take to heart what I said in this process.* An Elder indicated that it *felt good to be asked things in the Delphi project that no one cared to ask me before.* Experts felt more capable of developing locally relevant, culturally sensitive, environmentally sound SRM strategies and solutions as a result of their participation. The present Delphi study gave people *an opportunity to make a difference in the future of SRM.* Experts indicated that the Delphi was a *good process because you contribute a lot and you can gain a lot too.*

The present Delphi study permitted experts to initiate relationships across cultural and interpersonal boundaries and to learn about each other in personal and supportive ways. It encouraged experts to build future relationships and networks outside of the Delphi process. Experts indicated that the modified Delphi approach accelerated relationship-building by overcoming suspicion, cynicism, and mistrust, and demonstrating that cross-cultural relationships could be rewarding and productive. By setting a positive precedent and generating a sense of collective accomplishment, the present Delphi process increased people's willingness to collaborate and improved morale related to existing SRM processes. It also succeeded in identifying similarities among previously disparate individuals and groups; for instance, a Vuntut Gwitchin Delphi expert was surprised to *find out ... the outside people were down to earth. We had a lot in common.*

5.4.3 Action

According to experts' comments, the modified Delphi was an animating process; it encouraged many participants to take action on a personal and a professional level (Table 4.39; Table 4.40). It stimulated experts to assess their competencies as communicators, problem-solvers, and decision-makers in light of Delphi findings, and to identify their weaknesses and initiate change. Vuntut Gwitchin experts were encouraged to spend more time on the land; to take a more earnest role in educating youth about Vuntut Gwitchin TEKMS, language, and traditions; and to return to formal education or gain additional training in SRM-related topics. Government experts, determined to work with sensitivity and awareness in cross-cultural settings, were prompted to seek out formal and informal cross-cultural learning opportunities. Others assessed past experiences as SRM representatives, facilitators, and organisers to reveal areas of effectiveness as well as those that needed improvement. The present Delphi study helped experts realise that it was for them to address their own challenges and that their most important resources were their own thinking and capabilities. It prompted experts to take on new roles in their communities and agencies. For example, several experts indicated their intention to volunteer as SRM representatives, to join local advisory and planning groups, to run for positions in VGFN government, and to take part more frequently and actively in local participation forums. The modified Delphi process may also provide lasting impacts; for instance, many experts referred to occasions outside the present Delphi study when they returned to feedback materials, seeking advice for immediate SRM issues and concerns.

5.5 ESSENTIAL ELEMENTS OF SRM

The third major outcome of the modified Delphi process relates to the essential elements of SRM identified by Delphi experts (Table 4.20 to Table 4.29). In the following discussion, these essential elements are addressed according to the framework outlined in Table 5.2.

Table 5.2: Summary overview of the framework used in section 5.3 to address the essential elements of SRM identified by Delphi experts.

Framework to Address Essential Elements of SRM	
SRM Participants	<ul style="list-style-type: none"> • SRM representatives • SRM facilitators • SRM administrative staff • SRM funders • Community members
SRM Partnerships	<ul style="list-style-type: none"> • Cross-cultural understanding • Guiding principles for SRM • Operational procedures and ground rules for SRM
SRM Communication	<ul style="list-style-type: none"> • Multi-dimensional communication • Multi-media communication • Sensitivity to differences in communication
SRM Knowledge	<ul style="list-style-type: none"> • Problems of acceptance, understanding, and implementation • Solutions to address problems of acceptance, understanding, and implementation
SRM Negotiation	<ul style="list-style-type: none"> • SRM decision-making framework • SRM implementation • SRM monitoring and evaluation

5.5.1 SRM Participants

While the Umbrella Final Agreement (DIAND, 1995) and the VGFNFA (DIAND, 1993) provide the legal and constitutional framework for SRM in the north Yukon, Delphi experts

submitted that the knowledge, skills, and personal qualities of SRM participants were critical determinants of SRM effectiveness. The characteristics and responsibilities of SRM representatives, SRM facilitators, administrative support staff, funders, and community members are discussed below.

5.5.1.1 SRM Representatives

SRM Representatives - Section Overview

- SRM depends heavily on the character and talents of the individuals involved. Representatives are important agents of communication, decision-making, and achievement in SRM. Their combined skills are crucial to the functioning of the process.
- Careful representative selection improves the chances that the SRM vision and goals will be realised. Each SRM partner should come to internal consensus on the main selection criteria to be used. Several criteria were advanced to aid in the selection of SRM representatives.
- People should be chosen for their knowledge, skills, interest, and positive personal characteristics. Effective representatives have extensive knowledge of the environmental, cultural, and social aspects of SRM. SRM representatives are reflective people who readily grasp problems and solutions and are inclined to action. They are capable of fairly representing the needs and interests of their constituents. They also listen to and respect the ideas and knowledge of their counterparts. They are accountable for their words, decisions, and actions. Effective representatives are committed to co-operation and long-term solutions, which entails evaluation and learning, high performance expectations, and well-developed communication and co-ordination skills.
- First Nation and government agency representatives have distinctive requirements. Aboriginal participants should be traditionalists, active on the land and in community life, and understand technical, scientific issues as well as government policies and processes. An ability to stimulate community involvement in SRM is another essential prerequisite. Government agency representatives must combine cultural awareness and sensitivity with advanced listening and communication skills. They must be open to change, power-sharing, and extensive professional re-orientation.
- Systems of SRM representation face several challenges. Representative selection must be open and free from coercion, nepotism, or corruption. Community heterogeneity makes representation challenging at the local level. Communities and organisations must design internal accountability systems, although these may be costly to develop and enforce. SRM groups require internal continuity and stability in membership.
- Responsibility for successful systems of representation does not fall only to individual members but also to their constituent organisations. Contributions of supplementary technical, financial, and personal support, as well as organisational capacity and information resources can improve representatives' performance.

Any SRM effort needs 'champions' who bring energy and the right characteristics, skills, and personality types to advance the process (Pinkerton, 1989; Roberts, 1994b; Borrini-Feyerabend et al., 2000). Ineffective representatives can make SRM dysfunctional (Arctic Institute of North America (AINA), 1995; Kennett, 1995; Chambers, 1999) despite the level of legal and financial support provided (Pinkerton, 1989; Higgle & Duinker, 1993). Poffenberger (1990b) identified the factors most likely to increase SRM representative's effectiveness, including knowledge of the local language, ability to empathise with community needs, a capacity to enjoy rural life, and an appreciation of traditional knowledge. The role and characteristics of SRM representatives can be expected to change over the lifetime of a regime, as Drolet, Reed, Breton, & Berkes (1987) found for the Co-ordinating Committee of the Quebec Cree.

It is not possible for all members of a community or an organisation to participate in every SRM activity and decision. Individuals must be selected to represent the needs and interests of the larger group. Not everyone is well-suited to serve as an SRM representative. Commonly, SRM representatives are chosen for the wrong reasons; for example, to give unoccupied individuals something to do, or to garner political favour. Senior staff may win out when attractive benefits (e.g., training or travel opportunities) are at stake. Such ad hoc processes are inadequate for selecting the best representatives. Representatives must have the necessary time, resources, and energy to participate effectively. Effective SRM requires careful selection of representatives who are chosen on the basis of their ability to interact effectively (Table 4.19).

5.5.1.1.1 General Attributes of Effective SRM Representatives

This section addresses general attributes of effective representatives that both Vuntut Gwitchin experts and government experts suggested were vital. The results of the present Delphi

study showed that people should be selected for relevant knowledge and skills, individual interests, and personal qualities (Table 4.19). Seniority and resource experience were not considered key credentials for participation. The fundamental attributes of effective SRM representatives identified by Delphi experts included authority to participate, capacity, commitment, knowledge, communication and co-ordination skills, and accountability, all of which are reviewed below.

Representatives must have individual authority arising from characteristics such as status, reputation, personal credibility, experience, knowledge, or role in a family, community or organisation. They should be valued members of their community, profession, or organisation and inspire enough respect and loyalty from their constituents to influence internal organisational change on SRM process and technical issues. Representatives' groups must have authority to participate in the SRM process. Authority to participate generally arises from settled comprehensive land claims, constitutionally protected Aboriginal rights, legal or legislative mandates. According to Delphi experts, members of an SRM partnership must be able to share rights and responsibilities amongst themselves, contribute knowledge, skills, and financial resources to resource management, and be held accountable for agreed-upon responsibilities.

The present study showed that SRM representatives should fairly represent the needs and interests of their constituents. Members must be able to establish trust with other SRM representatives and treat them in a respectful manner at all times and in all situations. Likewise in a study of co-management of northern protected areas, Morgan (1993) found that credibility within representatives' groups, and with other organisations was critical if SRM decisions were to be endorsed and upheld by constituents and partners.

Capacity to be open to a range of views, seek compromise, and aim for consensus were identified as paramount in the present study. According to experts, SRM representatives' central task was to develop a broad and sustainable resource management vision that encompasses diversity. Thus, representatives must be committed to evaluation and learning in management (Korten, 1980). This requires a capacity to accept past errors, learn from them, and link understanding with action (Poffenberger, 1990b).

SRM is a complex, lengthy and sometimes confusing process involving frequent change, conflict, and frustration (Borrini-Feyerabend et al., 2000). Practitioners face difficult decisions about the utilisation of scarce and valuable resources by competing users to ensure they will be sustained for future generations. Experts in the present study indicated that commitment to long-term solutions, to the ideals of SRM, and to the co-operative exploration of issues or actions was essential. Without effective *keepers of the vision*, SRM risks being overpowered by either conventional government forces that resist change and power-sharing, or feelings of distrust and cynicism on the part of Aboriginal groups. Representatives must uphold the collective will of the SRM group by supporting decisions publicly and privately.

Results of the present study showed the most effective SRM representatives are energetic, passionate, conscientious, highly motivated, and hard working. They reliably accomplish the tasks they are delegated. They possess initiative and genuine interest in SRM issues. Patience is required to resist the tendency of government to focus on immediate needs and to proceed quickly and efficiently - often at the expense of community participation and capacity building. Effective representatives are well-informed and take time to research the issues, read background material, and talk to resource user groups.

It was apparent in study results that people engaged as SRM representatives require knowledge and skills relating to the environmental, social, cultural, political, and economic aspects of SRM. Advanced, formal education may not be as important as a clear understanding of SRM issues and the areas under consideration. Knowledge gained from oral tradition and life on the land was identified as essential, as was an integrated vision of natural and human ecology. Vuntut Gwitchin participants asserted that representatives must have a thorough grasp of the legislative, constitutional, and legal foundations of north Yukon SRM (Freeman, 1985; DIAND, 1993; DIAND, 1995; Asch, 1997). Delphi experts emphasised the need to understand territorial and federal policies, procedures, and regulations relating to natural resource management. They emphasised understanding the processes and factors that pre-dated SRM approaches, both those that could challenge (e.g., institutional inertia, limited monitoring and evaluation) and those that could contribute to SRM (e.g., ecosystem-based management concepts, research initiatives).

Delphi experts determined that representatives must be competent communicators within their own organisations, engaging their constituents in continuous dialogue about important issues, while seeking direction from them and returning SRM results to them in a clear and timely manner. For instance, government experts suggested that representatives *must regularly brief and get direction from decision-makers and sometimes strongly encourage them to accept particular results in order to maintain an SRM system*. Vuntut Gwitchin experts reasoned that representatives should, *talk to trappers and fishermen and hunters, and make sure that all of the community leaders and stakeholders are given the opportunity to be involved*. Such integrated approaches to communication are critical. Rather than simply *bringing their members along*, representatives need to create forums for discussion and decision-making that encourage participation. SRM representatives function as a critical communication link between an SRM

system, user communities and management agencies (Kofinas, 1998). Lack of effective internal and external communication has been cited as a main factor undermining the operation of SRM groups (Landmann 1988; Roberts, 1994a; Warren, 1998). Effective communication increases the likelihood that stakeholders will accept and endorse the results of SRM decision-making (Murphree, 1991), and that desired outcomes will result (Warren 1998).

Delphi experts noted that representatives must act in accordance with stakeholder expectations and present their organisations with reliable management information. Representatives in SRM processes must place the concerns of their stakeholder group above personal interests. According to Delphi experts, effective representatives *bring forward the views of constituents even if they disagree, can represent not only their own views but the views of others, and put the views of the constituents ahead of their own*. Other researchers found effective SRM representatives have personal integrity and are willing to accept the consequences of their actions (Jentoft & Kristoffersen, 1989; Jentoft & McCay, 1995; Borrini-Feyerabend et al., 2000). Chambers (1999) emphasised that SRM representatives need to stipulate clearly when they are expressing personal judgement (as opposed to speaking for their group) so as to avoid confusion and conflict of interest.

5.5.1.1.2 Specific Attributes of First Nation Representatives

Vuntut Gwitchin experts expressed several specific expectations for local SRM representatives (Table 4.19). They maintained that First Nation representatives should be *traditionalists* who hold traditional knowledge, speak the local language, and have extensive on-the-land experience. They must *know their people, their country, the culture, and the history, be active on the land and in community life, and be able to teach other people properly about the*

Vuntut Gwitchin. At the same time, experts recognised the need for First Nation representatives to understand *white man's ways and technical issues*. In their view, such a person would understand local priorities and assert community management objectives at the SRM table, while at the same time interpret scientific information and management activities to the community. Vuntut Gwitchin experts maintained that a single individual could not satisfactorily embody all these characteristics. Consequently, First Nation representation entails involving several individuals; at minimum, *someone from leadership and someone who represents the animals and life on the land*. Vuntut Gwitchin Delphi experts expected their representatives to be motivated by an interest in the good of their people, rather than monetary incentives (e.g., honoraria or per diems) or personal gain. Vuntut Gwitchin experts wanted their representatives to exhibit trustworthiness and integrity, a strong personal commitment to the land, the community and future generations, and a bottom-up approach to community involvement in SRM. An ability to promote *meaningful local involvement* is a key competency since participation can build confidence that community members' values, needs, and knowledge are respectfully considered and acted upon as an integral part of shared decision-making. According to Chambers (1999:27), a high level of community participation gives "validity to the co-management process" and, in turn, reinforces people's commitment to resultant plans. Doubleday (1989) also concluded that active participation of local resource users was the single feature common to a wide range of successful SRM cases.

5.5.1.1.3 Specific Attributes of Government Representatives

Vuntut Gwitchin experts suggested that government representatives must demonstrate a capacity to work with and relate to Aboriginal people. Government staff should be selected

because of their interests, skills, and extensive experience living in rural, northern communities and working within Aboriginal management structures. Possessing a capacity to trust and respect others will allow government representatives to work through significant, contentious SRM issues. These attributes are critical, given the complex interpersonal problems that arise in cross-cultural SRM which are not typical in other management situations.

For SRM to succeed, government experts suggested that their representatives must be open to change, innovation, and power sharing. Development of cross-cultural awareness, cultural sensitivity, and respect for traditional knowledge are also key undertakings and require active study of the communities involved in SRM. However, Vuntut Gwitchin experts cautioned that much available ethnographic information was out of date, inaccurate, or incomplete. Thus, information might be best obtained by listening to local people's concerns, priorities, knowledge, and beliefs, and by direct observation and participation in community and 'bush life'. Government experts also maintained that territorial and federal government representatives required advanced scientific training, extensive field experience, and well-developed communication skills. This enables government experts to bring complementary knowledge and experiences to the SRM table and to communicate them in a clear, understandable manner to Aboriginal participants.

5.5.1.1.4 Challenges to SRM Representation Systems

The present study determined that additional factors, beyond the general and specific attributes of representatives discussed above, influence the efficacy of SRM representation (Table 4.20). Although representatives sometimes operate to advance organisational objectives and to support constituents' voices, they can likewise impede effective decision-making and

diminish the level of trust and respect between partners. Inadequate representation can lead to unequal distribution of SRM benefits with special privileges or power accruing to particular segments of a community or organisation. All of these factors can decrease regard for and compliance with SRM decisions, making implementation and enforcement difficult. Delphi experts addressed several factors that impact the development of systems of representation. Reviewed below, these include: selection procedures, community heterogeneity, authority, accountability, continuity, community linkages, and support systems.

5.5.1.1.4.1 Selection Procedures

Delphi experts stressed the importance of selecting representatives who can speak effectively on behalf of a community or organisation. Groups must free themselves from the restriction of choosing the 'expected' people. The best candidate may not be a high-ranking bureaucrat, the relative of a community leader, a recognised technical expert, a member of a powerful family, or the person who usually deals with government officials. It is critical to work out the selection process and procedures in advance. Using agreed-upon criteria and rules, SRM parties should identify and evaluate candidates with the necessary qualities. The final selection should be made in a convivial atmosphere; for example, Vuntut Gwitchin could use a locally appropriate decision-making procedure such as appointment by an Elder's council or general assembly and government experts could use formal or informal elections or peer nominations. Strum (1994) and Western (1994) cautioned that nepotism, greed, and corruption should have no place in the identification of community or government representatives.

5.5.1.1.4.2 Community Heterogeneity

Identifying representatives may be easier for government agencies than for communities. Compared to government agencies, communities embody multiple points of view, values, and preferences (Abbott, 1995). Therefore, it takes major investment of time and, potentially, external support to identify local representatives. Some government Delphi experts indicated that First Nation membership in an SRM regime should reflect *a slice of the community*, including Elders, resource users, women, and youth. Others suggested that SRM groups should function as a representative body where representatives speak on behalf of their organisations or communities. Some Vuntut Gwitchin experts suggested that issues of community heterogeneity could be better dealt with by examining Vuntut Gwitchin political and decision-making processes. They advocated looking at *how local communication and representation works and working with it*. Traditional approaches to leadership likely have much to add to the design of contemporary systems of community representation.

5.5.1.1.4.3 Authority

The present study demonstrated that government and Aboriginal SRM representatives lacked adequate authority to represent and make decisions on behalf of their stakeholder groups. As one Delphi expert explained: *Effective representatives need the right amount of decision-making power or mandate. They must be able to share and talk with authority at meetings*. Results showed that representatives who must confer with superiors before making all decisions restrict and frustrate the SRM process. Since SRM representatives should have extensive knowledge of their stakeholder group and the resource being managed, smaller, day-to-day decisions should be entrusted to SRM representatives. However, if SRM questions have broad implications for

partner communities or organisations, representatives must seek direction from constituents. The authority of individuals to represent stakeholder groups should be established in the SRM terms of reference.

5.5.1.1.4.4 Accountability

Results of this study showed that parties to SRM place a great deal of faith in the representatives they appoint, and, consequently, these members must be accountable for their contributions, decisions, and actions. Creating internal accountability systems can improve members' ability to speak on behalf of their people or agencies. Unless representatives are held accountable, conflicts of interest may arise (Ascroft & Hristodoulakis, 1999). Self-regulation allows communities and organisations to design an SRM accountability system of their own, and in a manner they prefer (e.g., incentive systems, performance evaluation tools, supplementary organisational resources, community expectations) (Landmann, 1988; Warren, 1998). However, Kofinas (1998) reported that systems of accountability depend heavily on the commitment of leaders and local people and require substantial time and resources to maintain them. Results of the present research suggested that self-imposed accountability comes with high development and enforcement costs. For instance, local systems of accountability may be vulnerable if unaccompanied by external support. Many Delphi experts indicated that immediate issues often take priority over the longer-term goals of an SRM system and that SRM management crises often strain the human and financial resources dedicated to community processes. Delphi experts also suggested that while the systems of accountability are necessary, they should not be so rigid or bureaucratic as to diminish the informal, flexible, and congenial manner of relationships.

Creativity and adaptability are fundamental to resolving the most complex SRM issues (Poffenberger, 1990b; Western & Wright, 1994; Borrini-Feyerabend et al., 2000).

Because Vuntut Gwitchin experts emphasised the importance of community guidelines to ensure local accountability, these issues are discussed in greater detail below. Vuntut Gwitchin experts expected *good communication* from their representatives. Indeed, communication is a basic form of accountability in many governance systems (Beebe & Masterson, 2000). Vuntut Gwitchin experts also expected that community representatives abstain from using drugs and alcohol, which impairs their ability to act on behalf of their community: *They should have a clear mind and be healthy*. An informal code of ethics for behaviour has been instituted by some SRM regimes when representatives are in the service of the SRM group (Kofinas, 1998). Vuntut Gwitchin experts expected their representatives to be accountable for change *by balancing old ways with modern ways*. Traditional and modern skills must be combined to ensure effective involvement in SRM. As a hunter explained: *Representatives have to live out in the bush and live a traditional lifestyle ... But also we have to be adaptable. We have to change with the times. We have to use a balanced, proactive approach*. Training or education were also identified as prerequisites for accountability since they would allow First Nations representatives to *understand scientific research and what all the inventories find, such as wildlife population data or a mineralogy report or forest inventory information*. Korten (1980) and Warren (1998) also found that continuing education is essential for addressing conservation and development issues in an responsible and integrated manner.

5.5.1.1.4.5 Continuity

The present study found that the development of any organisation is a long-term process requiring internal continuity and stability in membership. The level of SRM representative turnover affects the functioning of a SRM process. Loss of participants through rotation, retirement, or death may be accompanied by losses of political and organisational support, financial resources, and learning. Replacement personnel may bring changes in ideology, attitude, and preferred ways of doing things. Delphi experts noted that belief in the management endeavour, in each other, and in a shared vision often holds a group together. Frequent and unplanned staff rotation and erosion of personnel may threaten group dynamics and the long-term prospects for SRM. On the other hand, the scheduled, orderly replacement of members may have desirable effects. Controlled turnover allows new members to be trained in the rules and procedures governing group functioning, and to become familiar with SRM issues, activities, and fellow representatives. Predictable substitutions allow an SRM group to retain its human capital, yet, as Landmann (1988) found, prevents an SRM group from stagnating or becoming a 'private club'. Delphi experts suggested that a staggered replacement schedule based on 3-5 year memberships could achieve a desirable level of continuity. The literature confirms that continuity in SRM membership is critical to the development of robust, respectful, and trusting relationships (Korten & Siy, 1988; Poffenberger, 1990a; Richard & Pike, 1993).

5.5.1.1.4.6 Community Linkages

Delphi experts indicated that First Nation representatives may not always function as effective communicators (e.g., failing to transfer information to their communities). Results of the present Delphi study showed that First Nation representatives may not always co-ordinate

regular forums for discussion, may not always actively seek community consensus on issues, and regularly express personal viewpoints rather than *speaking for the people*. Many Delphi experts noticed a disconnection between First Nation representatives and the people they represented. Vuntut Gwitchin experts perceived a situation in which only a small number of local decision-makers are aware of and influence SRM activities. In their view, when a handful of representatives bear such a wide burden of responsibility, strong SRM-community linkages are impossible.

Results also demonstrated that First Nation representatives incurred significant personal costs (e.g., health problems, family problems, stress-related absenteeism) as a result of their service and that these significantly hinder satisfaction and effectiveness. Available individuals may feel a strong sense of duty to assume important community roles by virtue of their knowledge, education, or experience. Overburdened and having *to wear several hats at one time*, they suffer from *fatigue and burn out*. Experts discussed the negative impacts of fast-paced living, lack of traditional foods, exposure to noise and crowding, and other sources of culture shock when away from their communities. In the *outside world*, they frequently encountered racism and ignorance about Vuntut Gwitchin culture and life-ways. Demanding travel schedules were reported to detract from subsistence activities and family life. First Nation representatives also struggle with psychological barriers to participation related to status, power, and personality differences. Experts explained that First Nation representatives were burdened with learning new, western styles of negotiation, conflict resolution, and communication, which predominate SRM processes, and were subject to public scrutiny and community politics. Many well-intentioned representatives *shy away from being in the spotlight* in order to avoid other community members' evaluation and criticism.

Vuntut Gwitchin experts suggested that local representatives often have inadequate technical, administrative, and financial support. Combined with a lack of western education, these factors often result in difficulty interpreting complex scientific data, law, legislation, policy, and regulations. Illiteracy and oral communication preferences can also complicate cross-cultural communication. First Nation representatives often lack financial means to ensure effective local SRM communication (e.g., home visits, transporting people to meetings, talking to people out on the land, meeting with local organisations, making announcements using local media, or, publishing community reports). Whether these or similar problems are experienced by territorial and federal government representatives was not revealed in this Delphi process.

5.5.1.1.4.7 Support Systems

Successful SRM requires a commitment to working across normal boundaries (McCay, 1989). However, an institution relying strictly on the personal attributes and voluntary efforts of individuals is unlikely to endure (Roberts, 1994a). According to the present study, representatives require a wide range of assistance from within their organisations.

Task performance can improve significantly when SRM representatives receive technical, financial, personal, and information support from their organisations. Such involvement brings the added benefits of promoting internal discussion and learning about the SRM process. A knowledgeable, involved organisation is more likely to take an active interest in the success of SRM outcomes. It is wise for organisations to assemble necessary resources and identify capacity gaps before embarking on SRM. Deficiencies can be addressed through training and job sharing initiatives, fund raising, and institution-building activities. For example, Delphi experts reported limits on the number of qualified First Nations representatives. While people may be

willing to serve, far fewer are recognised by the community as being ready to take on an SRM position. Capacity building and investment in youth education are needed to enhance the pool of available SRM representatives. It is also important for First Nations to build up their scientific and technical expertise to support the work of local representatives. Likewise, government resource management agencies can empower their representatives by providing them with the best available data and information management tools. Outside support from universities, non-governmental organisations, or interest groups can also be very helpful, potentially offering information, financial resources, extension, public relations, or research support (Dale, 1989; McCay, 1989).

5.5.1.2 SRM Facilitators

SRM Facilitators - Section Overview

- SRM aims to develop effective and balanced partnerships among diverse people. Professional facilitation to support relationship building, SRM process construction, negotiation, and conflict mediation is often necessary to meet these core goals. A facilitator can be pivotal to the success of SRM regimes.
- Facilitators must bring a combination of knowledge, perspectives, and skills to bear on the practice of SRM. In this study, experts advanced five key characteristics of an effective facilitator: independence and neutrality; knowledge developed through training; ability to relate to representatives on their own terms; good communication and listening skills; and strong consensus building skills.
- Delphi experts identified the key roles of the facilitator as: team building and motivation; enforcement of group principles and rules; organisation; communications, information synthesis, and media relations; process planning and observation; group management; mediation; process monitoring, evaluation and adaptation; and, counselling.
- The present study identified the need to recruit and train new SRM facilitators, as well as providing institutional assistance and peer support for existing facilitators.

The international development literature shows that collaborative management requires facilitators who can engender effective, efficient working relationships among partners and between the SRM group and stakeholder communities, government agencies, or other resource management institutions (Fisher, 1995; White, 1999a; Groot & Maarleveld, 2000). According to findings in the present study, SRM in the north Yukon can achieve the equitable apportionment of SRM benefits and responsibilities only through effective collaboration among diverse individuals. This necessitates the use of a skilled facilitator (e.g., when there are marked power imbalances, long-standing conflicts, communication problems, or diverse cultural backgrounds among members).

At the outset of a SRM partnership, the parties should determine whether and at what point they require the assistance of a facilitator (e.g., a skilled facilitator can be valuable in assisting group visioning and goal identification). Experts recommended that the facilitator be selected co-operatively by all SRM representatives and that the facilitator's main qualities and tasks should be described using clear terms of reference. Delphi members also advised formal endorsement of the identified facilitator by the governments who are party to an SRM agreement. The following two sections discuss the characteristics and responsibilities of a skilled SRM facilitator which were identified in the present study.

5.5.1.2.1 Facilitator Characteristics

White and Nair (1999:38) supposed that anyone engaged in a facilitation role "knows what he/she is doing from a process point of view ... is responsible, well-intentioned, and committed to ... the well-being and empowerment of people." Delphi experts agreed that successful facilitation requires an individual with a broad array of competencies and that a facilitator's

manner, style, and talents can profoundly enhance or weaken the performance of the membership. Five general characteristics of an effective facilitator were identified by this research and are elaborated below. These include an ability to treat all parties equally, specialised knowledge about group processes and SRM topics, an ability to relate to representatives on their own terms, a good communicator, and a strong consensus builder.

Facilitators should be recognised as independent, with no position or specific interests in the issues being addressed by the SRM group. Neutrality and objectivity are essential for managing discussion groups, mediating conflict, or helping people to learn. A SRM facilitator should be responsible to the entire group, not to individuals or distinct camps. Facilitators must be trustworthy and able to establish rapport with all participants. Their acceptance is the foundation for all interpersonal interactions, leadership, and capacity building in SRM (White, 1994). A facilitator must come across as culturally sensitive, empathetic and committed to democracy and social justice (Nair, 1994).

Facilitators should be knowledgeable about SRM decision-making, cross-cultural processes, and the resources or land base under consideration. Local on-the-land experience and knowledge about the Old Crow community was identified as important by Vuntut Gwitchin experts. Familiarity with communication theory, organisational development theory and conflict resolution theory were also important. The facilitator should be committed to integrating knowledge and belief systems, value frameworks, and attitudes from different cultural groups. The intercultural communications literature suggests facilitators should also have an understanding of social/psychological variables, including self-esteem, prejudice, motivation, confidence, identity, perception, and an understanding of counselling methods and adult education theory (White et al., 1994).

Facilitators should comfortably interact with both First Nation communities and with federal or territorial organisations. They need to understand how differences - in worldview, communication styles, and decision-making styles - affect participation in SRM. They must demonstrate open-mindedness, cross-cultural awareness, and sensitivity to individual members' needs. Delphi experts explained that facilitators should see themselves as co-learners in SRM. They should not claim to have 'the answers' nor should they harbour preconceptions about the outcomes of SRM or attempt to impose an external agenda. Rather, as White et al. (1994) found, effective facilitators collaborate with participants to acquire knowledge and skills and to help along the process of change. An effective facilitator brings out other people's ideas and opinions and recognises that SRM representatives are "the source and stimulation for their own action" (Kiiti & Nielsen, 1999:65). White and Nair (1999) observed that successful facilitators have special qualities including a warm personality, an intensity of concern, an endearing sense of humour, and a charismatic presentation, all of which combine to bring synergy to relationships.

Facilitators should be active and reflective listeners according to the present study. They need to pose basic questions, seek clarification on issues, and challenge people to explain their fundamental knowledge and beliefs. They need to be skilled interpreters of non-verbal and emotional cues. Facilitators should have excellent speaking and writing skills and be able to convey technical information or complex cultural concepts. They need skill in tailoring communications to group needs and external audiences.

Results show that facilitators should be accomplished at helping people to envision a better common future for their communities, organisations, and the land and resources under consideration. Other researchers have determined that consensus produces longer lasting, higher quality, more acceptable decisions that are more likely to achieve equal participation and cross-

cultural understanding (Roberts 1994b; Peter & Urquhart 1991; Chambers 1999). Consensus building requires training skills such as constructing learning experiences for participants, facilitating personal and professional growth, transferring new ideas, and enabling critical reflection. Facilitators must bring diverse knowledge and expertise together to seek balanced trade-offs and mutually satisfactory compromises. Interpersonal skills such as enabling the expression of thoughts and feelings and building trust and teamwork are critical to success. According to small group communication theory, facilitation also requires counselling skills such as assisting others to pose problems and collaborate on solving them, inspiring empathy and understanding in the decision-making process, and negotiating areas of conflict (White & Nair, 1999; Beebe & Masterson, 2000).

5.5.1.2.2 Facilitator Responsibilities

The fundamental role of a SRM facilitator is to unlock the potential of individuals to think, interact, act, and reflect (Tilakaratna, 1991). Delphi experts expressed this role as a set of basic duties for SRM facilitators, including team building, enforcing the rules, making arrangements, structuring communication, assisting the group to remain focused, negotiating conflict, remaining impartial, assisting reflection, and promoting SRM process sustainability.

Delphi experts indicated that one of the primary responsibilities of a SRM facilitator was team building. Team building entails motivating people, communities, and agencies to identify, share, and work towards goals that everyone feels are valuable and important. Koniz-Booher (1999:114) described team building as a duty "similar to raising a family" in requiring facilitators to nurture and understand SRM participants and their organisations. Delphi experts suggested that the facilitator must provide strong leadership and act as a go-between by bridging the

cultural gap. One Delphi expert explained that facilitation involves, *positive, fair, and inspiring leadership. It is democratic and encourages good understanding beyond the surface of who one represents or what one looks like or talks like.* To expedite this role, prior to the initial SRM meeting, the facilitator could conduct individual discussions with representatives to learn their objectives and perceptions regarding SRM. In Southeast Asian social forestry programs Poffenberger (1990a) found that, if facilitators developed an insider's view on community and government agency problems, they were more successful. However, Delphi experts warned that facilitators should not be the driving force of change, nor should they control outcomes. Their role is to complement and support the development of individuals and institutions. As Erasmus and Ensign (1991) suggested, involving people in their own process is the role of a facilitator; otherwise, people will fail to invest in the SRM endeavour and to take responsibility for results.

This study found that a facilitator has an important role as *the keeper of partnership principles and ground rules* developed and agreed upon by SRM participants. This requires a facilitator to recognise when established guidelines are failing and to introduce alternative techniques that improve the group's interactions and co-operative work.

This research determined that a facilitator should take responsibility for the logistics of group work, either personally or by directing administrative assistants. The facilitator should develop a schedule of meetings and their locations, and decide in partnership with SRM representatives who will provide financial resources to support these meetings. S/he should ensure a supportive and comfortable setting by considering logistics such as seating arrangements, the provision of interpretation services, and the availability of food and beverages.

Establishing an environment for structured communication was identified in the present study as the central mandate of a SRM facilitator. For instance, a research participant noted: *It is*

important to delay discussions on solutions until the problem has been well-discussed. In these situations, a skilled facilitator can help to ensure that individuals understand each other. An SRM facilitator could enable clear and productive communication by re-phrasing complex information, writing down all ideas without bias, reiterating key points, summarising results, asking questions, seeking elaboration and clarification, suggesting the exploration of new ideas, or challenging participants' thinking to reveal underlying assumptions or deeply held values. The facilitator must promote respect for linguistic differences, establish a common working language among SRM representatives, and generate both formal and informal communication opportunities. White and Nair (1999) described this role as that of a catalyst communicator. Facilitators can encourage people to find and use their own voice to frame problems, evaluate options, and decide on solutions (Kiiti & Nielsen, 1999).

Experts maintained that a facilitator needs to keep the group focused on its shared mandate, vision, and goals, especially when representatives become entrenched in disputes or attempt to undermine the functioning of the group. Many government experts felt that the facilitator should actively discourage directions that cannot be approved by agencies with final decision-making authority; for example, those that contravene current legislation, final agreements, or existing court rulings. A facilitator should also monitor delivery on work plans and schedules, creating a group culture where members feel obliged to meet SRM responsibilities.

A facilitator has a role in ensuring that individual SRM members truly represent their parties and are held accountable for their performance. This could be achieved through inviting community and government observers to meetings, allowing time for questions from the floor, and initiating internal and external evaluation of SRM operations.

A facilitator can aid conflict negotiation by stimulating the formation of options and by compelling parties to adjust their positions and to consider compromise. The facilitator must ensure equity and fairness in participation to avoid coercion or co-option in the search for consensus. The facilitator must also recognise when consensus is not possible and avoid derailment of the process by proposing alternative forms of decision-making (e.g., the agreement of all members but one). Experience with public participation in environmental decision-making has revealed that a facilitator should strive to "crystallise discussion, clarify the underlying issues, identify the options for dealing with outstanding disagreements, and build respect and understanding among the parties affected" (BC Round Table on the Environment and Economy (BCRTEE), 1990:7). Chambers (1999) also suggested that an SRM facilitator should work with participants to maximise their ability to resolve their differences. Facilitator tools to help people reach agreement on a course of action include conflict mediation, comparison of alternatives, facilitating compromise, and developing specific incentives (Anyaegbunam, Mefalopulos, & Moetsabi, 1999; Borrini-Feyerabend et al., 2000).

Results of the present study indicated that a SRM facilitator must avoid influencing decisions and refrain from substantive comment on issues by keeping personal preferences or beliefs out of SRM and striving to expose all aspects of an issue. The facilitator should never criticise participants or debate their positions, talk excessively, or pressure the group into making a decision. It is important to verify perceptions and to test for and restate agreements to ensure clarity. Delphi experts were unanimous that a facilitator must never act as a negotiator, trading off one resource for another. Immunity to pressure from strong individuals or interests in the SRM group was also identified as paramount.

Experts believed a facilitator should help an SRM group to be conscious of itself. S/he should aid group members to recognise their progress and accomplishments in terms of both the management process and outcomes; for example, the facilitator might point out when representatives' old habits give way to more constructive approaches. Delphi experts presented some indicators of participant growth and change that facilitators could watch for including: sharing new information in a proactive manner; showing appreciation for other points of view; carefully explaining their own perspectives; proving trust by freely disclosing fears or sensitive information; reaching agreements by consensus; and, developing agreements that have the potential to improve resource or local socio-economic conditions.

Delphi experts suggested that SRM facilitators are responsible for promoting process sustainability and should pay attention to how participants interact, exchange information, solve problems, and make decisions. Difficulties in any of these areas can affect the success of SRM. The facilitator needs to promote a group culture where members feel obliged to fulfil commitments and meet the work standards endorsed by the SRM body. The facilitator needs to keep people involved and interested. For instance, experts indicated that the facilitator should be alert to factors affecting participation such as meeting frequency, travel requirements, availability of necessary training, or the adequacy of participant support systems.

The facilitator also plays an important role in making participants feel comfortable and valuable. A facilitator's logistical and operational decisions set the tone for negotiations. Experts suggested that facilitators should strive to create a working atmosphere *where even shy people, those who fear rejection, ridicule, embarrassment, or self-incrimination feel safe to speak up and voice their opinions*. Encouraging the group to celebrate their achievements is also important, as is internal and public recognition for participants' commitments; for instance, Delphi experts felt

facilitators should organise social opportunities for group members to relax and become rejuvenated.

5.4.1.2.3 Facilitator Development

Delphi experts in this study warned that resource management processes in the Yukon rely heavily on a few skilled facilitators without developing additional talent. Recruitment and training of new facilitators is important and, according to Delphi experts, could be accomplished through: bi-annual, territory-wide forums on facilitation in resource management; continuing education for resource managers in elements of leadership, communication, consensus-building, counselling, and conflict resolution; facilitator exchange programs among First Nations, governments, non-governmental organisations, academic and private sectors; and, job-shadowing opportunities for facilitators-in-training. This research found that strong institutional assistance, critical peer assessment, space for experimentation, and active networking are also essential for development of effective facilitators. In the north Yukon case, establishing a corps of trained First Nation and non-First Nation facilitators whose expertise encompasses a broad range of cultural, environmental, and organisational perspectives could supply the needs of diverse SRM processes, while functioning as a support network for facilitators and a venue to exchange innovations in the theory and practice of facilitation. Delphi experts emphasised that SRM participants should learn about their facilitator's methods and offer substantial input on how their group will be facilitated. For instance, the group could examine other SRM regimes to learn about facilitation options or could initiate a pilot project to determine the elements of effective facilitation specific to their membership and mandate.

5.5.1.3 SRM Administrative Support Staff

An SRM regime requires an executive director, a treasurer, and/or a secretary to sustain group performance, create process credibility, and maintain a prominent SRM profile. Delphi experts described administrative support as *the cornerstone of any effective board*. In their view, administrative support staff have proven themselves invaluable in terms of facilitating the work of partner organisations and promoting overall cohesiveness of the SRM group; *they generally make life easier for the various members*. Sustaining strong communication and community linkages is a central component of the secretariat's work; for example, packaging the work of the SRM group in a manageable, easy to understand format or regularly disseminating SRM messages to resource user communities. The secretariat's responsibilities include logistical arrangements (e.g., securing a meeting room, tables and chairs, equipment, presentation aids, and materials such as boards, cards, felt pens, pins, and tape that support discussions) and details (e.g., reminding participants, booking facilities, opening and arranging facilities). Experts suggested administrators play a valuable role in *nagging members* to ensure they understand expectations and do the required work between meetings. Additional duties of the secretariat could include developing SRM media, preparing meeting minutes, briefing the facilitator or chairperson, providing technical support for a member's specific initiatives, handling correspondence, serving as a communication link between the SRM regime and the public, and promoting SRM events and programs. Indeed, Kofinas (1998) concluded that administrative staff often functioned as central contacts for the Porcupine Caribou Management Board, particularly because members were geographically dispersed.

5.5.1.4 SRM Funders

Delphi experts indicated that effective SRM requires a continuing commitment to funding for operations, community participation, communication, research, and program delivery. The present study found that SRM is likely to be most successful when resource users, governments, and other SRM actors contribute financially to management functions or recruit other types of support for the SRM process. Similarly, the SRM funding provisions outlined in northern comprehensive claims are considered fundamental to the effectiveness of these regimes (Osherenko, 1988b; Pinkerton 1989; MacLaklan, 1994; Notzke, 1994). The inadequacy of funding support for the James Bay and Northern Quebec Agreement has also been cited as a root cause of its failure (Landmann, 1988).

Delphi experts agreed with Witty (1994) and Chambers (1999) that over the long term, the majority of SRM funding should not originate from federal or territorial government sources. Such financial dependency can undermine the autonomy and authority of a SRM body, affecting its ability to make politically sensitive management decisions. In the experience of Delphi experts, sustainable SRM regimes are those supported by partner contributions and involve co-operative budget preparation and formally detailed financial contributions and disbursement schedules. They suggested this would promote greater respect for, and acceptance of, SRM by all stakeholders.

5.5.1.5 Community Members

Community Members - Section Overview

- Delphi experts recommended expanding the concept of community employed in SRM to include regional, territorial, national, and international interests, while recognising that local resource users have a primary stake in SRM management decisions. Although the concept of community was particularly powerful for Vuntut Gwitchin experts, Old Crow encompasses significant diversity.
- Three types of community participation in SRM were identified, including non-local government control, community control, and participatory SRM. Experts favoured the latter approach and provided four reasons that participatory SRM is desirable: it promotes equity and empowerment, utilises existing cultural capital, increases management efficiency and effectiveness, and promotes stability and commitment to SRM.
- The involvement of local experts, Elders, and young people in north Yukon SRM are critical to effective community participation.
- Three key community linkages are explored, including those with local SRM representatives, with the SRM group, and with external experts and third-party interests.

This research determined that the full participation of local resource users in the SRM process is essential since, without significant local involvement, conservation and development goals cannot be achieved. The words of one Delphi expert illustrate this view: *A strong community-based approach is extremely important if there is to be credibility, trust, and support for the process and the results of the process.* This involves more than First Nation representation on SRM bodies and informing local people about SRM processes and goals. Rather, it is an approach that gives all community members meaningful opportunities to participate during the organisational, decision-making, implementation, monitoring, and evaluation stages of SRM, and to receive tangible benefits as a result of their participation. Many scholars have discussed practical and ethical reasons for this approach, observing that it prompts full, fair consideration of TEKMS and capitalises on local users' long-term self interest while

decreasing management and enforcement costs and co-ordinating uses across a wide geographic scale (Acheson, 1989; Feeny et al., 1990). This section explores the notions of community and participatory management, discusses the involvement of local experts, Elders, and youth in SRM, and examines fundamental SRM/community linkages.

5.5.1.5.1 Defining Community

According to this study, different types of communities impact on the practice of SRM and a SRM group needs to determine which ones to involve. Questions that need to be addressed are: Is it a single community situated in the management zone? Is it several communities who use but do not reside in the affected area? Is it the concern of the general public? The following analysis explores the concept of community advanced by Delphi experts.

In the present research, experts suggested that the definition of community employed in SRM should be *broader than one community or place*; otherwise, *participation will be too narrow and perceived as being closed*. Experts recommended expanding the scope of community from a strict local focus, to one that encompasses different facets of society. For instance, in the north Yukon context, the concept of community should not be limited to Old Crow. Resources such as oil and gas, minerals, fish, and wildlife have broader importance. Other local communities - regional, territorial, national, and, in the case of transboundary species, international interests - should be identified and engaged. In African SRM, researchers also determined that ensuring a multiplicity of voices are included in SRM is a fundamental prerequisite for equity and achievement (Borrini-Feyerabend et al., 2000).

Despite acknowledging this plurality of interests, Delphi experts focused their discussion of participation on Old Crow community members. This is the probable result of two factors.

Participation in the Delphi project was limited to responsible SRM actors with genuine proprietorship in the context of the Vuntut Gwitchin Final Agreement - the VGFN, the territorial government, and the federal government. Individuals from neighbouring communities, non-governmental organisations, and industry were not involved. Next, all experts recognised that Vuntut Gwitchin have a critical stake in what happens on traditional lands and that they are the people most directly affected by north Yukon SRM decisions. This emphasis on Old Crow community members is reflected throughout the remainder of section 5.5.1.5.

The concept of community was particularly powerful for Vuntut Gwitchin experts. For them, community was a focal point and a clear unit of identity. It was equated with feelings of coherence and unity. The vast majority of citizens living in Old Crow are Vuntut Gwitchin and the community is the seat of government. A common culture, history, homeland, lifestyle, and belief system bind people to each other and to place. The Vuntut Gwitchin concept of community is also an extended one and includes not only living members of the community, but ancestors and the unborn. As a consequence, Vuntut Gwitchin experts expressed a strong sense of responsibility *to the good of the community* and discussed SRM in terms of *the legacy of the ancestors and the well-being of the people and future generations*. In light of these observations, Old Crow community members' participation in SRM takes on a deeper meaning. It is linked to the maintenance of identity, self-reliance, communal obligations, cultural continuity, and TEKMS.

Yet, Old Crow itself is heterogeneous. Just as there are different types of communities, there are subdivisions within each community. Delphi experts pointed out that, while maintaining basic cohesion, Old Crow encompasses an assortment of values, interests, concerns, and needs.

Although communities are social actors and provide a natural and practical unit of identity, Borrini-Feyerabend et al. (2000) also found they are not homogeneous.

5.5.1.5.2 Types of Community Participation in SRM

Delphi project members discussed involving local people in planning, problem-solving, and decision-making, ensuring their participation in research and management activities, decentralising management structures, and increasing local benefits. Dialogue surrounding community and SRM involved several overlapping concepts, including *community consultation*, *community control*, *community involvement*, and *community participation*. These are more than semantic distinctions. They reflect experts' various expectations and experiences of the role of community in SRM. While each approach shares common themes, there are important points on which they differ. These approaches occur along a continuum that relates to the extent of power sharing between stakeholders and is similar to that elaborated by Arnstein (1969) and Berkes et al. (1991). Delphi project members hypothesised that different levels of community-SRM linkages are appropriate under different circumstances, depending on factors such as the type of resource issues, the legal and constitutional agreements defining the management setting, the condition of local management institutions, and the complexity of the decision-making process. The three approaches they presented are discussed below including government control, community control, and participatory SRM.

5.5.1.5.2.1 Government Control

Government control of SRM is characteristic of one boundary of the power-sharing continuum (Arnstein, 1969; Berkes et al., 1991; Fisher, 1995). In this case, participants explained

that government undertakes limited involvement of stakeholders; communities are merely informed and their influence on decision-making is minimal. Government often has fundamentally different motives and objectives than communities in this type of arrangement. From the viewpoint of Delphi experts, this can result in unrealistic and undesirable policies. Vuntut Gwitchin project members indicated that before land claim settlements and self-government such token involvement was common and lead to business as usual management, increasing bureaucracy, and inflexible, formulaic approaches to resource management. Terms such as *consultation*, *participation*, and *involvement* were used in a token, perfunctory way. According to the majority of experts, this outdated approach is wrought with difficulties and negative impacts on local stakeholders.

5.5.1.5.2.2 Community Control

Delphi experts discussed a complete devolution of authority and responsibility for resource management to the local level, representing the other end of the SRM power-sharing spectrum. This is what Murphree (1994:404) described as management "of, by, and for the community". This is true community-based management, a system that is conceived and instituted locally. Vuntut Gwitchin experts strongly advocated this approach but recognised that, beyond a certain level of decision-making complexity, support from and partnership with outside institutions is desirable. In an increasingly complex world, total devolution of rights and responsibilities to local people may be a difficult proposal. Aboriginal resource management systems rely on social sanctions and extensive teaching to reinforce expectations about wise resource use. Powerful forces are at play that put into question the integrity of traditional management systems (Barrow, 2000). Some are breaking down under the impacts of modern technology, competition,

globalisation, 'western' education, population growth, and resource depletion (Murphree 1993a; Dyer & McGoodwin 1994). In addition, many commercial, sport, and non-renewable resource interests are beyond the direct influence of most Aboriginal users who must rely on government regulation to control the actions of 'outside' individuals and agencies (Inglis, 1992).

5.5.1.5.2.3 Participatory SRM

In the present study, experts strongly supported an approach that balances initiative and authority (the capacity to influence the outcomes of SRM) between VGFN and outside governmental institutions. This is in Arnstein's (1969) realm of "genuine" participation and represents the meeting point between government control for efficient resource use and environmental protection and local control for equal opportunities, self-determination and self-regulation (Jentoft & Kristoffersen, 1989; Ahmed, Capistrano, & Hossain, 1997). This is the arena of collaboration and co-operation and will be referred to in this discussion as participatory SRM. The participatory approach requires that the motives and objectives of the community and external actors, although potentially diverse, are compatible and negotiable. In this complementary situation, each group offers and receives something; partners benefit from their comparative strengths (Bayon, 1996). Local people's knowledge, beliefs, practices, and interests are the foundation of this approach but it remains, to various degrees, externally initiated and executed (Murphree, 1994).

According to Delphi experts, beyond the formal representation that SRM affords the Vuntut Gwitchin First Nation, a participatory approach to SRM should seek the active involvement of all members of the Old Crow community throughout the management process. Such extensive linkages would involve regular two-way communication, inclusion of resource users in key

decision-making stages, provision of employment in research and management activities, and opportunities for skills training and education. Many Delphi experts supported this strategy - Vuntut Gwitchin experts defended it as a minimum requirement - contending that it is the best way to empower communities and to protect the environment. However, a few government participants remained sceptical of the ability of *untrained community members* to manage resources and desired to restrict the scope of local involvement in decision-making to formal representation on a SRM body.

5.5.1.5.3 Rationale for Participatory SRM

Project participants delineated several justifications for implementing a participatory SRM approach. These are described below and relate to increasing equity and empowerment, utilising cultural capital, enhancing management efficiency and effectiveness, and improving resource user commitment to SRM decisions. Resource managers around the world are finding that community participation in SRM offers many benefits, including higher quality decisions, increased commitment of stakeholders to management plans and programs, and a more fair decision-making process (Bodmer, 1994; Metcalfe, 1994; Robinson & Redford, 1994; Fuller & Hussain, 1996; Gormon & van Ingen, 1996; Kothari, 1996; Freeman, 1997).

The results of the present study indicate that participatory SRM can promote equity and empowerment by giving local people a greater share in the decisions that affect them and a greater share of SRM benefits. As Delphi experts explained, most problems are of a local nature and, to be both acceptable and implementable, decisions need to be locally based. For instance, an SRM group should concentrate on problem solving with local people rather than imposing externally derived solutions. Renard (1991) and Bayon (1996) also determined that, since

resource management profoundly affects indigenous livelihoods and cultures, local people should play an active role in management decision making.

Results of the present study show that local people represent a very significant human resource in terms of their knowledge of the environment, their organisational capabilities, their institutions, and their creativity in dealing with local complexity and uncertainty. SRM can profit by the use of existing cultural capital (the product of history, tradition, and established values) and those features of social organisation which provide for co-ordinated action (Coleman, 1990; Nurse & Kabamba, 2000). Delphi experts suggested that, in the case of Old Crow, a sophisticated TEKMS is in place and provides a firm foundation for SRM. As Fisher (1995:31) asserted, where Aboriginal knowledge and management systems remain intact and effective "it seems folly to ignore them when establishing new management systems." Numerous researchers have presented examples of continuing traditional knowledge, beliefs, and practices; for instance, Dene healers (Johnson, 1992), Inuit whalers (Freeman, 1997), Aborigine grassland managers (Young, 2000), Cree trappers (Berkes, 1994), and Gitksan salmon fishers (Pinkerton & Weinstein, 1995) all display expertise garnered from generations of living on the land.

How far to go in the employment of local management institutions was an issue of debate among Delphi experts. Some suggested SRM should adopt features of the Vuntut Gwitchin system, while others suggested SRM should be based only on VGFN institutions. Fisher (1989), Rao and Geisler (1990), and Fisher (1993) advocated a 'minimum intervention' approach; here one can find compromise between the standpoints of Delphi experts. Minimum intervention recognises existing systems and leaves them alone if they are effective. If inadequate, it focuses on strengthening them and, where necessary, assists in establishing new institutions while paying close attention to existing structures and processes.

Delphi experts suggested that participatory SRM is efficient in terms of money and time. For example, an SRM arrangement that is re-oriented to complement rather than police the role of local people in resource use and management would decrease the need for outside enforcement (which is already costly and impractical for government). Fisher (1995) determined that local users can provide a significant variety and quantity of resources, including technology, labour, capital, infrastructure, and land to implement SRM decisions. Delphi experts maintained that enhanced community participation in SRM is also likely to increase management effectiveness because local systems are highly adaptive and responsive to change. In their view, local people - not distant managers - are the best ones to monitor the condition of the resources on which they depend, the effects of SRM on culture, or the impacts of SRM on the bush economy and social issues (e.g., access to traditional foods, substance abuse, the role of women in society, the transmission of TEKMS). Scholars have also concluded that increased community participation in SRM can contribute to management effectiveness by providing additional opportunities to reconcile the different cultures, knowledge systems, and worldviews united by SRM (Richard & Pike, 1993, Mugisha, 1996; Scott, 1996).

Delphi experts also felt that when priorities and solutions originate from local people instead of distant boardrooms and bureaucracies, they are more inclined to take ownership of the SRM process and, in turn, Delphi experts suggested, *people are more likely to become committed contributors to and supporters of [SRM] plans*. Vuntut Gwitchin experts felt that because of their special attachment to place and community, the priorities and solutions developed by Vuntut Gwitchin are likely to aim for long-term resource and socio-cultural stability. Similarly, Taiepa et al. (1997) determined the key role that Maori played in SRM led them to 'own' local

environmental problems and solutions. Consequently, they sustained the required SRM formula and complied with tough decisions such as resource prohibitions.

5.5.1.5.4 Local Participants

Numerous authors have suggested that the identification of relevant user groups or units of social organisation is required to ensure effective community participation (Uphoff, 1986; Fisher, 1989; Fisher, 1991). Likewise, in this study, experts determined that effective community participation entails *identifying and involving the best local people*. An understanding of kinship divisions, of the traditional tenure system, of the structure of shared and conflicting interests within the community, and of the function of different groups within the society (e.g., Elders, women, hunters) can assist in delineating appropriate sets of SRM participants. A high level of social integration in Old Crow coupled with the demarcation of key community groups, makes it possible to involve all relevant interests in the development of SRM agreements. Nevertheless, there are such a large number of initiatives demanding Old Crow community involvement, SRM groups must be careful not to overburden people or waste their time.

In the present study, Delphi experts drew specific attention to the involvement of local experts, Elders, and youth in SRM. This study revealed that the Old Crow community recognises different experts, those people respected as being particularly knowledgeable, skilled, or experienced about life on the land. Involving the appropriate people relative to the topic under discussion was identified as important; for example, it would be of little benefit to talk to the local fishing expert about moose hunting or to ask a man about berry picking sites. Factors such as a person's gender, role in the community and the home, age, status, family territory, and fluency in the Gwitchin language all impact the nature of their knowledge and the scope of their

experience. Delphi participants suggested that the community should play a significant role in identifying these experts. This would ensure that community participation efforts are credible and legitimate and that the community controls who speaks for different local groups (e.g., families, clans, women/men, age groups, or resource user groups):

Vuntut Gwitchin Delphi experts contended that Elders should be included in any SRM decisions since this is their traditional community role. *They have strong knowledge of the community through stories that were passed on* and are experts in traditional values and lifestyle, knowledge of the land, plants, and animals, and spiritual teachings. Experts indicated that Elders could facilitate the development of partnership by linking perspectives on the future with those of the past, mediating disputes, and alleviating cross-cultural misunderstandings. Without their endorsement and involvement, it would be difficult to get other people actively participating and working together. Elders in the Delphi project expressed sadness at the erosion of their role and standing in the community and a readiness to get involved if people approached them. One Elder explained: *They always say in meeting, 'we need your support'. Well if they invite elders we are going to give them support. But they don't.* Delphi experts suggested that Elder advisors could be regularly invited to SRM meetings or an Elders' Council could be consulted on key process or management issues. Project Elders expressed enthusiasm at the potential reinstatement of their spiritual and leadership roles, both within the community and in the new context of SRM: *Long ago, sometimes the people don't get along. When they have differences, the Elders, the grandmothers and grandfathers all gather and they talk. They fix it. Nowadays people don't live that way. They have problems and it's their own business. The young people who have problems they just look at us. That's all. This is wrong. This is why so many problem. Ask us today - Elders be happy to help fix problems and make decisions.*

Community involvement should also include young people in SRM: *We need them to understand what their future is going to be like. We need to get them prepared.* Elders emphasised the worth of young people's perspectives: *We can't just think of the present and ourselves; young people have new ideas that are important and they ask good questions.* Youth are often overlooked or discounted, and yet they hold new values and concerns that are important to consider in the practice of SRM.

5.5.1.5.5 Three Key Community Linkages

Delphi experts theorised that, from a community perspective, a sound participatory approach involves three main types of linkages: those with the local SRM representative, those with the SRM group, and those with external experts and third-party interests. In terms of interaction of community members with local SRM representatives, Vuntut Gwitchin experts made strong statements about local people feeling *divorced from decision-making* or *kept in the dark*. They expressed suspicion, distrust, and disappointment concerning local representation. They advised that many community members do not understand the meaning, purpose, and implications of SRM. For example, one Delphi expert explained: *A lot of times decisions are made behind closed doors. All of a sudden, it comes out over the air and people get frustrated. Then nothing works. You have to come to an agreement together and be sure everybody is clear and good with what is being agreed upon.* Vuntut Gwitchin experts identified a need to increase internal transparency, accountability, and communication. SRM partners should provide support for local representatives in seeking community participation; for example, financial support (including follow-up per diems, honorariums for local experts, gas money to travel to sites under consideration, or funds to cover the cost of soup-and-bannock at community information

sessions) could be provided for representatives to debrief, consult with, and receive input from the community.

The second linkage in a participatory approach involves the interaction of community members with the SRM body itself. Relying on local representatives is insufficient to achieve participatory SRM. An expert indicated: *It is unwise for community representatives to be the sole receivers and transmitters of community input.* SRM groups should interact directly with the community, encouraging regular dialogue and information exchange through public meetings, open houses, and hosted events. Exposure to the SRM group prevents misinformation and demystifies the process of SRM for community members. Likewise, Witty (1994) and Wolfe-Keddie (1994) resolved that affected people must see tangible, positive change based on their input or they will remain sceptical of SRM.

The third linkage involves the interaction of the local community with 'outside' communities, including external experts and stakeholders. In the north Yukon, this might involve neighbouring communities such as Ft. McPherson, Inuvik or Ft. Yukon, the territory-wide general public, government agency experts such as biologists and planners, academics, oil and gas industry representatives, or non-governmental organisation staff such as environmentalists or lobbyists. Delphi experts felt that forming networks with external experts lends community interests and information additional weight and credibility. External groups can also be great allies in achieving and supporting tough SRM decisions. For example, Ahmed et al. (1997) demonstrated that community partnership with NGO's provided needed institutional, organisational, financial, and technical support for Bangladeshi fishers. Without this strong support, they concluded that the local poor would have failed to realise their social, economic, and conservation objectives.

Some Delphi experts continued to see the involvement of *outside actors* as secondary and these interests as subservient to those of government and the First Nation. However, others recognised that decisions made at the local level may impinge on wider needs. In this situation, when decision-making is complex and decisions have broad effects, it is necessary to incorporate other actors into the decision-making process. Other researchers have also determined that in the long-term, SRM initiatives must be open and support third-party consultations and public awareness raising (Vasoo, 1991; Wells, 1991; Witty, 1994; Abbott, 1995). Involvement of the public and third-parties does not require that SRM groups acquiesce to incompatible interests. Rather, it is a mechanism to make the process more transparent, to disseminate information, to replace fear with certainty, and to broaden the base of input into SRM.

5.5.2 SRM Partnerships

Aboriginal and non-Aboriginal groups approach the central questions of SRM with viewpoints arising from widely different backgrounds. It is difficult to forge a system of shared resource decision-making given such plurality of values, experiences, beliefs, and knowledge. The present study addressed the development of effective SRM partnerships by outlining challenges and solutions to the development of cross-cultural understanding, by generating guiding principles for effective SRM, and by developing operational ground rules for SRM groups (Table 4.21; Table 4.22; Table 4.25; Table 4.26). These approaches are described below.

5.5.2.1 Cross-Cultural Understanding

Cross-Cultural Understanding - Section Overview

- Current failures of SRM, in part, are founded on limited cross-cultural understanding and a system maladapted to accommodate diverse cultural characteristics.
- Stereotypes, racism, and pre-determined views about how and what other people think based on racial or cultural characteristics prevent relationship building. Assumptions of superiority and dismissiveness related to the validity of alternate knowledge and belief systems impede SRM efforts. Limited cross-cultural exposure is a key barrier and results in conflicts between the meaning of terms, concepts, observations, explanations, and behaviours. Mistrust, cynicism, and narrow-mindedness resulting from a long history of conflict, competition, and abuse of power prevent the development of new, positive connections between Aboriginal and non-Aboriginal people. External constraints such as time pressures, budget restrictions, distance barriers, workloads, inadequate communication infrastructure, and bureaucratic inertia prevent the advancement of cross-cultural understanding.
- Developing cross-cultural understanding is critical to successful SRM.
- Developing cross-cultural understanding requires significant time and resources because it involves basic changes in people's attitude and outlook, as well as the acquisition of new skills and knowledge. A five-part process of awareness raising was recommended to develop SRM members' understanding of self, their sponsoring organisations, and others, and to transmit that learning to communities and agencies. Bringing Aboriginal and western cultures together is a difficult process that requires cultural translators - accomplished facilitators and representatives with special skills. People need to freely communicate their cultural perspectives and value systems and listen to those of others. Establishing trust, learning through direct experience, and training and collaborative educational activities are also important tools to enhance cross-cultural understanding and transfer skills.

Delphi experts believed that an essential step in the development of SRM partnerships was the development of mutual awareness and respect among Vuntut Gwitchin and government resource managers. The following discussion examines factors that experts felt both hindered and cultivated cross-cultural understanding between Vuntut Gwitchin and government agency resource managers.

5.5.2.1.1 Impediments to Cross-Cultural Understanding

Resource managers around the world are finding that conservation is more effective when it includes diverse interests (Western, 1989; Western & Wright, 1994; Freeman, 1997). SRM aims to achieve fairness and long-term sustainability in the use and conservation of resources, mutual respect for different ideologies about human-environment relations, and integration of different systems of knowledge into decision-making processes (Berkes, 1994; Western & Wright, 1994). These goals are difficult to achieve. SRM partners must learn to recognise, accept, and integrate the values and perspectives of other resource users (Witty, 1994). They need to recognise the individual strengths and complementarity of state and Aboriginal systems for managing resources (Berkes et al., 1991; Hawkes, 1995; Morgan & Henry, 1996), to overcome linguistic barriers (Gallagher, 1988), and to commit to learning and innovation (Osherenko, 1988a; Dale, 1989; Huntington, 1991). Several factors that experts identified as contributors to the cultural divide between Vuntut Gwitchin, territorial government, and federal government SRM partners are discussed below.

5.5.2.1.1.1 Stereotypes

Delphi experts indicated that SRM participants often come to the table with pre-determined views and assumptions about how and what other people think based on their racial characteristics or cultural heritage: *A lot of prejudice has been handed down from [one] generation to the next and often times we go into these consultations with a biased mind.* Robinson and Kassam (1998) suggested that SRM may be impaired by racist agendas directed against First Nations people. However, Delphi experts were careful to point out that both

Aboriginal and non-Aboriginal people can exhibit negative attitudes and stereotypic judgements about *the characteristics of the other*.

5.5.2.1.1.2 Superiority and Dismissiveness

The present research found that belief in the inherent superiority of one's culture or way of thinking detracts from SRM. Aboriginal and non-Aboriginal people often fail to acknowledge and appreciate each other's knowledge, practices, and beliefs. For instance, a government expert indicated: *There are many examples of First Nations' leaders who make general statements about how disrespectful non-Aboriginal managers are towards wildlife*. This echoes Johnson's (1992) contention that Aboriginal communities often view western resource management practices as misguided and wildlife managers as disrespectful of animals, and Osherenko's (1988a) observation that Aboriginal communities often reject licenses, fees, reporting, individual or seasonal limits, and gear restrictions. Other scholars determined that Aboriginal people often do not appreciate the jurisdictional complexity, the unprecedented global changes, or the commercial, sport, and non-renewable resource interests with which governments may contend (Murphree, 1993b; Dyer & McGoodwin, 1994).

Delphi experts also reported that TEKMS are often discredited in SRM. The literature records the dismissal of TEKMS as anecdotal, non-quantitative, non-ecological, narrowly pragmatic, irrational, unsubstantiated or in the process of disappearing (Wolfe, Bechard, Cizek, & Cole, 1992; Berkes, 1999; Sherry & Myers, in press). Dismissiveness reflects a lack of understanding (e.g., of scientific methods or spiritual beliefs) and prevents people from appreciating others' views and values.

5.5.2.1.1.3 Limited Exposure

Analysis of results in the present study revealed that limited exposure to other cultures is an underlying cause of cross-cultural misunderstanding. Several Delphi experts attested that *many people involved in resource management issues [still] lack empathy with other cultural values and traditions*. Delphi participants noted differences between those who have been academically trained and those who have been traditionally educated, namely their different relationships with the land. As one Delphi expert described: *First Nation values and teachings involve being part of the land and the plants and the animals. This is in contrast with typical non-native attitudes of dominance over the land and resources which are there to be exploited*. For Vuntut Gwitchin experts in this study, the land was a source of self-identification, distinctiveness, rights, and culture. Vuntut Gwitchin were exposed to the land and its inhabitants in close and personal ways all their lives (e.g., subsistence harvesting, travelling, camping, or spiritual experiences). Alternately, many non-Aboriginal resource managers lacked this consistent, direct exposure, and focused primarily on the land as a source of goods and services. Limited cross-cultural exposure can lead to misinterpretation and conflict.

5.5.2.1.1.4 Mistrust

Fear, cynicism, and narrow-mindedness are legacies of a history of racial tension. Relationships between First Nations and government have long endured antagonistic and confrontational conditions (Notzke, 1994). Erasmus and Ensign (1991:15) concluded that Aboriginal communities' negative experience with outsiders has resulted in "an attitude of suspicion and distrust against whatever and [whoever] is on that 'outside'." In some cases, experts

explained, cynicism is so prevalent that communities and stakeholders are unwilling to work with government.

This study found that failure to openly share resource information has contributed to mistrust. For instance, Delphi experts reported that for many years the Yukon government withheld non-resident harvest information from First Nations. Consequently, First Nations are reluctant today to share their harvest information with government biologists. Government Delphi experts attributed mistrust to *differences between what people say and what they do with respect to valuable resource* information; for instance, *First Nations withhold traditional knowledge from the Yukon government, and yet, they want traditional knowledge to be considered in the development of government programs and policies.*

5.5.2.1.1.5 Abuse of Power

The development of cross-cultural understanding is linked to questions of power (Usher, 1986; Feit, 1988; Berkes et al., 1991; Hawkes, 1995). Results of the present research indicated that past abuses of power by centralised resource management agencies seriously challenge the creation of SRM today. Experts indicated that these abuses have contributed to the breakdown of Aboriginal culture and include appropriation of local authority and responsibility, control of resource access, disruption of social systems that defined property rights, stewardship responsibilities, and community obligations, and interference with inter-generational patterns of education and information transmission. For example, some government agencies have a long history of denying the hunting rights of Aboriginal people. One senior government expert explained: *For many years, Parks Canada staff told Aboriginal people that they could not hunt in Kluane Park and Yukon government staff told Aboriginal people they could not hunt within*

the Dempster Highway corridor. Neither of these had any basis in law and were more likely based on non-Aboriginal cultural values. Government experts also suggested that territorial and federal governments find it difficult to shift power and authority into First Nation communities while still maintaining their legitimacy. Delphi experts discussed numerous instances in Yukon where personal, private, or government interests co-opt the SRM process. For instance, a Vuntut Gwitchin Delphi expert said: *Co-operation is so hard to get today because everybody is so greedy, looking where they are going to try to make a profit or get their uncle an extra job. It's the same with the First Nation.* Predetermined process and outcomes were identified as serious obstacles to SRM efforts as well as the equivocal, secretive atmosphere that persists in some areas of resource decision-making: *I think there has been a lot of heavy handedness and things going on behind closed doors. A sort of black box where things are decided in Ottawa or here in Whitehorse.* Other researchers have also documented relationships between Aboriginal and non-Aboriginal resource managers that are strained by resistance to change, co-option, and unjust distribution of authority (Usher, 1987; Notzke, 1995).

5.5.2.1.1.6 External Constraints

Inequities in resources and capacity among SRM partners were found to impede SRM. Time constraints, budget restrictions, and distance barriers prevent different groups from taking part equitably in the development of shared initiatives. Relationships are also weakened by workload demands, travel costs, and inadequate communication infrastructure. Delphi experts asserted that lack of capacity prevents genuine sharing of self and culture, and diminishes opportunities for cross-cultural understanding. For example, meetings are often hurried, dominated by formal, business-like interactions, with little time for socialising or *spending time together, getting to*

know each other, or establishing friendships, all of which are important to lasting relationships.

Likewise, Poffenberger (1990b) in a case study of forest co-management in Indonesia concluded that the cross-cultural learning of the Outer Island Working Group was greatly constrained by logistical problems related to travel and long distance communication.

According to government experts, government policies, procedures, and legal interpretations *can strain relationships and hamper the efforts of operational personnel to cultivate good relationships with [First Nations]*. For instance, because government decision-makers are not directly involved in SRM, cross-cultural understanding often does not reach a decision-making level. Chambers (1999) also found that the compartmentalised, hierarchical nature of many government management agencies inhibits the ability of government staff to effect internal institutional change. Similarly, strained financially and overwhelmed by communication and co-ordination responsibilities, Aboriginal representatives may also fail to translate their new cross-cultural awareness to local decision-makers.

5.5.2.1.2 Cultivation of Cross-Cultural Understanding

Although there are many obstacles to overcome, Delphi experts considered cross-cultural understanding to be at the core of successful SRM. Dale (1989:54) also expressed this belief for, without cross-cultural understanding, discourse cannot proceed because "the essential elements upon which communication among contending actors is based are missing." Cross-cultural understanding can help to correct deeply embedded patterns of conflict and competition by engendering trust, respect and mutual acceptance (AINA, 1995; Chambers, 1999). The Delphi process identified several approaches for narrowing the cultural divide separating Aboriginal and non-Aboriginal SRM participants; these are explained in the following sections.

5.5.2.1.2.1 Developing Awareness

According to Delphi experts, *the underlying cause of flawed SRM decision-making comes from lack of knowledge of different cultures, traditions, and beliefs*. Developing awareness is essential before groups can co-operate in SRM. This is a long-term process involving basic changes in people's attitudes and perspectives, and the acquisition of new skills and knowledge. SRM participants require time to interact and develop connections between themselves and support staff before tackling tough and divisive resource management issues. External factors that prevent actors from engaging in cross-cultural learning must also be addressed. For example, Delphi participants suggested pooling resources and lobbying governments for additional funding or addressing the disconnection of decision-makers from SRM issues through cross-cultural training and visits to the SRM area.

The present study determined that a five-part process of awareness-raising can foster cross-cultural understanding. This begins with individuals taking stock of themselves, thinking about their personal biases, identifying their motives for involvement in SRM, developing an ability to question personal assumptions, and accepting responsibility for actions that may create cultural barriers. Representatives next need to understand the mandate, philosophy, and interests of their own organisation or community with respect to SRM. Delphi experts noted that mistakes of the past can carry over into new SRM regimes. Before new work is undertaken, parties need to attempt to dispel the ignorance and lack of good will that led to former errors and misunderstandings. Erasmus and Ensign (1991) also pointed out the importance of learning the history of agency-community interactions.

Third, stakeholders need to get to know each other through background research that includes accessing available sources of information, talking informally to each other, and, most

importantly, listening. Representatives should attempt to learn as much as possible about how their own culture differs from others, and how that gives rise to a particular way of viewing self and others (Hintz, 2001). Vuntut Gwitchin experts indicated that getting to know them entails learning about their history and pre-history, self-government, land claim settlements, traditional management systems, genealogies, different family territories, and local cultural norms and protocols. Learning the proper titles for community leaders, basic greetings in the local language, local place names and their pronunciation, Gwitchin species names, and the names of different local government departments conveys sincerity and interest. Spending time with Elders and knowledgeable community members is *a special way of getting to know the Vuntut Gwitchin*. These highly respected and valued people are eager to talk about life long ago, core cultural beliefs, and concerns for the future. As one Elder remarked: *Whatever we are gifted for, we have to share it. Doesn't matter another community, another culture. You have got to share. This is the only way we will get along - sharing your culture and sharing your gifts*. Government experts suggested Vuntut Gwitchin could learn about their educational, professional, personal, and family backgrounds, could gain a basic understanding of how scientific knowledge is generated and used, and could develop familiarity with existing territorial and federal government structures, as well as the legislation, policies, regulations and enforcement measures pertaining to the resource under consideration. Looking at maps, talking to biologists and planners, reading non-technical background reports, and visiting government agencies were other avenues to facilitate understanding of government resource managers.

Experts recommended dedicating initial SRM meetings to *the sole purpose of getting acquainted*. Individuals and groups engaged in SRM need to communicate their various cultural perspectives and value systems; for example, partners need to understand how each group views

the land and what their preferred management approaches are. Representatives should attempt to uncover their similarities and differences. Erasmus and Ensign (1991:20) reported that "people can never know too much" and that relationship-building and cross-cultural learning are never-ending and crucial processes.

The final step in raising awareness identified by experts was for representatives to transmit new cross-cultural awareness to the organisations and communities participating in SRM. After deepening their appreciation of their own culture and the culture of their partners, representatives must act as agents of change and extend the learning process to their respective organisations. Indeed, as Dale (1989:51) maintained, "organisational learning depends entirely on what members learn individually." Fundamental changes to communities' or organisations' attitudes and behaviours may also require 'high profile' sponsors of a co-operative approach, an ability to reflect on events and act upon new awareness, and external forces of change (e.g., court battles or perceived resource threats) (Pinkerton, 1989). However, through the influence of respected representatives, key actors may become more committed to a new way of engaging in SRM.

5.5.2.1.2.2 Cultural Translators

SRM provides a fertile environment for what Poffenberger (1990a:104) called "learning-based change" -- discussions and experimentation occurring within a group setting that unites different perspectives, concerns, and needs, and results in attitude shifts and better management approaches. Highly motivated individuals within organisations drive this systematic change. Poffenberger (1990a:105) calls these people "key insiders." In the present research, the responsibility to build alliances among colleagues and to represent progress and change to the outside world was identified as the dual role of SRM representatives and facilitators. Experts

referred to *cultural translators* who could work to engage Aboriginal and government agency partners in cross-cultural learning. These people can keep the SRM process moving forward by acting as mediators, communicators, sensitisers, and teachers (Erasmus & Ensign, 1991).

5.5.2.1.2.3 Trust

Building dialogue can effect positive change in people's attitudes and alliances. A government expert in the Delphi project explained: *The essential part is coming to an understanding of what these resources mean to both parties. I've discovered it is important to have a discussion and talk about how people feel about the resources. There are some obvious conflicts between people who want to extract resources, use and profit from them, and others who want to protect them and keep them to themselves. But, in a lot of cases, I've found that those are perceived conflicts and that the ultimate end goals are very similar. The key is to have open discussion and communication.* Similarly, Wells (1994) reported that spending a year generating discourse among diverse participants in the Annapurna Conservation Area Project in Nepal resulted in a strong foundation for future joint initiatives. Keeping lines of communication open between a government agency and Aborigines in the co-management of Kakadu National Park in Australia prevented potential conflicts, created understanding of common needs and interests, and averted an us-versus-them mentality (Hill & Press, 1994).

Meaningful communication means that all participants have an opportunity to contribute in a safe and comfortable manner. This involves consideration of setting, discussion tools, language preferences, and communication styles. Delphi experts suggested that small working groups can provide for informal, intimate, and productive interactions. Alternative communication techniques, such as the Delphi process or the Nominal Group technique were also advocated.

These approaches allow representatives to *bring ideas, thoughts, and opinions to the table without any strings or labels attached and create opportunities for people to share and speak to each other in safe ways.*

There is no formula for establishing trust. In Delphi experts' view, trust begins with awareness. Participants should also focus on interpersonal skills, and be sensitive to the implications of words and actions. Behaviour should be guided by the reciprocal show of respect: *Treat others like you would like to be treated.* Trust builds in situations where there are no intentionally rude behaviours, where there is humour and people are relaxed, where there is active and reflective listening, and where there is recognition that other people's perspectives are valid and worthy of consideration. Palpable evidence of change will engender faith in people and the SRM process. As one Delphi expert noted: *Relationships are collectively [reinforced] through collaboration on a small number of achievements. The frequency and quality of these achievements is important in building trusting partnerships.* Trust will grow as participants realise the potential of SRM to effect change (Erasmus & Ensign, 1991; Pedersen, 1994; Strum, 1994). Delphi experts also suggested that regional SRM program and service delivery would be needed to engender communication and trust over the long-term. Decentralising management structures, integrating staff into community life, and opening new avenues of interaction can promote rapid progress in learning and acceptance. For example, one Delphi expert reported the success of regional biologists in the Yukon; he explained that the accessibility of these managers made science and research methods more understandable to local people and that regional staff came to be viewed as trusted advocates and experts in local issues.

5.5.2.1.2.4 "Getting Out on the River"

Delphi experts maintained that cross-cultural exposure is effective in breaking down barriers of ignorance and prejudice. Shared site visits to areas under SRM consideration (e.g., historic, cultural, or resource use sites) are helpful because *they provide opportunities for expressing values and knowledge and for experiencing the land together*. This engenders a visceral understanding of the land and resource issues, with the added benefit of fostering mutual understanding. Delphi experts advised, *sometimes in order to make a good decision and do the right thing, you got to see, feel, hear, and sometimes even taste what you are making decisions on*. This helps SRM participants assess local conditions (e.g., how development impacts the land; how guide-outfitter hunting is conducted; how an Aboriginal fish camp is run). This awareness can improve the quality of SRM decisions and outcomes. According to Vuntut Gwitchin experts, disconnection from the land has given rise to inappropriate, damaging resource decisions. A Vuntut Gwitchin expert summarised why people need to 'get out on the river': *Government people should come out and actually see the way we live, and live with us and talk about living out on the land and respecting it. When they come out and they see and they go back, they understand where we're coming from. And then, the final product is better for all people. It is better not only for people but also for all the other life, all the other animals, all the other fish, all the other birds. It's better for the ecosystem when there's an understanding. What really, really bothers me is these people that get elected, they become ministers and directors. They're making decisions. They make decisions on Vuntut Gwitchin lives. They make decisions on tracts of land they have never walked on, never seen. They don't see what is there. They don't see caribou there. They don't see the timber that's there. They don't see the special migration routes that are there. They don't see the fragile plant life that's on this tract of land. All they do is they*

make it on a map! Unfortunately, the cost of taking trips on the land may limit the number of participants. Alternatives include sharing experiences through photos, videos, or stories. Although Vuntut Gwitchin experts stressed that the surest way to promote cross-cultural understanding is for SRM partners to obtain first-hand knowledge of the land, the present study demonstrated that an anonymous, long-distance Delphi process can still improve cross-cultural communication.

Another important learning opportunity arises when SRM meetings are held in local communities and outside representatives can stay for several days and nights: *getting people together in a small community is a great way to increase everyone's level of comfort and trust.* However, Chambers (1983:210) warns against community or field visits turning into nothing more than "rural tourism." Beyond scheduled meetings, visitors should maximise the value of their trip by taking time to interact with and listen to local residents. Visiting Elders with a community representative and having tea, dropping in on the youth or friendship centre, taking opportunities to travel on the land and participate in subsistence activities, or accepting invitations to community events will demonstrate genuine interest and familiarise people with 'outsiders' identity and purpose.

5.5.2.1.2.5 Training

Training or collective educational activities are necessary to enhance cross-cultural understanding and to transfer skills. Warren (1998) found that regardless of background, gender, or age, SRM practitioners generally lack the skills and knowledge required for the development of cross-cultural awareness. Johnson and Ruttan (1993:31) concluded that training "can help both

groups recognise cultural biases and common misunderstandings and so resolve them through collaborative discussion."

Delphi experts recommended a training program that balances field and classroom activities, and includes Elders, scientists, and SRM experts as instructors. This mix of instructors can provide students with diverse knowledge and an authentic, credible learning environment. Delphi experts recommended that instruction should include observational and experiential learning opportunities. For instance, 'on the land' settings provide an excellent stimulus for discussion, demonstration, sharing, and listening (Baines, 1992; Fleming, 1992) as would staff exchanges and job shadowing programs. DeMello, Boothroyd, Matthew, & Sparrow (1994) and the Dene Cultural Institute (DCI) (1994) found that actively engaging participants in the learning process, and recognising and validating their experiences were critical in keeping people mentally and emotionally engaged in learning. Training should be provided on a variety of subjects. During this research, Vuntut Gwitchin experts expressed interest in familiarising themselves with the basic principles of ecology, resource management, qualitative research, and government institutions. Government experts wanted to learn about the foundations of Vuntut Gwitchin spiritual beliefs, local oral history, cultural traditions, the VGFN land claim agreement, and local governance structures. Both expert sub-groups wanted to learn about conflict resolution, communication techniques, community involvement processes, and negotiation skills. A project participant explained: *We need to learn on both sides. Indians need education on government processes and policies, and government people need training on Gwitchin lifestyles and traditions on the land.*

5.5.2.2 Guiding Principles for SRM

Guiding Principles for SRM - Section Overview

- Delphi experts recognised the need to develop guiding principles for SRM partnerships. These must be broad enough to encompass both Aboriginal and western components.
- Guiding principles provide a relatively non-controversial starting point for partnership and should be developed by consensus. Clearly articulating and formalising them in a memorandum of understanding or other culturally appropriate instrument will promote their acceptance and application
- Ten principles that underlie successful SRM were identified in the present study and pertain to: a group culture of co-operation; respect that occurs in three dimensions related to self, the SRM community, and the land; inclusion of diversity; sharing the benefits and responsibilities of SRM; equity in the SRM process; provision of meaningful communication opportunities; accountability to the resources and people involved in SRM; trust among SRM partners; listening actively, reflectively, and empathetically; and mutual support in making and upholding SRM decisions.

In negotiated agreements, the resultant programs and plans are only as good as the process that generated them (Borrini-Feyerabend et al., 2000). Investment in the SRM system is critical, including co-operative generation of principles to guide the activities of the SRM group (Pomeroy & Berkes, 1997). The task of developing guiding principles should be directed with a view to learning on the job and success should be measured against the scale and complexity of SRM goals (Lewis, 1993). Delphi experts outlined numerous factors that must be considered in the development of guiding principles for SRM.

Guiding principles are voluntary by nature and, as Delphi experts admitted, their enforcement is challenging. For example, in the case of small whale co-management in the eastern Arctic, Richard and Pike (1993) concluded that government's failure to adhere to agreed principles left Inuit hunters feeling disenfranchised, adversarial, and excluded from decision-making. This study also explicated two pre-conditions to kindling a true spirit of co-operation, respect, and

trust. SRM members must believe that partnership will produce positive results, and that benefits will exceed the costs of participating. Stakeholders must realise their mutual interdependence; everyone's ability to achieve desired outcomes is linked to the actions and inputs of all other parties. McCann (1983) and Gray (1985) also found that all entitled actors must be involved in the development of guiding principles and the legitimacy of their right and capacity to participate in the process acknowledged.

This present study determined that guiding principles for SRM must be broad enough to encompass elements of both Aboriginal and non-Aboriginal cultures. Because guidelines for SRM participants are culturally dependent, principles should not simply be developed by one party and sent out for review, or, worse, developed by selective parties to the exclusion of others. This approach places some partners at a disadvantage; from the outset they become respondents to, instead of meaningful participants in, SRM. Guidelines for partnership have typically failed to address participants' needs (Napoleon, 1992). Sometimes, as in the case of the James Bay Northern Quebec Agreement, Aboriginal participation in SRM has been directed by the dominant society with dramatically negative consequences (Berkes, 1989a; Nakashima, 1991; Ahmed et al., 1997).

Project members determined that principles for SRM partnership should be developed collaboratively -- in this case by the Vuntut Gwitchin, territorial government, and federal government -- and formally approved as part of SRM terms of reference. As a Vuntut Gwitchin expert said: *There are three main jurisdictions in the north Yukon. We all are not going to go away. ... We have to stress how important it is that we come together and we stay as partners.* In SRM situations, Delphi experts recommended that parties should formalise all major agreements between governments (e.g., operating procedures, contribution agreements, work plans and

schedules). This has emerged as an essential component in preventing misunderstanding, monitoring the implementation of agreements, and in reassuring participants that there are no hidden agendas (Johnston, 1999).

Analysis of the results of the Delphi process produced a set of guidelines for developing long term, cross-cultural partnerships (Table 4.25). These principles emphasised the need to work together and included: co-operation among SRM partners; respect for all SRM stakeholders; inclusion of diversity; sharing the benefits and responsibilities of SRM; providing an equitable working environment; providing meaningful communication opportunities; accountability of SRM representatives to the resources, communities, and governments involved in SRM; striving to engender trust among SRM partners; listening actively, reflectively, and empathetically to all viewpoints; and mutual support in making and upholding SRM decisions. Each principle is discussed below.

5.5.2.2.1 Co-operation

Delphi experts maintained that SRM should be guided by *a group culture of co-operation* that recognises diversity and the validity of individual interests, but respects the collective will of the group. White (1999b) explained that authentic participation in any organisation depends upon participants considering how their individual values, interests, and needs affect others. The literature also shows that co-operation is necessary for relationship building and consensus decision-making (Pinkerton, 1993).

Delphi experts explained that the major expected outcome of co-operation is the growth of social capital. White (1999a) describes this as networks of communication and partnership that facilitate trust and reciprocal collaboration. Co-operation enables SRM members to freely share

knowledge, willingly supply resources, and dedicate themselves to learning and capacity building. Experts suggested reaffirming the meaning of co-operation as partnership progresses in order to renew understanding of why each partner is involved, to critically reflect on the development of partnership, and to identify areas for improvement. Through co-operation, people can come to fully understand how to blend their diversity and to construct a unique SRM organisation (White, 1999a).

5.5.2.2.2 Respect

All Delphi experts agreed that respect is fundamental to effective SRM. Despite careful analysis, the information presented here may inadequately convey the multidimensional, richly layered concept of respect as intended by experts. Respect is conveyed in many ways, often intangible. As an Elder advised: *Others must know and feel your respect.*

Jostad, McAvoy, & McDonald (1996) discussed a framework that can aid understanding of the principle of respect as presented by Delphi participants. The framework includes three circles of relationship: respect for self, respect for the group or community, and respect for the earth. At the centre of SRM relations is respect for self. A project Elder explained: *Respect yourself first and you will learn to show proper yinjigwihile [respect] for others.* This is consistent with Shenandoah's (1992:22) conclusion that each individual is responsible for the "sacred space within and around them." Delphi participants suggested that self-respect is demonstrated by each individual assuming a supportive and humble place in the SRM system, observing guidelines and procedures, making productive personal contributions, demonstrating willingness to grow and change, and upholding the spirit of partnership.

The second circle of respect encompasses the SRM group and the local community. A sense of responsibility to and respect for others involved in the management process was voiced throughout this research: *One of the important things is to have respect for one another. Act in a decent manner, your speech, your manners, and your work. Anything disrespectful or negative that happens always deteriorates relationships.* Whether partners agree on basic values or are in strong opposition, whether old personal animosities exist or relationships are convivial, people need to respect each other. In the words of one Delphi expert: *You need to respect the knowledge and experience a person brings to the table. You might not like all of the people that you work with. You may not agree with them. But, you have to have respect.* An individual's failure to respect others can lead to an accompanying disrespect for his or her interests and ideas. According to Delphi experts, a reciprocal show of respect is necessary to reach enduring decisions. The concept of respect in SRM was also discussed in the past tense; people felt respected when management outcomes reflected their input and fulfilled their expectations. Respect is evident when collaboration becomes the norm, irrespective of formal guidelines and rules, and when the group feels a shared responsibility for effectively managing resources. Vuntut Gwitchin experts also discussed the importance of demonstrating respect for the community, including living members, ancestors, and future generations. This was described as a commitment to honouring a shared value and belief systems, and to *sustaining the legacy of ancestors.*

Vuntut Gwitchin experts' concept of respect extended to the third circle of the framework, a profound reverence and respect for the land, plants, and animals. A traditional hunter explained: *I'm just part of the land. That's where I came from. We are all derived from the land. We are born of our country. That's why we are called Vuntut Gwitchin or 'people of the lakes'. The land*

to me means life. It means home. It means my children. You have to be there. You have to see it. You have to live it to actually understand. It's hard to put into words and I'm not sure if there are even English words to explain. We are all on equal standing. I'm just the same as the raven. I'm just the same as the bears. I'm just the same as the caribou. We're all equal on the land. We all belong together. We all show respect. We all need to share. The Vuntut Gwitchin are part of that cycle and part of that life. Another Vuntut Gwitchin expert described her deep connections with the land that inspire respect: We call the land Mother Earth. She provides for us the medicine, the berries, the caribou, the fish, the stable foundation when we're camping. She holds a very big part of our lives because she provides so much for us. What we take from the land we give back. We take care and we show respect. My ancestral and family connections to the land are also very powerful for me. The land is sacred because we are stepping in our grandfather's and grandmother's footsteps. Sacred, that is another word for respect.

Vuntut Gwitchin experts explained that respect for the land obligates them, individually and collectively, to act responsibly for the benefit of future generations. For example, Vuntut Gwitchin have detailed customary rules for showing respect and propitiation (Slobodin, 1962; Balikci, 1963; Cruikshank, 1974; Sherry & Myers, in press). These customs include covering up blood on the landscape, returning bones and carcasses to the original environment, making prayers before butchering, and respecting the meat through careful handling procedures; otherwise, animals will avoid giving themselves for harvest (Sherry & VGFN, 1999). Plants are also viewed as gifts from the Creator, not to be overexploited or misused. Acknowledging the power of plants, giving personal gifts of special foods, or matches and tobacco, and offering prayers and words of praise after picking, all help to maintain balanced relations, ensuring the continued availability and quality of plant resources (Sherry & VGFN, 1999). Thus, in the

Vuntut Gwitchin worldview, respectful human conduct is a key determinant of sustainability. Violations lead to sanctions imposed by the community in the form of gossip, ridicule, or re-education, and more powerfully, by the "conscious forces of the environment" (Osgood, 1936; Nelson 1983:27). For example, failure to respect the land can result in a physical event such as a severe rainstorm.

5.5.2.2.3 Inclusiveness

The SRM working environment should be inclusive of diversity. Inclusiveness can be assured by identifying all legitimate stakeholders, rotating the location of meetings between different communities and agencies, sharing the costs of travelling, providing logistical or organisational support, using TEKMS and SBRMS in decision-making, including Elders and scientists, and assisting SRM capacity building through education, training, and employment initiatives. Delphi experts maintained that a balanced SRM approach recognises diverse material, spiritual, and cultural values as well as intrinsic values related to the environment, and that successful SRM groups utilise elements of both Aboriginal and non-Aboriginal ways of working. For example, local customs and protocols should be evident in the operation of SRM and communication should respect the use of both English and Gwich'in. The incorporation of diversity into the management process can positively affect how problems are perceived, what types of information are gathered, and the nature and range of possible outcomes (Jostad et al., 1996). Several influential international documents published in the last decade assert that management should be inclusive and incorporate the vision, knowledge, beliefs, and practices of all people who have a strong relationship with the management area (World Commission on

Environment and Development (WCED), 1987; International Union for the Conservation of Nature (IUCN), 1991; Borrini-Feyerabend, 1996; Posey, 1996; Taiepa et al., 1997).

5.5.2.2.4 Sharing

Vuntut Gwitchin Delphi experts explained that *chyirzi* (sharing or generosity) is a cornerstone of human relations. This central principle knits people together, reinforces social and kinship ties, ensures survival, and maintains goodwill (Vanstone, 1974; Slobodin, 1981; Napoleon, 1992). In the context of SRM, it relates to the sharing of SRM benefits and responsibilities. Delphi experts explained that SRM participants often fear co-option by either local users or government managers. Thus, from the outset each party must share its view of the management history and context; its needs, interests, and issues; its available information and resources; and its vision for the future (Carpenter & Kennedy, 1988).

Yet, in the present study, the concept of information sharing gave rise to concerns over the misuse of knowledge. While many First Nations are not proprietary about their traditional knowledge, revealing it does relinquish a degree of control. Knowledge is a component of power and Vuntut Gwitchin experts worried its disclosure might allow competitors to profit at the expense of local communities or, as Johannes (1992) indicated in a study of environmental impact assessment, may allow development aided by expropriated traditional knowledge to damage or restrict traditional life ways. Likewise, government experts discussed the abuse of scientific knowledge by non-scientists who use it selectively to support vested interests or to validate traditional perspectives when, in fact, these values cannot be explained empirically. Thus, the principle of sharing relies heavily on retention of control over the ownership, use, and interpretation of information.

5.5.2.2.5 Equity

Many Delphi experts emphasised that it is *critical to work in a fair and equitable way with colleagues by ensuring that all views are expressed and seriously considered*. Fairness prohibits discrimination on the basis of individual differences (e.g., culture, gender, age, status, power, religion, appearance). Delphi experts suggested discrimination could be prevented by selecting appropriate places, times, formats, and languages to conduct meetings; ensuring unbiased facilitation and conflict mediation; using alternative participatory techniques; striving for consensus in decision-making; ensuring the enforcement of SRM principles, procedures and rules; and, allowing for review and modification of SRM agreements and plans. A project Elder explained fairness in this way: *You are not to listen only to good people. There is no such thing as a bad person. He only made a mistake. Even then you still listen to them.*

5.5.2.2.6 Meaningful Communication

This study found that SRM members must be dedicated to communication that generates a continuous flow of information among SRM partners and groups, as well as among outside institutions, communities, and stakeholders. Effective communication is required on three levels to foster broad discussion of SRM issues throughout all decision-making phases: communication with constituents, communication among SRM partners, and communication with stakeholders not directly party to the process such as regional communities, non-governmental agencies, industry, and public user groups. Such communication opportunities should both raise awareness and solicit feedback on the performance, results, and impacts of SRM. Interactive communication can promote continuous revision and improvement of the management process,

enhance problem solving, and strengthen the links between resource-related entitlements and responsibilities (Borrini-Feyerabend et al., 2000).

5.5.2.2.7 Accountability

As discussed in detail in section 5.5.1.1, SRM representatives must be accountable to the resource(s) under consideration and the involved communities and government agencies. SRM partners should establish systems of accountability founded on internal norms and expectations. They must view themselves as responsible for the success of the process and constantly strive to make it more workable.

5.5.2.2.8 Trust

Each representative should strive to engender trust from both the groups they represent and other SRM partners. Trust is fostered when members deliver on promises made. Trust is inspired when representatives can manage to *leave their hat at the door* and *let go of status quo roles and responsibilities as individuals or departments*. Trust arises from valuing and supporting the development of all SRM group members. Delphi experts suggested that a commitment to innovation and risk-taking in order to realise shared goals is the ultimate display of trust. They recommended an SRM group should also strive to be well trusted by the public, other resource management institutions, and concerned stakeholders. Taiepa et al. (1997) found trust was a basic precondition for co-management in a cross-cultural setting involving Maori and Pakeha (European descendants) in New Zealand.

5.5.2.2.9 Listening

Delphi experts emphasised that SRM members need to learn to listen. For instance, one project participant admitted his inability to listen to Elders: *I get frustrated hearing stories and [know] I don't realise the extreme benefit in the information [provided]. When [Elders] finally get the chance to speak in meetings, there is a pause and then the conversation continues as if they had never spoken.* Delphi experts suggested that SRM members should ask important questions, request clarification, and seek elaboration on people's reasoning and assumptions, especially in a bicultural setting. This includes the use of active listening techniques such as paraphrasing (e.g., I think you just told me that... Is that right?), 'dumb' questions (e.g., asking about the 'obvious'), and perception-checking responses (e.g., You look worried. Are you?). Delphi experts felt that listening entailed more than monitoring the verbal aspects of a discussion; it also required attention to non-verbal elements. One Delphi expert called this *tuning-in*. Delphi experts maintained emotional involvement has the potential to intensify dialogue and to stimulate trust. Careful listening can enhance learning about other people's experiences, which can trigger new ways of thinking and doing (Lees & Ohja, 1999). Elders proposed that understanding the function and character of listening in Vuntut Gwitchin culture can provide valuable lessons for shared resource managers: *Long time ago, all the people talked to you. They passed on their knowledge for future use, so we could live good lives. ... They know just what to do. This is learning together. When there is listening, there is dinjii gatroonahtan. That means teaching. Then lots of good things happen. Nowadays, people don't do that. Just white man ways. That's why it is so hard.* St. Anne (1999) also found that supportive, active listening is vital to the development of genuine understanding, and that resonant, empathic listening is basic to an accurate assessment of how others think and feel.

5.5.2.2.10 Mutual Support

Results of the present study indicated that all partners must take responsibility for SRM decisions, not just individual members. Experts maintained that without a united front, co-operative relations would fracture and individual interests would dominate SRM decision-making. In their view, SRM decisions should be adopted by consensus and supported even when partners are away from the table. This solidarity and active safeguarding of the process are crucial. Unanimous group support of SRM decisions can increase public confidence, raise awareness about management issues, and improve cohesiveness of the management team. Mutual support also influences how members deal with problems. Delphi experts recommended that concerns about the SRM process, management decisions, or outcomes should be brought to the SRM group and dealt with internally; backbiting and operating outside the process should be strictly avoided and SRM participants should agree to deal with problems at the SRM level and not to escalate to a political level. Consequently, SRM members should agree at the beginning of a process how to deal with ineffective representatives (e.g., addressing concerns to the facilitator for remedial action, rather than complaining to politicians). Results also show that mutual support involves respecting the confidentiality of the group (e.g., members should not approach the media unless authorised by the SRM group).

5.5.2.3 Operating Procedures and Ground Rules

Operating Procedures and Ground Rules - Section Overview

- Operating procedures and ground rules were considered necessary to structure interactions among SRM participants and to direct the operation of the SRM group. They can create a working environment that provides for mental engagement, emotional support, physical affirmation, and spiritual involvement.

The procedures and ground rules guiding SRM meetings are key in determining how participants interact, exchange information, solve problems, and make decisions. Delphi experts suggested that procedures and ground rules are required to accomplish the principles espoused in section 5.5.2.2 and should be designed with an awareness of cultural and individual needs. Further, it was suggested that parties should reserve the right to alter working relations as partnership progresses and new needs arise. Crowfoot and Wondolleck (1990), Kofinas and Griggs (1996), and Ristock and Pennell (1996) also concluded that participant control over SRM operations keeps parties engaged.

A useful construct for organising thinking about SRM procedures and ground rules is the Medicine Wheel, a worldview shared by many Vuntut Gwitchin. The Four Worlds Development Project (1985) and DeMello et al. (1994) explained this philosophy in terms of the four aspects of the self (mental, emotional, physical, and spiritual) and that every person has needs emerging from each aspect. The general procedures and ground rules proposed by Delphi experts are explored below and reflect needs in these four dimensions including a mentally engaging process (one that stimulates creativity, involvement, and interest), an emotionally supportive environment, a physically affirming context, and a spiritually involving atmosphere.

5.5.2.3.1 Mentally Engaging Process

5.5.2.3.1.1 Be Prepared

The present study found that active and informed participation requires members to complete background work prior to meetings. Such preparation requires resources such as funds to offset the costs of consulting with stakeholders, access to a resource library, maps, or other media, and technical or administrative support.

5.5.2.3.1.2 Attend Faithfully

Experts concluded that steady attendance by representatives is crucial. Although participation is voluntary, attendance is indicative of participants' interest level. It was commonly expressed that members need to show up on time and in a sober state: *If you do not have a clear and fresh mind, if you are not focused on the issues at hand, you are of no use to the group.* The SRM group also needs to determine what percentage of representatives should be present for meetings and whether or not to allow alternates to participate when designated representatives are absent.

5.5.2.3.1.3 Distribute an Agenda

An agenda keeps discussion focused and promotes good working relationships. Experts suggested that the agenda should be prepared ahead of time by the facilitator, chairperson, or administrative support staff, should lay out the available time and discussion items, and should be distributed with a request for additions or changes. Circulating the agenda ahead of time will allow members to thoroughly prepare.

5.5.2.3.1.4 Engage in Critical Reflection

According to Delphi experts, mental engagement necessitates time and opportunity to listen and reflect on others' ideas. Discussion of key issues should span more than one meeting, so representatives have time to research and review the topics under consideration. The use of decision-making tools that promote structured thinking, reflection, and the creative exploration of options should also be encouraged. Borrini-Feyerabend et al. (2000) reported that exercises, including structured brainstorming, problem analysis, conceptual frameworks, or SWOT (strengths/weaknesses/opportunities/threats) analysis were effective tools for stimulating group thinking.

5.5.2.3.1.5 Use Culturally Appropriate Communication Tools

Results of the present study demonstrated that communication processes work best when the needs of participants are respected and participants are comfortable with the methods used. Many Vuntut Gwitchin experts advocated experimentation with communication tools and recommended against forums that encourage public debate since individual opinions are greatly respected in the Gwitchin culture. Delphi experts indicated that graphic and visual displays can add interest and relevance at the community level (e.g., photos, cartoons, videos, props, and maps) and that complex information should be presented in simple and concise ways. Finally, this study found that SRM members should discuss communication rules to surface subtle cultural differences in how information is exchanged and how people interact with each other while speaking. Confusion on these points can create misunderstandings and tension between SRM representatives (Scollon & Scollon, 1980; Morrow & Hensel, 1992).

5.5.2.3.1.6 Ensure the Use of Aboriginal Languages

Experts maintained that translation and interpretation services should be offered at every meeting to improve communication and community involvement. Elders can more easily convey sophisticated cultural concepts through their first language, and Aboriginal language use in SRM can reinforce cultural norms and address the dissolution of Aboriginal knowledge.

5.5.2.3.1.7 Solicit the Involvement of Outside Experts

Delphi experts suggested that, as a rule of thumb, the SRM group should invite expert opinion (traditional and technical) on controversial issues. Diverse input allows problems to be viewed with new meaning (Arnold, 1991; DeMello et al., 1994). The opinions of experts may themselves conflict and an SRM group is not obligated to follow expert advice. However, at minimum, outside input can encourage informed decision-making and maintain the participatory focus of management.

5.5.2.3.2 Emotionally Supportive Environment

5.5.2.3.2.1 Take Time to Conduct SRM

The process of SRM requires ample time to establish respect and trust, facilitate the expression of values and fears, and generate co-operation and dialogue (Erasmus & Ensign, 1991). Vuntut Gwitchin Delphi experts suggested that government representatives err in imposing time constraints and in focusing on end results. Numerous other researchers have documented the same failing (Hutchinson, 1985; Langin & Ensign, 1988; Kowalsky, Verhoef, Thurston, & Rutherford, 1996). While outcomes are important, the process mattered most to Vuntut Gwitchin experts. For example, allowing time to listen to oral tradition which adheres to

no strict schedule. According to experts, a direct *let's get down to business and get it over approach usually intimidates and overwhelms people*. Cases concerning coastal SRM in the Philippines, mangrove co-management in St. Lucia, and community-based fisheries in Turkey all reinforce this view (Berkes, 1986; Smith & Berkes, 1993; Carlos & Pomeroy, 1996). Researchers demonstrated that partnerships and institutions take 3–15 years to fully establish themselves.

5.5.2.3.2.2 Have Fun Together

Delphi experts asked: *If you don't associate with others outside of work, how do you learn about each other?* They recommended that SRM participants *enjoy each other outside of the workplace and have fun and socialise between the cultures*. Results revealed there is often an over-reliance on large, formal SRM group processes. Experts maintained that individuals and agencies can better learn to work together by undertaking, *small group activities where people discuss perspectives on family and life situations* and by scheduling time into the work calendar for enjoyable pursuits and informal socialising. These steps should assist SRM groups feel more familiar and cohesive. Delphi experts felt SRM representatives should take advantage of occasions to interact such as participation in community events, an invitation to someone's home for dinner, or a trip onto the land. Delphi experts identified humour as another integral element of SRM. As Vuntut Gwitchin Delphi experts explained: *When SRM representatives find themselves laughing about tall tales from nature, inside jokes, or the gullibility of city people, they should note its significance*. Quiet politeness may seem normal to the newcomer but, when humour does occur, it signifies that relationships are reaching a new level of trust and ease (Kowalsky et al., 1996).

5.5.2.3.2.3 Be Yourself

Delphi experts advised representatives to *act natural*; yet, considerations of how to do this were beyond the scope of the present study. Erasmus and Ensign (1991:41) counselled people working in Aboriginal communities to "be who you are; be human, not a role." Delphi experts emphasised people can sense insincerity and role-playing. To develop a group identity and sense of belonging, an SRM body could create symbols and images that represent their SRM regime. For example, hats, mugs, or jackets carrying a logo that signifies the SRM partnership could create a sense of group cohesion. Taiepa et al. (1997) reported that a logo -- the Kereu, a spiritually significant and endangered bird -- successfully illustrated the potential for partnerships and bridge building between Maori and European cultures. Kofinas (1998) described the success of caribou paraphernalia developed by the Porcupine Caribou Management Board. Similarly, experts in this research described the Delphi project logo as a potent symbol for the opportunities and responsibilities presented by the study.

5.5.2.3.2.4 Be Sensitive

The present study revealed the importance of sensitivity to the implications of words (e.g., negative stereotypes or technical terms) and actions (e.g., interrupting, eye contact, shaking hands). Experts suggested partners should consider how to incorporate local protocols and customary norms into the SRM process; for example, acceptable ways of approaching Elders; appropriate methods for remunerating local experts; dress codes for certain events; proper greetings for different types of community people; general etiquette relating to food and eating; or suitable types of thank you gifts. This research showed that all SRM representatives need to be aware of and honour the customs and etiquette of each cultural group represented.

5.5.2.3.3 *Physically Affirming Context*

5.5.2.3.3.1 Consider the Location

According to Delphi experts, meeting location can affect the success and acceptance of an SRM organisation. Meeting location dictates the burden of travel assumed by various members, as well as the visibility and accessibility of the SRM process. Vuntut Gwitchin experts asserted that meetings should take place in the communities affected by decisions. This enhances representatives' understanding of the environmental, cultural, social, economic, and political context (Roberts, 1994a). Local people have a primary stake in SRM and need an avenue to directly observe and to influence decision-making. According to Kofinas (1998), inadequate visibility and accessibility of SRM may diminish local compliance with decisions.

It may be appropriate to hold meetings in a special setting out on the land as discussed in section 5.4.2.1.2.5; for example, a management site, a significant cultural or historic site, or a traditional use site. Being on the land forces people into a communal living situation where they are required to interact and co-operate outside of "work." For Vuntut Gwitchin experts, being out on the land reminds them of their *long and deep roots* and *ancestral, cultural, subsistence, and sacred connections*. In addition, as a Delphi participant explained: *We're all equal on the land and it reminds us of our interconnectedness*. Thus, setting is a powerful reminder of the equality and interdependency of SRM partners and may strengthen relationships by providing opportunities for sharing and learning.

5.5.2.3.3.2 Schedule Action

The timing of meetings is critical in establishing an equitable physical context. Delphi experts recommended that scheduling should take into consideration the seasonal round of

subsistence activities and community events, in addition to scientific field seasons and budget cycles. From his experience with public participation in Old Crow one expert advised: *Meetings should not conflict with other community events such as Bingo; should avoid significant hunting times; and should [include] evening meeting times where the community can attend [in order to] meet and question members.* It is also important to schedule adequate time for the meetings themselves. Many Vuntut Gwitchin experts recalled hurried decision-making processes that provided inadequate time to explore and to reflect on key ideas. Vuntut Gwitchin experts also criticised the inadequate amount of time provided between and during SRM meetings to obtain information from local experts. In addition, the frequency of meetings should reflect the number of issues and their urgency. A reasonable amount of time should pass between meetings so representatives can fulfil delegated tasks (Landmann, 1988).

5.5.2.3.3.3 Seating Arrangements

Experts suggested that seating can dramatically affect the atmosphere of SRM meetings. A circle or round-table format is conducive to dialogue and connotes equality, whereas a rectangular table can symbolise adversarial relations and create a competitive atmosphere.

5.5.2.3.3.4 Establish a Visitor Policy

The SRM group should establish a policy regarding the attendance and participation of visitors. Some Delphi experts suggested that observers should be welcome to attend all SRM meetings. An open-door policy encourages the accountability of representatives, demonstrates transparency, inspires trust in the process, and allows stakeholders to directly influence it. Other Delphi experts warned that, at times, the presence of visitors could deter open, spontaneous

communication. Closed meetings may be required to deal with contentious, sensitive, or confidential information because they allow people to communicate more freely. In all cases, the SRM group needs to decide if and how visitors can contribute to the SRM group's discussion. Delphi experts suggested different approaches: visitors might be included in specified meetings only; their participation might be limited to a question period at the end of the meeting; or, visitors might be welcomed to attend additional regular public meetings focused on dialogue with the SRM group.

5.5.2.3.4 Spiritually Involving Atmosphere

5.5.2.3.4.1 Incorporate Ritual and Spirituality

According to Delphi experts, SRM group work often focuses on intellectual discussion while neglecting spiritual dimensions. Results show SRM should include opportunities for non-written communication and learning using dancing, fiddling, drumming, singing, story-telling, and art. Delphi experts recommended beginning each SRM session with an Elder's prayer to provide a sense of kinship and community. DeMello et al. (1994:18) described prayer as a method "to connect people, to inspire quiet reflection, and to comfort people at the outset of a meeting." The incorporation of significant Vuntut Gwitchin rituals, such as the use of a talking stick or stone, a Golden Eagle feather, and the smudging or Sweet Grass ceremony could also set the stage for constructive and calm interactions. Delphi experts also reported that healing circles, sweats, or other traditional healing ceremonies both inside and outside of SRM negotiations could provide for mutual support and reconciliation.

5.5.2.3.4.2 Celebrate Accomplishments

Vuntut Gwitchin Delphi experts suggested that feasting is a strong ceremonial tradition that can unite SRM participants and the local community in celebrating SRM accomplishments. Traditional food such as caribou, moose, bannock, berries, and salmon provide a simple spiritual and cultural connection to one another and to the land. A feast is a culturally appropriate method of publicly acknowledging the work of SRM representatives. Appreciation is commonly demonstrated at these events through awards, gifts, or words of praise. As a Vuntut Gwitchin participant urged: *First Nation people could tell government people they appreciate them and could show it with traditional gifts. Government people could do the same for us. It is important to show respect for the work that SRM people do. This will help all governments to keep working together.* This is a tangible way of honouring SRM representatives' personal and professional commitments. Often these small gestures provide great social gratification and the motivation to remain engaged in a tough process. A feast also provides a good setting to quietly raise the visibility of SRM (e.g., identifying representatives or giving out hats and mugs with SRM logos as door prizes), to demonstrate the changes wrought by SRM (e.g., using a display, posting pictures and maps), to advertise upcoming events, or to ask for local people's involvement.

5.5.3 SRM Communication

SRM Communication - Section Overview

- SRM communication initiatives should generate internal and external flows of information. Communication should occur within each party, among SRM partners, and between the SRM group, outside institutions, communities, and stakeholders. This can foster broad discussion of natural resource management issues, which in turn can enhance common knowledge, awareness, and skills.
- SRM groups should use a broad array of communication media to involve the widest possible audience. This includes traditional (i.e., spoken word), modern (i.e., electronic or printed media), and local media (i.e., how local people communicate with each other), which can be traditional or modern in form.
- SRM communication efforts must address cultural differences in communication including linguistic barriers, ideological differences underlying language, Elders' communication needs, and differences in communication styles.

This study revealed that effective communication among SRM partners and between a SRM regime and various stakeholders, as well as the development and application of new communication methods and media, were essential. Communication is a complex affair. It can occur between two people, among a few individuals, or involve organisations or groups (Borrini-Feyerabend et al., 2000). Communication initiatives have various objectives including informing, educating, training or, interactive learning (Borrini-Feyerabend, 1996; Beebe & Masterson, 2000). Delphi experts emphasised the last communication objective, interactive learning, in their discussion of SRM. In their view, SRM communication efforts should not merely aim to pass along information about an issue but should promote critical understanding and adoption of the issues (Table 4.32). The literature lends support to this view that the real purpose of SRM is not "for people to 'behave' in tune with what experts believe is right for them", but for SRM partners to think, discuss, and act together (Borrini-Feyerabend et al., 2000:27). Three general

characteristics of effective SRM communication were addressed by this study and are described below including communication that is multidimensional, multimedia, and sensitive to cultural differences.

5.5.3.1 Multi-Dimensional Communication

This study established that a SRM communication strategy needs to address communication at many different levels (Table 4.32). Practitioners should begin by defining the various parties, stakeholders, and publics involved in SRM. An SRM communication strategy should address both internal and external groups. This research determined that effective internal SRM communication occurs at two levels including within-party communication and SRM group communication. SRM also operates within a broader regional, territorial, national, and even international framework of institutions and interests. Results indicated that SRM groups need to communicate with parties from adjacent areas whose co-operation and input is needed. This involves external communication at four levels including institutional communication, community communication, stakeholder communication, and general public communication

5.5.3.1.1 Within-Party Communication

According to the present study, dialogue between SRM representatives and their constituencies is required at every major stage in the SRM process. During the development phase of SRM, each group needs to achieve internal consensus on the values, concerns, and solutions they want to bring forward to the SRM table. During the implementation phase, each group must clearly determine their competencies and available resources to ensure they accept realistic roles and responsibilities. Delphi experts indicated that within-party communication is

likely to focus on staff and decision-makers in Aboriginal and non-Aboriginal government organisations. However, Vuntut Gwitchin experts also expected that substantial community contact would be required as part of First Nation communication efforts, a theme which is elaborated in section 5.5.3.1.4.

5.5.3.1.2 SRM Group Communication

Experts highlighted the importance of good communication among SRM partners, which can be achieved through formal and informal methods. Examples of formal communication methods included: regular round-table discussions, distributing agendas and background material prior to meetings, calling in outside community or technical experts to share information, and creating working groups or sub-committees when needed. Networking, socialising, and spending time together are important informal aspects of internal communication. However, care must be taken to report results back to the SRM body, avoiding informal groups becoming a 'private club' (Kofinas, 1998). SRM group communication must respect linguistic preferences, cultural differences, and various types of knowledge.

5.5.3.1.3 Institutional Communication

It is important for SRM groups to establish and maintain communication networks with outside management institutions such as other territorial and federal government departments, First Nations, and SRM regimes. This enhances understanding of SRM issues, increases support for SRM plans, and prevents duplication of effort. For example, experts emphasised the importance of regular contact and communication with the governments who will approve SRM recommendations (e.g., the Minister responsible, officials who brief the Minister, and all

departments whose mandate will be affected by the SRM plan). Linkages with other SRM groups promote information sharing on process and technical issues and avoid repetition of management errors (Kofinas, 1998).

5.5.3.1.4 Community Communication

According to Delphi experts, establishing a strong communication link between user communities and an SRM group is essential. Experts recommended this can be accomplished by: publishing SRM-related articles in local newsletters, conducting interviews on community radio, creating displays in local gathering places, featuring SRM meeting minutes on a local TV station, creating SRM activities for local schools, and allowing community members to participate in SRM meetings. Public meetings should be well-advertised in advance using radio announcements, posters, and personal invitations. Private and individual meetings such as home visits are also important, but currently are underused forms of communication. Delphi experts explained that Aboriginal community communication needs to be carried out *at a level and in a language people are very comfortable with*. Effective communication requires consideration of the target audience including factors such as literacy levels, educational background, communication styles, and language preferences. According to Vuntut Gwitchin experts, communication efforts in Old Crow should be *straight forward, plain language, simple, and concise*; include a Gwich'in interpreter; use colourful, visual tools such as maps, diagrams, and photographs; serve food and beverages to encourage attendance; and give adequate time for audience contributions and questions. Experts encouraged SRM groups to produce a *digestible final product* after each major SRM stage and to distribute it to all community households (e.g., vision statement, action plan, or annual report). Other researchers have suggested that written

methods of communication, especially of technical information, are least effective in delivering results from the SRM group to the community (Peter & Urquhart, 1991). But while Vuntut Gwitchin experts encouraged the use of visual and oral communication methods, they were also very interested in *having something written and concrete for the community, something that the community is proud to show and talk about. ... Holding that in their hand, they [will] feel that it's theirs and like they were an important part of creating it.* Types of meaningful printed products include posters, local educational materials, newsletters, pamphlets, community reports, and books. Experts also suggested that designating a local SRM office location could facilitate communication between the community and the SRM group. Witty (1994) found that providing people with phone and fax numbers and an e-mail address to contact the SRM group directly enhanced community communication.

5.5.3.1.5 Stakeholder Communication

According to Delphi experts, outside groups with an interest in the resource being managed, but who are not party to the SRM agreement, can create problems for a management regime. Failure to include these outside interests may frustrate the implementation of a SRM initiative by challenging the SRM group's authority or diverting time, money, and human resources away from management activities. In the present study, experts also determined that recruiting support from 'key outsiders' such as universities, non-governmental organisations, and industry could advance SRM practice. Partnerships with external stakeholders bring resources such as funding, information, volunteers, or advocacy; constituencies through publicity or extension activities; and credibility through positive press or political lobbying. This is important since any one SRM body cannot hope to encompass the full complement of talents, skills, knowledge, and resources

needed to implement SRM plans and programs (Murray, 1995). In addition, external forums for discussion of resource issues, such as technical committees or advisory groups can contribute to SRM decision-making (e.g., by helping SRM representatives make more informed and equitable choices).

5.5.3.1.6 General Public Communication

Participants in this research indicated that communication directed at the general public was necessary. These efforts produce broad awareness of SRM policies and programs, and access another source of information for SRM decision-making (Lees, 1995). Investing time in maintaining contact with a large group of potential supporters is valuable even when a SRM group is not seeking immediate, direct support for its decisions (Norris & Camposbasso, 1995).

5.5.3.2 Multi-Media Communication

Results indicated that SRM groups should use a broad range of communication methods and media in order to interest the widest possible audience. There are various types of communication media each with different degrees of intimacy, rates of feedback, and levels of information richness (Beebe & Masterson, 2000). Delphi experts indicated communication can be broadly divided into traditional and modern media. Traditional media are tied to local culture and include tools such as the spoken word, songs, dances, stories, gatherings, and demonstrations. Modern media typically refer to electronic and printed communication. Local media refer to materials produced locally, whether traditional or modern in form, and are the ways local people express their ideas, feelings, efforts, and beliefs to each other (Borrini-Feyerabend, 1996). Assessing the strategies best suited to particular groups will improve the

exchange of ideas and ensure cost efficiencies (Beckley & Korber, 1997). According to Delphi experts, SRM partners may have to abandon conventional communication tools such as formal meetings, for more sensitive and creative ones. The international development literature suggests creative communication such as presenting street theatre productions at festivals, initiating a community radio project, or producing an audiocassette with songs about the resource and SRM process (Borrini-Feyerabend et al., 2000).

Using a mix of media will foster open exchange of different viewpoints, raise awareness, and build capacity. People who are not literate, do not feel confident to attend or to speak out at meetings, or who cannot afford to travel to events should not be disadvantaged by SRM media (e.g., certain media are discriminatory). Experts recommended the following types of media for use in SRM communication initiatives:

- Electronic media, which can include national, regional or community radio announcements, guest appearances, and full-length programs; national, regional or community television announcements, guest appearances, and full-length programs; Internet sites; production and distribution of audiocassettes or compact disks; and film/video production;
- Printed media, which can include newsletters; information packages; newspaper columns; posters and flyers; annual reports; technical reports; summaries of meeting minutes; fax messages; personal letters; progress updates; and e-mail messages;
- Graphic media, which can include illustrations; photographs; maps; films; and visual art;
- Performance media, which can include poetry; songs; dances; theatre; story telling; puppet shows; and other performance art;
- Oral media, which can include telephone calls; informal meetings and networking; structured public meetings; unstructured public meetings; face-to-face home visits; Elder's tea; talking

while sharing time on the land; open houses; presentations; participation in related community functions; and information sessions; and, finally

- Use of symbolic images (e.g., a logo or slogan on hats, posters or mugs, and sponsorship of events).

5.5.3.3 Sensitivity to Cultural Differences in Communication

Continuous dialogue among diverse SRM interests is a necessity yet, this research determined that cultural differences present significant barriers to effective communication. In order for these obstacles to be surmounted, several factors must be addressed and are discussed below including linguistic barriers, the ideological differences underlying language, Elder's communication, and communication styles.

5.5.3.3.1 Linguistic Barriers

Although English is the main language of discourse in Old Crow, some key community members are dominantly Gwich'in speakers and others, while they have a firm grasp of English, are unfamiliar with technical terminology and scientific jargon. A traditional land user encapsulated the problem: *There are language barriers between Gwich'in and English, and differences between Old Crow English and Whitehorse English.* Vuntut Gwitchin experts complained that outsiders often use *high words* and *big shot talk*; language used by scientists, researchers, and government representatives is difficult for community members to understand. Elders said that language barriers limit Elder's comprehension of what takes place in SRM meetings: *We [Elders] don't understand much of what they [outside experts] are saying. Sometimes I lose them. High language is the problem.* On the contrary, some government experts

expressed frustration at their inability to communicate sophisticated technical concepts in a community setting. Many have restricted the scope of their communication efforts. Thus, language barriers can limit the extent of co-operation and the possibility of developing SRM agreements that everyone can support. As Kofinas (1998) and Nakashima (1991) indicated, if shared management institutions remain western in form and function with dominant terminology and ideology at their core, true power-sharing and mutual understanding are unlikely. At best, communities will have to negotiate the type and extent of communication costs arising from their participation.

Experts criticised the dominance of English as the working language of SRM because it seriously impairs people's ability to share values and perspectives. Some Vuntut Gwitchin experts worried that local leaders and representatives *are starting to sound just like government people*. Thus, changes in language use and communication styles through exposure to the dominant culture, without continued attention to local communication norms, can alienate community members from the SRM environment. This condition can lead to the creation of a local elite and perceptions of *backroom decision-making*.

Provision of skilled interpretation and translation services can improve communication, but there are several challenges inherent in this proposition. Translation can distort or simplify information so much that it becomes meaningless. As a Vuntut Gwitchin resource manager said: *Elders and Indians have their own way of explaining things. Certain words have a distinct meaning but to the audience it is translated to what the word means in English and often the idea gets lost. When technical information is presented to the community, most times it is very hard to translate and the same thing happens*. Another issue impacting language services is the skill and experience level of translators. Research participants indicated that qualified language experts

should be schooled in both *traditional and white man ways*. For example, traditional knowledge that is transmitted in the form of stories and legends that use sophisticated metaphors and terminology may not be well understood by young translators, inexperienced translators, or people not raised in the traditional way. Likewise, an Elder who functions as a translator may be unable to adequately communicate the complexity and detail of scientific research to their audience. A concerted effort to enlarge the Gwich'in literacy training available in Old Crow was identified as a key in addressing the availability of qualified language experts. Actions include increasing the Gwich'in language content of elementary and secondary curricula, encouraging Gwich'in use at home, providing Gwich'in immersion opportunities such as Elder/youth culture camps, enhancing evening adult education opportunities for Gwich'in language training, and sponsoring young people to pursue post-secondary training in linguistics.

5.5.3.3.2 Ideological Differences

Bilingual communication is only part of the solution. Delphi experts explained that language can also mask deeper ideological disagreements and that SRM partners often accept terms as congruent with little or no awareness that underlying meanings conflict. As Morrow and Hensel (1992) explained, English provides the conceptual categories and the vocabulary that defines decision-making and this may lead to superficial agreement, yet misunderstandings follow when plans are implemented.

First Nations people have adopted a western vernacular in response to external cultural pressures and to the imposition of western institutions. In reality, resource management terminology may have very different connotations for First Nation and non-First Nation groups. Different meanings and practices may be attached to the same concepts. Experts indicated that

these subtle manifestations of worldview are often overlooked in SRM. In this research, the concepts of conservation and sustainability revealed themselves as examples of such incongruity. Vuntut Gwitchin saw the causal root of declining wildlife populations as human disregard for animals, which prompts reciprocal disregard from animals who are sentient. Scientists pointed to climate change, habitat destruction, and over-harvesting and regarded wildlife as a renewable resource through physiological processes. Vuntut Gwitchin discussed sustainability in terms of continuation of life on the land and cultural survival. In their view, sustainability was the maintenance of an intimate and inseparable link with the land: *The land is our life. We need each other. We belong to each other.* This is, simply, the belief that without the land there will be no people and without the people there will be no land. Each relies on the other for existence. For example, Vuntut Gwitchin described animals being responsive to human needs. Consequently, when an animal comes, it must be taken by the hunter or if it is refused, this disrespect and failure to reciprocate will sever their bond. On the other hand, scientists often discuss sustainability in terms of regulating land-based activities, prohibiting traditional practices, or reducing access to territory. Thus, fundamentally conflicting outlooks can underlie common words.

Assumptions about the consonance of terms and concepts also affect SRM activities. For example, both Vuntut Gwitchin and biologists avowed concern for Porcupine caribou and their conservation. However, while scientists net, tranquillise, and collar caribou, follow them in helicopters, and study them on their calving grounds, many Vuntut Gwitchin felt these study methods were invasive, amounted to harassment, and *upset the balance of things*. They indicated that this type of research offends the caribou and *people could get sick and die or caribou could leave the people all together*. Vuntut Gwitchin and scientists also shared concerns about

declining returns of salmon and other species such as Arctic grayling. Managers have responded by advocating catch-and-release fishing, which satisfies sport fishermen and ensures continuance of the subsistence catch. However, this concept was abhorrent to some Vuntut Gwitchin who viewed it as *playing with the spirit of the animal* and *rejecting a gift*. As a result, catch-and-release was viewed as an activity that could jeopardise subsistence. Hidden contradictions can lead to loss of trust, feelings of betrayal, and suspicions of insincerity and disregard on the part of each SRM party. More dramatically, they can impact the attainment of an SRM group's common vision and shared goals. Absence of a common language impedes communication (Pedersen, 1994). Delphi experts advised that SRM partners should work to address assumptions about words and their meaning by developing a common language - terms and concepts that are thoroughly understood from both the scientific and traditional point of view.

5.5.3.3.3 Elders' Communication

Delphi experts were troubled about Elders' communication. They explained that those who are an integral part of TEKMS experience the greatest barriers to communication in SRM. Because of their dominance in the Gwich'in language, their traditional communication styles, and their basic cultural assumptions, Elders are forced to rely on interpreters and spokespeople to communicate their perspectives. This is akin to what one Elder said was making a *head scientist talk like kid*. Vuntut Gwitchin experts admonished: *Elders have to be fully heard. Not just little bits and pieces, little sentences here and there. [They have to be] really, truly encouraged. They hold the wisdom of the people*. Likewise, the international development literature suggests communication initiatives should be conducted with an awareness of their social implications (e.g., potential to create power imbalances) (Western and Wright, 1994; Warren, 1998). Social

equity should be enhanced, not diminished by SRM communication efforts (Fisher, 1995; Borrini-Feyerabend, 1996).

Vuntut Gwitchin Elders are often forced to explain, justify, or defend their beliefs and practices in a manner consistent with the dominant, western patterns of discourse and logic. This creates pressure towards acculturation (Morrow & Hensel, 1992). One Delphi expert explained this dilemma: *Very often, Elders try to explain values in technical terms because scientists push them into trying to explain values and spiritual aspects in technical terms.* Redefining Vuntut Gwitchin culture according to western categories and concepts narrows the possibility for understanding and impoverishes meaning. Delphi experts suggested SRM partners could begin to address this communication obstacle by spending time studying transcripts to reveal the full, intended meaning of Elder's words. They recommended using participation forums other than public meetings, which, although they are synonymous with fair opportunity to be heard in western cultures, can dramatically constrain Aboriginal people's communication. Lastly, some words are *hidden* and cannot be translated directly into English. Delphi experts recommended that serious effort should be invested in comprehensive translation. Since language reflects norms, values, and beliefs, translation should not be limited to literal interpretation but should also convey the subtlety and complexity of Elders' meaning.

5.5.3.3.4 Communication Styles

Even when people are speaking English, there are less obvious but none-the-less pervasive differences in communication style. Researchers such as Scollon and Scollon (1980), in comparing Athapaskan and English communication, pointed out numerous differences in questioning styles, presentation of self, the distribution of talk and the content of talk. Likewise,

Delphi participants discussed differences related to courtesies, questioning styles, how people present themselves (e.g., silence, talking about yourself), how information is shared (e.g., the use of narratives, interrupting, indirect answers), and how people relate to each other while speaking (e.g., pause length, eye contact, non-verbal cues). Different communication rules lead to misunderstandings and can create tension among SRM participants. It was apparent in this research that non-Aboriginal SRM participants were often confused when Vuntut Gwitchin speak English but use Athapaskan communication rules. Vuntut Gwitchin experts asserted that even when traditional land users and Elders try to explain their perspectives using English, many do not expect to be understood or accepted: *Sometimes I sit in meetings and I want to have input. I want to say something for myself and for my people. But, it is hard to get up and talk to them [government managers and scientists]. ... We can't understand the way the white man talks and thinks. He don't understand us either.*

Two instructive examples of differences in communication style leading to misunderstanding were detailed in this study. Experts suggested that it is important to pay attention to silence as it rarely means people have nothing to contribute. Silence can indicate anything from total agreement, to hostile disagreement, to barriers to participation (Fowlie, 1999; Ramirez, 1999). For instance, Scollon and Scollon (1980) pointed out that one of the basic communication differences between Athapaskan and non-Aboriginal speakers is pause length. The former pause much longer between sentences and this affects who 'has the floor' (Gallagher, 1988). For example, when non-Aboriginal people hear a pause in conversation they begin to speak, really an interruption of the Vuntut Gwitchin speaker. On the contrary, when a non-Aboriginal person indicates someone else should speak by pausing, Vuntut Gwitchin are unlikely to enter into the conversation fast enough. They will be pre-empted by other non-Aboriginal speakers because the

pause length was too brief. Consequently, Vuntut Gwitchin are often perceived as being silent and non-Aboriginal people as talking too much.

Vuntut Gwitchin experts pointed out that often government managers *get frustrated hearing old people's stories and don't realise the extreme benefit they provide*. Similarly, Morrow and Hensel (1992) discovered the Yup'ik Elders' lengthy narratives are variously dismissed, regarded as charming but irrelevant metaphors, or as obstacles to be overcome. Gallagher (1988) reported that narratives are usually 'loaded' with advice but, since it is uncommon for Athapaskans to tell another person what to do, the listener can choose to accept it or not. Vuntut Gwitchin experts explained that Elders' stories are indirect parables that contain information that they want managers and community members to consider in the context of the SRM issues. However, as many researchers have demonstrated, few 'westerners' can appreciate or extract meaning from narratives (Nelson, 1969; Guedon, 1974). The result can be frustration for both sides. The Elder is endeavouring to make a point, while the non-Aboriginal person is confused by the indirect discussion of a subject and is hoping he or she will just get to the point (Gallagher, 1988).

5.5.4 SRM Knowledge

SRM Knowledge - Section Overview

- In this study, experts postulated that, given their pluralism and interdependency, contemporary policy requirements, legal developments, land claims, and human rights mandates, both TEKMSs and SBRMSs must be utilised in the practice of SRM.
- Although research participants recognise the inherent and practical value of accepting and incorporating both systems into SRM, integration is challenging for several reasons including problems of acceptance, understanding, and implementation.
- Problems of acceptance stem from a belief that TEKMSs are irreversibly eroding, while romantic and uncritical claims concerning TEKMSs create a backlash against them as anecdotal and unreliable. TEKMSs do not correspond well with the fundamental tenets of western science and, as a result, the attitude of many resource managers is dismissive. Likewise, many Aboriginal people view the scientific approach with scepticism.
- Problems of misunderstanding arise from inconsistent descriptions of the component parts of TEKMSs as well as a proliferation of terminology used to describe them. Linguistic and cultural barriers also impede understanding. Experts in this research revealed that the different role resource managers and TEKMS holders assume in their respective cultures prevents appreciation of each other's knowledge, practices, and beliefs. Next, these two knowledge systems differ according to their transmission modes, defining characteristics, speed of data creation, and as systems of prediction, explanation, and classification. The socio-cultural contexts of SBRMSs and TEKMSs distinguish them further and result in reluctance to share the full extent of knowledge. Chauvinism about knowledge and failure to recognise the role of values in decision-making leads to further misunderstanding.
- Problems of implementation are numerous, including concerns about the negative consequences of disclosing a TEKMS and the peripheral status of TEKMSs in decision-making and problem solving. Incorporation of knowledge into SRM is linked to questions of power; a reticence to change the status quo on the part of resource managers; and using knowledge as a political or negotiating tool on the part of First Nations. Policy makers and resource managers lack guidelines to help them understand the implications and practicalities of implementing a TEKMS. Funding constraints, external research agendas, lack of local research capacity, and limited time frames confound the documentation of TEKMSs.
- Aside from identifying problems, Delphi participants also imparted numerous solutions to including TEKMSs and SBRMSs in SRM. Problems of acceptance can be addressed by slowing the loss of TEKMSs through promoting their oral transmission. Aboriginal people and resource managers alike must come to appreciate that both systems can make legitimate and valuable contributions to SRM. To prevent arrogance and overblown claims, the limitations of both systems need to be acknowledged. Knowledge from both systems should be documented in an organised and systematic fashion and be subjected to validation and testing. However, many Vuntut Gwitchin experts worried about external verification of their TEKMS and a failure to recognise internal systems of validation.

- To address problems of associated with failure to understand, managers should abandon their focus on defining TEKMSs in favour of direct interactions with the Aboriginal people who embody them. SRM practitioners must realise that TEKMS and SBRMS are not opposed to each other, but can contribute in a complementary fashion to management. Creating learning opportunities on the land, in the classroom, and in the work place can develop mutual understanding. Practitioners need to recognise that SRM is value driven. Each SRM party must identify and communicate their own value systems and attempt to understand that of their partners.
- The benefits of amalgamating a TEKMS and a SBRMS can be realised by overcoming problems of implementation. This can be achieved by developing guidelines for the use of a TEKMS, the use of participatory or community-based research approaches, the recognition of intellectual property rights, the direct involvement of Aboriginal people in SRM, the development of a common system to store and access information, and the maintenance of equity and openness in management partnerships.

This research determined that three of the major mechanisms for creating equitable SRM partnerships were the recognition of both TEKMSs and SBRMSs as legitimate sources of knowledge, practices, beliefs, and values; the utilisation of each as an integral part of shared decision-making; and collaboration among SRM partners to collect, understand, and store knowledge and information from both systems. In this section, four factors revealed by the present study that compel the incorporation of the Vuntut Gwitchin TEKMS and science-based resource management into north Yukon SRM processes are discussed. Three obstacles Delphi experts identified that impede this amalgamation are explored; these relate to problems of acceptance, understanding, and implementation. Following each problem area, solutions resulting from this research are presented to foster the effective combination of TEKMSs and SBRMSs in SRM.

5.5.4.1 Reasons for a New Alliance

Results of the present study suggested that convergence between TEKMSs and SBRMSs promises to improve SRM processes and outcomes. Several factors led to this determination on

the part of Delphi experts including recognition of SRM partners' pluralism and interdependency, current policy requirements, legal requirements, and a concern for human rights. These aspects are elaborated below.

5.5.4.1.1 Pluralism and Interdependency

Key problems arise for TEKMSs in a contemporary world of compounding environmental pressures. Delphi experts explained that Vuntut Gwitchin traditional knowledge and management systems are strained by the impacts of modern technology, resource development, and resource depletion. For example, global changes such as ozone depletion, global warming, long range pollution, and biodiversity loss have the potential to severely impact Vuntut Gwitchin life on the land, and yet are beyond the scope of local knowledge and control (Feit, 1988; Hawkes, 1995). SBRMS, which have a broad geographic perspective and can detect sudden environmental change, as well as government policy, which has national and international impact, are required to address these influences. A Vuntut Gwitchin Delphi participant explained the complementarity of science and his TEKMS: *Our people have seen the changes. 'Look the blueberries are not growing here anymore! The loche livers look different. Why?' That's where scientific information comes in and says, 'Well we can help you figure out down to the last molecule that this organochlorine is killing all the blueberries and its infecting loche livers. Science helps us understand why things are happening globally.*

Numerous studies focused on the knowledge, practices, and beliefs contributing to sustainable indigenous resource use suggest that TEKMSs can make important contributions to SBRMSs (Johannes, 1989; Johnson, 1992; Wolfe et al., 1992; Berkes, 1993; Ruddle, 1994; Berkes and Henley, 1997; Brockman, Masuzumi, & Augustine, 1997). Government experts in

the present study explained that lack of baseline data, poor predictive ability, and a compartmentalised approach negatively impacts SBRMSs, especially in the north where field seasons are short and travel difficult. Growing awareness of the limits of science in addressing environmental problems of increasing complexity and magnitude has resulted in a call to incorporate the detailed, long-term knowledge of TEKMSs. Additionally, government experts indicated that the costs of top-down management were high in hinterland regions where government staff are limited, the area of responsibility is remote and vast, and the resource users are numerous and dispersed. This is borne out in the literature in the case of Beverly-Kaminuriak caribou and of migratory waterfowl species along the Pacific flyway (Osherenko, 1988b). Relying on locally based management alternatives with well defined property rights and resource use rules, rather than replacing them, may increase efficiencies, ensure local needs are met, and promote sustainability (Berkes, 1999). Scholars have asserted that the industrialised world may have much to learn from Aboriginal people about the sustainable use of natural resources (Wolfe et al., 1992; Inuit Circumpolar Conference (ICC), 1993).

5.5.4.1.2 Policy Requirements

Delphi experts cited numerous national and international policy requirements that mandate the direct incorporation of TEKMS into the management and monitoring of natural and cultural resource. Documents such as the *World Conservation Strategy* (IUCN, 1980) and *Our Common Future* (WCED, 1987) gave global recognition to the legitimacy and value TEKMS. In Canada, federal guidelines require that development proponents incorporate the traditional knowledge of Aboriginal people into environmental impact assessment (Stevenson, 1996). For example, a recent environmental assessment panel for a diamond mining project in the Northwest Territories

was instructed to give "full and equal consideration to traditional knowledge" (MacLachlan, Kenny-Gilday, Kupsch, & Sloan, 1996:74). Usher (2000) reported that draft federal legislation on species at risk includes explicit requirements to incorporate traditional ecological knowledge. In addition, the Committee on the Status of Endangered Wildlife in Canada (COESWIC) directs assessors to utilise criteria based on "science and to include traditional knowledge and local knowledge" and the *Migratory Birds Convention* obligates the use of indigenous knowledge for species management (Terms of Reference for the Committee on the Status of Endangered Wildlife in Canada, 1999:1). A Traditional Knowledge Policy was recently adopted by the Government of the Northwest Territories that acknowledged "aboriginal traditional knowledge as a valid and essential source of information about the natural environment and its resources, the use of natural resources, and the relationship of people to the land" (a similar policy is under development by the Council of Yukon First Nations) (Government of Northwest Territories (GNWT), 1993:11). The Royal Commission on Aboriginal Peoples also advocated a shift in environmental policy and practice to recognise traditional knowledge as an integral component of natural resource decision-making (Royal Commission on Aboriginal Peoples (RCAP), 1996).

5.5.4.1.3 Legal Requirements

Delphi experts pointed out that under Canadian law, Aboriginal people are 'citizens different', with rights of sovereignty, self-government, and resource use that distinguish them from other Canadians. This newly emerged constitutional and legal relationship between Aboriginal and non-Aboriginal people is the result of the Constitution Act of 1982 and precedent-setting court rulings such as *Calder* [1973], *Sparrow* [1990], and *Delgamuukw* [1997] (Asch, 1997). These decisions confirmed that Aboriginal rights include the involvement of

Aboriginal people in conservation, regulation, and management of resources and set standards for consultation. They obliged laws of evidence to consider oral history as proof of Aboriginal title and rights and demanded that government, industry, and third-party interests work with First Nations, incorporating their knowledge and concerns (Sherry & Johnson, 1999).

The 1980s and early 1990s witnessed the negotiation of comprehensive claims in Canada's North. One of the principle elements of these agreements was the direct involvement of Aboriginal beneficiaries in resource management (Notzke, 1995). For example, land claims increased the role of First Nations through mandating their representation on land-use planning, resource co-management, and environmental assessment boards. As well, land claims dictated the use of Aboriginal and scientific knowledge. For instance, experts indicated that the Vuntut Gwitchin Final Agreement required "the relevant knowledge and experience of both the Vuntut Gwitchin and the scientific community should be employed in order to achieve conservation" (DIAND, 1993:67).

5.5.4.1.4 Human Rights Mandate

The world-wide pursuit of human, political, and property rights for indigenous people has led to recognition in international agreements such as *Agenda 21* (United Nations Conference on Environment and Development (UNCED), 1992) that local people must participate in decisions that affect their lands, cultures, and lifestyles. Delphi experts recalled the RCAP (1996) report, which made it clear that the acceptance and use of traditional knowledge is consistent with democracy and disrespect for Aboriginal people's values and interests are the cause of a crisis in Canadian society. As Sadler and Boothroyd (1994:3) contended, awareness and application of

traditional knowledge will, "increase respect for the contributions to be made by all people and improve communication among diverse interests."

5.5.4.2 Problems and Solutions

Although all of the above general requirements are well known, and government and Vuntut Gwitchin experts recognise the inherent and practical value of incorporating TEKMSs and SBRMSs into SRM, results of the present study revealed that they are unable to achieve the desired synthesis. Participants in this research indicated: *We are a long way from a system that adequately integrates traditional knowledge and scientific information.* This study uncovered several factors that explain why incorporation of TEKMSs and SBRMSs in SRM has met with limited success; these relate to problems of acceptance, understanding, and implementation. This section explores these three problem areas and suggests solutions to foster the effective combination of TEKMSs and SBRMSs in SRM (Table 4.28 and Table 4.29).

5.5.4.2.1 Problems of Acceptance

5.5.4.2.1.1 Erosion of TEKMS

Delphi government experts explained that scientific scepticism stems from the belief that traditional knowledge is irreversibly eroding due to the acculturation of Aboriginal people and their assimilation into the dominant society. In particular, they believed cultural survival is challenged by the failure to transmit traditional knowledge to the younger generations: *I think we need to put money into [research] and do it really soon because the Elders are going fast and the new generation don't have any of that knowledge.* On the contrary, Vuntut Gwitchin asserted that their TEKMS is evolving not dying. However, they too are concerned about the modern

pressures hampering the continued transmission of their TEKMS (e.g., sedentary lifestyle, T.V., radio, a weakening of the relationship between Elders and youth) and are aware of threats to their TEKMS through the passing of Elders and the loss of unique knowledge.

5.5.4.2.1.2 Dismissiveness

Results of this study suggested that scientists and Aboriginal people fail to acknowledge the value of each other's knowledge, practices, and beliefs. According to Delphi experts: *Those trained in the sciences tend to dismiss information that can't be tested and proven, while those who have spent a lifetime on the land tend to view the world holistically and regard the scientific, linear, reductionist approach with scepticism.* Traditional knowledge does not correspond well with "western intellectual ideals of truth" and consequently, the attitude of many research scientists and resource managers towards traditional knowledge is dismissive (Johnson, 1992:9; Wolfe et al., 1992). Vuntut Gwitchin research participants admitted that they often overlook the strengths of SBRMSs, as well as significant changes occurring within them. For example, critical examination of the fundamental tenets of science have led to the recognition that science is often value laden and culturally scripted, leading to a shift towards ecosystem-based management concepts and interdisciplinary research (Usher, 2000).

5.5.4.2.1.2 Romanticism

Delphi experts indicated that some people make romantic and uncritical claims for traditional knowledge and practices, which invalidate it. Johnson (1992) reported a popular assertion that all superstitions, taboos, and myths are underlain with functional ecological concerns. Failure to recognise the limitations of TEKMSs and to acknowledge that wise and unwise environmental

practices and valid and invalid environmental beliefs exist in many cultures, has created a backlash against TEKMSs (Johannes, 1993).

5.5.4.2.2 Solutions to Problems of Acceptance

5.5.4.2.2.1 Documentation and Transmission of TEKMS

Results suggested that SRM itself is a route to preventing the dissolution of indigenous institutions, authority, and culture. While not every community is fortunate enough to be able to reinforce their TEKMS in an SRM process, where this does occur, it can be an important component of community pride and self-reliance (Sherry and Myers, in press). For example, researchers have found that the Alaska Eskimo Whaling Commission provides a new means to reinforce traditional concepts and practices of conservation (Rettig, Berkes, & Pinkerton, 1989). Experts suggested that documenting TEKMS and passing it on to younger generations could also slow the erosion of cultural values, customs, and identities. Vuntut Gwitchin must continue their commitment to cultivating their TEKMS through initiatives such as language training, local collection and archiving of their TEKMS, integration of their TEKMS into public school and college curricula, traditional pursuits programs, summer culture camps that focus on the transmission of Vuntut Gwitchin TEKMS, and events that bring youth and Elders together.

5.5.4.2.2.2 Acknowledgement and Respect

Government experts suggested they must be more open to TEKMSs, recognising they are a different way of explaining the world, but one that can reflect a deeply held set of beliefs, values and practices based on long-term experience in an area. Similarly, Stevenson (1996) found that TEKMSs can complement scientific knowledge, adding layers of detail to it, suggesting

outcomes and predictions, or contributing norms and values to decision-making. Usher (2000) argued that TEKMSs can make a clear and positive contribution to environmental management and recognised different types of information including knowledge of the environment, knowledge of past and current uses of the environment, values about the environment, or the knowledge system itself. Previous studies have made it clear that Vuntut Gwitchin TEKMS is vital, well-integrated into community life, and exists in the four types that Usher describes (Kofinas, 1998; Sherry & VGFN, 1999). Experts explained that the Vuntut Gwitchin TEKMS can contribute to SRM through providing factual knowledge about habitat and ecosystem relationships, about particular species, about environmental changes, and about local land and resource use. The Vuntut Gwitchin TEKMS can also provide a local institution for workable co-management (e.g., community rules of behaviour while hunting, fishing, trapping, gathering or traveling; property arrangements; social and kinship structures). Similarly, Vuntut Gwitchin must acknowledge that although science-based resource management exists within an entirely different cultural experience, it paints no more or less valid a picture of reality. Vuntut Gwitchin should appreciate the utility of SBRMSs and respect the goals, values, and information that arise from them.

5.5.4.2.2.3 Recognition of Limitations

This study revealed that SRM should focus on the identification and achievement of shared goals, not on competing claims about the efficacy or appropriateness of knowledge and management practices. Shared resource managers must concede that neither approach is infallible and must recognise the inherent limitations and weaknesses of their respective knowledge and management system. SRM representatives should challenge arrogance and

conceptual closed mindedness by encouraging receptivity to alternative ways of thinking about the world; after all, there is no one standard for truth (Ruddle, 1994; Berkes, 1999).

5.5.4.2.2.4 Validation

Some Delphi experts suggested that facts, inferences, or hypotheses based on TEKMS, like those based on science, should be subject to verification and testing (e.g., independent corroboration or checking internal consistency). Some researchers suggested that for TEKMS to be given full consideration, it needs to be documented in a comparable way to science (Howard & Widdowson, 1996). Others supported distinguishing between observations and inferences so that scientists do not discount TEKMSs as anecdotal or unreliable (Usher, 2000) and authenticating the values and norms arising from TEKMSs as representative of the community (Berkes, 1999).

While Vuntut Gwitchin experts agreed in general with the above requirements, they also worried about who would test and validate their TEKMS: *[The Vuntut Gwitchin] TEKMS should not be subject to validation by scientists. There are things you might want to talk to more people about or to qualify, but you can't rule out or categorise things that are being provided in a way that eliminates them from being considered or that reduces the truthfulness of them.* Some Vuntut Gwitchin felt their integrity and competence were being called into question by outsiders' calls to validate their TEKMS. This may be because individual perspectives are highly valued in Vuntut Gwitchin culture, especially those of people broadly acknowledged as wise, experienced, and skilled in their communities (Sherry & VGFN, 1999). Vuntut Gwitchin experts also pointed out that scientists often overlook local systems of knowledge validation; a TEKMS is verified in the community through sharing and comparison of experiences, and is tested on the land and in

practical circumstances for effectiveness (Sherry & VGFN, 1999). The present study showed that the Vuntut Gwitchin TEKMS does not simply consist of personal knowledge, but also collective wisdom; for instance, the lasting and widely agreed upon elements of Vuntut Gwitchin cultural heritage that are told and retold as fundamental principles or basic truths. According to Vuntut Gwitchin experts, subjecting these to external validation would be *an ultimate affront*.

5.5.4.2.3 Problems of Understanding

5.5.4.2.3.1 Multiple Definitions

Government Delphi experts contended that inconsistent definition of what a TEKMS is and the proliferation of terms to describe them were problematic and lead to ill-defined policies and procedures: *Managers never really know what is expected of them*. TEKMSs have been given many other names: folk ecology, ethno-ecology, indigenous knowledge, customary law, knowledge of the land, Aboriginal wisdom, Aboriginal knowledge, traditional ecological knowledge (TEK), and local knowledge (Grenier, 1998). Yet, without a precise definition, government experts suggested that many scientists and managers fail to understand what TEKMSs are: *Is there a difference between local knowledge and traditional knowledge? Who holds traditional environmental knowledge? Sometimes there is a lot of confusion and it is dangerous. This is a big problem. No one has been able to define TEK really well*.

Indeed, there is little agreement, from a scientific and academic viewpoint, about what these terms mean. The following discussion elaborates this problem. The use of the phrase 'traditional ecological knowledge' is criticised as ambiguous and inaccurate (Stevenson, 1996). To others, the word 'traditional' denotes nineteenth century attitudes towards Aboriginal people as inferior, simple, savage, static (Warren, 1997). The designation, 'traditional', also raises questions

regarding the cultural dynamics of such knowledge systems. Berkes (1993) points out that 'traditional' usually refers to cultural continuity - beliefs, practices, attitudes, principles, and conventions of behaviour rooted in historical experience. Still, human societies are not static. They are capable of adopting new ideas and technologies, developing new institutions, and adapting to new conditions, all while preserving old values, beliefs, and practices. Thus, it is difficult to define how much and what type of change affects the labelling of a practice or knowledge system as 'traditional'. For these reasons, many scholars prefer to use the term 'indigenous ecological knowledge' or 'indigenous people's knowledge' (Grenier, 1998). This avoids the debate about tradition and focuses attention on indigenous people. However, non-indigenous people, in particular people living off the land, such as farmers and fishermen, also have their own local knowledge. Likewise, the term 'ecological knowledge' poses problems. If ecology is defined narrowly as a branch of biology, a discipline in the sphere of science, then there is no 'traditional ecological knowledge'; "most traditional peoples are not scientists" (Berkes, 1993:3). Stevenson (1996) distinguished between traditional ecological knowledge, other traditional knowledge, and non-traditional knowledge as the various forms of Aboriginal knowledge. Usher (2000) did not restrict the use of the term traditional environmental knowledge to persons of Aboriginal heritage but extended it to all persons who have a lifetime of observation and experience in a particular environment.

5.5.4.2.3.2 Linguistic and Cultural Barriers

In this study, Delphi experts underlined that reconciling two very different worldviews is difficult because linguistic and cultural barriers impede understanding and prevent scientists and Aboriginal people from appreciating each other's knowledge, practices, and beliefs. Some of

these difficulties, presented in detail in section 5.5.3.3, relate to resource managers' difficulties comprehending the value or meaning of stories and legends, Vuntut Gwitchin unfamiliarity with the methods of science-based management, and challenges translating concepts and ideas from one culture into another (i.e., it is difficult to impart technical issues simply and concisely).

5.5.4.2.3.3 Specialisation

Experts in this research suggested that resource managers and TEKMS holders assume different roles in their respective cultures, which creates a barrier to understanding Institutionalised western systems of resource management are founded on professional practice. People with academic credentials, sophisticated skills, and specific training assume these roles. Resource managers are a specialised sub-set of the larger society and manage resources on behalf of that society (Hawley et al., 2001). By contrast, TEKMS are held by every member of the community, although somewhat differentially: *The Elders, the children and grandchildren, men and women, fishermen, hunters, trappers - everyone has some traditional knowledge*. No distinct group in Vuntut Gwitchin culture is responsible for TEKMS: *There is no one person doing resource management in Vuntut Gwitchin traditional territory. Each individual is doing some sort of care taking. Groups and families are doing management. Traditional knowledge is being developed through traditional pursuits and life on the land*. TEKMS are a way of life and consequently, 'research', 'management', and harvesting are inseparable from daily living.

5.5.4.2.3.4 Characteristics of Knowledge

Delphi experts believed that several basic differences related to the characteristics of each knowledge system prevent amalgamation. TEKMSs and SBRMSs differ in their underlying

principles, their dominant modes of knowledge transmission and thinking, their speed of knowledge creation, as systems of prediction, explanation, and classification, and in terms of how knowledge is acquired and validated (Wolfe et al., 1992; Berkes, 1993). The words of one government expert encapsulate this dilemma: *The systems operate at different scales, over different time periods, and the information is gathered for different reasons. The list seems endless. One system is based in the head, the other the heart. ... It almost seems like an impossible task to share what we know in any meaningful way.* For example, SBRMSs are founded on the principles of reductionism, objectivism, and positivism (Grenier, 1998). In contrast, TEKMSs are holistic, subjective, and experiential (Johnson, 1992). The present study results indicated resource managers value information obtained through application of the scientific method more than subjective information or anecdotes, and require advanced, formalised training to apply this method. However, Vuntut Gwitchin experts explained that TEKMSs are primarily generated through trial-and-error experiences, observation, and revelations (e.g., dreams and visions). Any Gwitchin can contribute to the Vuntut Gwitchin TEKMS and every Vuntut Gwitchin learns about the Vuntut Gwitchin TEKMS.

5.5.4.2.3.5 Importance of the Land

Vuntut Gwitchin have pervasive connections to and ubiquitous concern for the land. It occupies the core of existence in Old Crow. However, experts maintained that SBRMSs, while partially effective, have failed to recognise the significance of the Vuntut Gwitchin TEKMS to present day lifestyles; the crucial interdependence of the Old Crow community with their local environment; the social, cultural, spiritual, and economic value of land-based activities; and only recently have confirmed the legitimate rights of Vuntut Gwitchin to participate in decision-

making concerning traditional territory. The work of Feit (1988), Osherenko (1988a), Johnson (1992), Notzke (1994), and Sadler and Boothroyd (1994) confirmed these findings. Vuntut Gwitchin experts felt that scientists and resource managers do not clearly understand the basis of their attachment to the land nor, as a consequence, their TEKMS. This has resulted in unwillingness to share the Vuntut Gwitchin TEKMS. Stevenson (1996) noted widespread reticence to share TEKMSs as evidenced by the failure of numerous TEKMSs research projects to document more than inventories of traditional knowledge elements or simple descriptions of natural processes expressed in scientific language.

5.5.4.2.3.6 Entanglement of Values and Facts

Delphi experts pointed out that most SRM decisions are influenced by people's values. However, many SRM practitioners fail to acknowledge this. The result is frequent, technical disputes over what is *truly information* and what can be *objectively assessed* by decision-makers. Project participants indicated: *In science, evidence of values is an indication of bias, which makes the results of the work suspect. In traditional knowledge, evidence of values is regarded as natural and results in a holistic view of the environment.*

5.5.4.2.4 Solutions to Problems of Understanding

5.5.4.2.4.1 Go Beyond Definitions

The present study found that comparisons of traditional knowledge and western science are of limited value; they simplify each system's complexities and create false dichotomies. Delphi experts advised that resource managers should not rely on scholarly definitions to understand TEKMSs. Vuntut Gwitchin experts maintained that definitions are of limited significance since

every TEKMS is unique and complex. Defining TEKMSs is best left to the Aboriginal groups involved. Resource managers need to learn about each TEKMS in partnership with the Aboriginal people who embody it. Likewise, Stevenson (1996:282) believed that "attempts to analyse and dissect the knowledge systems of Aboriginal people, however well-intended, would fail to capture the true richness, complexity, and contextuality of such systems."

5.5.4.2.4.2 Recognise Similarities

The present study determined that TEKMSs and SBRMSs fundamentally aim at very similar goals - the respectful use and stewardship of the land. Delphi experts encouraged Aboriginal and non-Aboriginal people to realise that their differing modes of perceiving, transmitting, expressing, and using knowledge, as well as their differing management approaches and practices are not mutually exclusive. For example, ecosystem management concepts and the Vuntut Gwitchin view of the interconnectedness of all things may find close kinship (Sherry & VGFN, 1999); institutions of higher education are embracing the value of experiential learning for natural resource managers (Kessler, 1995); and many Aboriginal communities have adopted a strategy of written documentation to help slow the loss of their TEKMSs (Robinson, Garvin, & Hodgson, 1994).

5.5.4.2.4.3 Create Learning Opportunities

Delphi experts determined that one of the best ways to amalgamate each other's knowledge and management systems was to create learning opportunities. As proposed in section 5.5.2, land-based learning opportunities provide resource managers an opportunity to directly observe and experience a TEKMS. Delphi experts suggested that training programs, workshops, or

discussion panels that invite the contributions of Elders and scientists could foster mutual awareness; for instance, in a workshop, Porcupine caribou hunters could provide specific insights on topics such as movements, weather, herd health, and body condition, while researchers could provide overviews on population dynamics, range conditions, and introduce the findings from research on other herds. Delphi experts proposed that electronic databases, which compile and provide access to all documentary resources concerning a particular SRM setting, could increase understanding by improving access to information (e.g., historical documents, photographs, published scientific research, video, or oral recordings). Experts also desired changes to the formal education of resource managers, including courses on the history and pre-history of Aboriginal people, Aboriginal land use, and contemporary constitutional, legal, and policy frameworks defining Aboriginal relationships with the dominant society.

5.5.4.2.4.4 Reveal Value Frameworks

The present study found that technical disputes fuelled by concern over the validity and soundness of knowledge are often based on divergent values and understandings. For example, current debates in the north Yukon over caribou abundance and proposed harvest restrictions are likely underpinned by distinct interpretations of the relationship between humans and caribou, and different explanations of what a resource actually is - or for that matter, what the act of management itself is. Results of the present study suggest that all SRM actors need to recognise that SRM is value-driven. SRM players need to identify, understand, and communicate their own value systems and then, try to understand those of their partners. Managers in the West Coast salmon fishery also found that SRM decisions are value-laden and that the expression of values reduced conflict (Dale, 1989).

5.5.4.2.5 Problems of Implementation

5.5.4.2.5.1 Misuse of TEKMS

Numerous Vuntut Gwitchin experts voiced concerns about the potential negative consequences of disclosing their TEKMS, including the misinterpretation of local culture, development aided by the Vuntut Gwitchin TEKMS that damages or restricts traditional life ways, failure to retain local control of research results, and threats to the oral tradition. In the past, Vuntut Gwitchin were alienated by outside research given that they rarely benefited from or equally participated in the research process (Vuntut Gwitchin First Nation (VGFN), 1999). Besides Vuntut Gwitchin, those interested in documenting and applying traditional knowledge for non-traditional purposes (e.g., SRM, environmental impact assessment, or protected area management) are generally representatives of westernised, dominant power groups and their efforts are potentially exploitative (Coates & Morrison, 1991). On the other hand, government experts indicated that researchers and resource managers have concerns about the study and use of TEKMSs such as academic freedom, information ownership, and access to research results.

5.5.4.2.5.2 Marginalisation of TEKMS

Experts suggested that, for the most part, TEKMSs are used as an add-on not an integral component of the decisions generated by SRM. TEKMSs are often used to provide information for a decentralised state system, which continues to adhere to the scientific paradigm and to do the managing. Government Delphi experts readily admitted that they are likely to overlook many facets of TEKMSs including: knowledge of ecosystem relations, codes for human conduct, beliefs about the environment, social rules, spirituality, and Aboriginal mythology or philosophy. As one government participant reported: *What I find is that scientists are very good at getting*

technical information from communities. A typical example is the Porcupine Caribou. Local people know where the herd is. They are very, very knowledgeable about animals' physical condition. In my mind, from their information, you could really piece together easily the status of the herd if the scientists were willing. The major problem is that there is this whole other area of spirituality and traditional values. Another government expert observed: Spiritual explanations are myths. It is hard to use them. They certainly are valid but it is difficult to ... well let's say, we will probably ignore them if we can because of the quality of information we get from say... collaring an animal. Berkes (1999) also found that under the majority of existing government systems of resource management in Canada, TEKMSs are usually subordinate to western science. Often, resource managers focus on the 'information value' of TEKMSs, using them to fill in existing data gaps and disregarding "the broader meaning and value of these facts in the context of a coherent, organised system of ecological thought and understanding" (Stevenson, 1996:282).

5.5.4.2.5.3 Power Sharing

The use of knowledge in SRM is linked to questions of power. Government experts indicated it was difficult to catalyse necessary organisational change, especially in the face of strong resistance to alternative approaches and to the transfer of authority to Aboriginal groups. Some government experts also expressed frustration at First Nation's unwillingness to share traditional knowledge: *Too often, selective use of information is used to achieve a desired result from a SRM activity. The parties are sometimes more interested in getting their way and winning, than getting a lasting result.* Experts regarded proprietary actions as manipulations of the SRM

process and cited instances of using TEKMSs to selectively support agendas, to intentionally mislead and miscommunicate, or to stall the entire management process.

5.5.4.2.5.4 Lack of Guidelines

In this research, government participants indicated that they have very little guidance on how to incorporate TEKMSs into SRM. From their perspective, there are very few rules, operating procedures, or protocols explaining what knowledge and information TEKMSs offer, how they can be documented, and how they can be incorporated into SRM. Similarly, Usher (2000) suggested that policy makers and resource managers have an insufficient understanding of the implications and practicalities of implementing TEKMSs.

5.5.4.2.5.5 Challenges of Documentation

In order to integrate a TEKMS and a SBRMS for the purpose of shared resource decision-making, Delphi experts maintained that information and knowledge from both sources must be gathered and organised. However, unique challenges confront the documentation of TEKMSs. It is often difficult to obtain funding to gather knowledge for the purpose of preservation (Sherry & VGFN, 1999). In general, TEKMS studies require big budgets and lengthy time frames. Often the expertise in social science research methods, proposal writing and report writing needed to complete this work is absent in the community (Sherry & VGFN, 1999). Experts suggested that external research agendas and non-local applications have dominated the documentation of the Vuntut Gwitchin TEKMS. Local people have had little control over research design, execution, and interpretation of results (VGFN, 1999). As Stevenson (1996) reported, these circumstances

have produced reluctance on the part of Aboriginal people to share the depth and breadth of their TEKMS with outsiders.

5.5.4.2.6 Solutions to Problems of Implementation

5.5.4.2.6.1 Involve Aboriginal People

The present research determined that one of the best ways to ensure the incorporation of a TEKMS into SRM is by directly involving knowledge holders in SRM problem-solving and decision-making. Such an approach ensures all sources of Aboriginal knowledge are incorporated into SRM (including non-traditional knowledge and the articulation of TEKMS and non-traditional knowledge) (Elias, 1991; Stevenson, 1996, 1997). Delphi experts suggested involving local people in all planning, implementation, and evaluation phases of SRM; jointly planning the collection and dissemination of a TEKMS; and using small inter-cultural teams (e.g., focus groups, working groups, or advisory committees) to address SRM problems and to identify solutions.

5.5.4.2.6.2 Develop Guidelines and Protocols

Project participants recommended that Vuntut Gwitchin or a larger organisation such as the Council of Yukon First Nations establish explicit guidelines for collecting, organising, storing, and accessing TEKMSs (e.g., DCI, 1994 or Yellowknives Dene First Nation, 1995). These would represent minimum standards of conduct, subject to local regulations, codes, and principles, which could direct and educate northern researchers, and balance power, responsibility, and control throughout the research process. These guidelines could recommend effective participatory research methods that ensure the authenticity and validity of documented

knowledge (Johnson, 1992; DCI, 1994; Srinivasan, 1993). Research issues such as the use of recall aids, recording aids, translation, interpretation, expert remuneration, ownership of information, and dissemination of findings could be outlined (Ryan & Robinson, 1996).

5.5.4.2.6.3 Ensure Aboriginal Control of the TEKMS Research Agenda

Participatory action research (PAR) has emerged as a process to ensure that Aboriginal communities retain control over the local research agenda. Vuntut Gwitchin experts advocated this approach to TEKMS research for SRM purposes. The intent of PAR is not merely to depict and interpret reality, but to transform it 'with' rather than 'for' marginalised people (Freire, 1970; Alary, 1990; Frideres, 1992; Johnson & Ruttan, 1993; Rahman, 1993; Community Adaptation and Sustainable Livelihoods (CASL), 1997). There is no single generalised model of PAR; it is a strategy that must evolve in response to a unique local context (Maguire, 1987). Participatory approaches rely on the meaningful involvement of Aboriginal people in the design, execution and dissemination of research that affects them (Maguire, 1987; Ryan, 1993; Ryan, 1994). According to Maguire (1987), Alary (1990), Rahman (1993), and Legat (1994) PAR builds a community's capacity for generating knowledge and solving problems through research.

Delphi experts suggested that local people could play a significant role in TEKMS research through consultant, community expert and local researcher selection, research design and conduct, transcription and translation, information verification, distribution of research products, finance management, and project review and administration. They also emphasised that community ownership of research products must be guaranteed and that outside researchers should work to build capacity and make themselves redundant. Delphi experts attested that a PAR research framework can be educative, provide for rich cross-cultural experiences, and

transfer significant skills and understanding. A PAR framework can also increase the reliability and the scope of traditional knowledge obtained (Gwich'in Renewable Resources Board (GRRB), 1997). Yet, PAR is an expensive and lengthy process. It requires the development of local research expertise through education, training, and on-the-job experience (Sherry & VGFN, 1999). Patience is key in realising the goal of enabling local people to direct the conduct and outcomes of research (Ryan, 1994).

5.5.4.2.6.4 Honour Intellectual Property Rights

This study prompted attention to the application of intellectual property rights to TEKMS. Indigenous intellectual property is defined as a First Nation person's detailed knowledge and understanding of the natural environment which was developed and refined over centuries of natural resource use and management (Brush & Stabinsky, 1994; Simpson, 1997). Many Delphi experts encouraged VGFN to ensure they receive fair compensation for shared knowledge. Although some experts recommended the application of western intellectual property rights - patents, copyright, trademarks, trade secrets, and plant variety protection - to the protection and recognition of the Vuntut Gwitchin TEKMS, this appears problematic and generally unsuitable (Brush, and Stabinsky, 1994; Mann, 1997). For example, given the collective nature of Aboriginal heritage and the manner in which TEKMSs have evolved cumulatively and informally over thousands of years, the requirements of novelty, exclusive ownership, and non-obviousness are difficult to satisfy (Dieser, Johnson, Sherry, & Yang, 1998).

Brush and Stabinsky (1994), Posey (1994), and Cunningham (1996) outlined three strategies that could be used to approach intellectual property rights: a top-down approach whereby international and national agencies extend rights to Aboriginal groups (e.g., indirect

compensation by returning profits from products derived from a TEKMS to a general fund for conservation); a middle-ground approach that utilises existing intellectual property laws (e.g., claims for direct compensation for traditional knowledge and resources, enhanced income flow from sustainable activities such as tourism, or local employment in research and management endeavours); or a bottom-up approach that recognises an Aboriginal form of intellectual property, meaning Aboriginal groups declare their knowledge as property and require payment for it regardless of conventional uses (e.g., selling licenses to collect plants or conduct interviews, profit-sharing agreements, or direct recognition of individuals and communities in publications). Each of the above approaches to the intellectual property rights of Aboriginal people has advantages and drawbacks. This study determined that it is critical that Vuntut Gwitchin become central actors in the dialogue on extending (or not) intellectual property rights to their knowledge. Vuntut Gwitchin experts also indicated they must participate in shaping the Yukon-wide debate on compensation and proprietary rights. It is essential to develop methods that emerge from the experience and needs of First Nations, *not lawyers and outside forces*. In addition, protective instruments such as negotiated contracts, negotiated agreements, and informed consent are complex initiatives for which Vuntut Gwitchin mostly lack the necessary skills, information, or technical resources. Capacity building is required to educate Vuntut Gwitchin about their rights and expected benefits, as well as how to negotiate or to access them.

5.5.4.2.6.5 Balance Power

Government resource managers need to make a change in terms of how they approach partnership: *The status quo is no longer acceptable, where government does the managing and First Nations the co-operating*. The role of the government must be redefined to support and

complement, rather than replace, TEKMSs. It falls to government representatives to initiate the breakdown of barriers, as Graham and McDonald (1996:5) suggested, bearing "more of the responsibility for rebuilding the relationship simply because of the past privileges and shortcomings of our predecessors." For example, government representatives must let First Nations assume responsibility for determining how they contribute and apply their TEKMS. In addition, government representatives should be open to input from all types of TEKMSs and from all TEKMS holders. To balance power, Vuntut Gwitchin must continue their commitment to openness; for example, continuing to provide access to their documented TEKMS and knowledge holders themselves, and creating chances for government representatives to experience the Vuntut Gwitchin TEKMS directly. As well, they must retain control of their TEKMS by insisting on opportunities to direct TEKMS research, to verify outsider's interpretations of it, or to validate SRM policies stemming from their TEKMS.

5.5.4.2.6.6 Develop a System for Storing and Accessing Information

How parties share information is a measure of how much trust they have for each other. According to experts, as little information as possible should be treated as restricted or confidential within an SRM system. They felt that information was only useful to SRM partners if it was accessible; however, this openness should be subject to specific confidentiality or intellectual property concerns. The present study also found that SRM partners should work co-operatively to design one system to store and make available all relevant SRM information. Several features of an effective information sharing system were elaborated. The system should: accept qualitative and quantitative information, be accessible to experts and non-experts, provide information in detailed as well as summarised formats, be computer-based and accessible over

the Internet to facilitate sharing between remote locations, include spatial information, make use of interactive technologies and relational databases, provide information to track inputs into the system (e.g., how and when the information was collected and at what scale, how it was analysed, and by whom), indicate ownership of information, be kept current through constant updates and monitoring, and be managed by dedicated staff.

Compiling and storing information in this way can contribute to the identification of information gaps and of priority SRM research areas. As well, it will strengthen the sense that SRM is using a TEKMS and a SBRMS in a complementary and systematic manner. However, there are drawbacks to this approach, particularly from a Vuntut Gwitchin perspective. Many managers fail to recognise that like science, TEKMSs are dynamic and evolving, yet are not updated and disseminated through written sources that are easily referenced and added to a database. This approach also removes TEKMSs from their socio-cultural context and the people who are best able to provide interpretations of it. Thus, the potential for appropriation and dispossession are great (Wenzel, 1999).

5.5.5 SRM Negotiation

SRM Negotiation - Section Overview

- Delphi experts suggested that consensus decision-making to produce informed decisions based on as complete a representation of information as possible within reasonable timeframes and budgets is crucial to SRM success.
- Community participation in SRM decision-making must address several factors including community readiness, the timing and location of participation, learned dependency, community power dynamics, parochialism, and who can speak for the community.
- In this study, experts recommended that negotiations begin with a clear definition of the common vision on which to base the shared management system. The process of developing a common vision consists of four basic steps: the communication initiatives aimed at awareness raising and social learning; the identification and involvement of key participants; the application of participatory techniques; and the enshrining of the common vision. This study determined that experimentation with communication and decision-making techniques is required to improve the quality of SRM and enhance learning by individuals and institutions.
- Next, experts indicated that the SRM group should define a strategy to accomplish their common vision, which entails describing current issues and trends and comparing them to the desired future to reveal core SRM issues, developing short- and medium-term shared goals, defining actions to achieve these desired results, and creating work plans and schedules to delegate responsibilities and to ensure follow through.
- Community participation in SRM implementation requires transferring benefits to local people, strengthening and creating new community institutions, and ensuring equity in the distribution of SRM costs and benefits.
- Participants in the present research determined that periodic monitoring, evaluation, and transformation of the SRM vision, shared goals, and action plans were important. The best approach to SRM partnerships is a flexible and adaptive one since resource conditions and their social, economic, political, and legal context change over time. SRM should be viewed as a learning journey subject to intense review and modification based on the effectiveness of management outcomes.

Delphi experts advocated a consensus, community-based approach to decision-making in SRM and identified two phases and eight key steps in the negotiation of SRM plans and agreements (Table 4.30). The following discussion addresses these aspects including consensus decision-making, community participation in decision-making, the SRM negotiation process, community participation in implementation, and SRM monitoring and evaluation.

5.5.5.1 Consensus Decision-Making

All entitlements, roles, responsibilities, and commitments should be formally outlined at the beginning of an SRM partnership. Next, SRM partners need to decide what approach they will use to reach decisions. Delphi experts recommended that SRM groups strive for consensus decision-making and informed agreement. In their view, consensus means that all members agree to a course of action after consideration of alternatives and consultation with constituent groups. One Delphi expert explained: *Decision-making should be by consensus of the parties, which is not the same as a unanimous decision. One of the parties may not be comfortable with the way a decision is going but, because it is not a priority for them, may simply 'hold their nose' and go along with it. Once the decision is made, the parties should unite behind it.* All parties must agree to abide by a consensus decision, although all may not concede it is the best decision (Morgan, 1993). Several studies of shared decision-making determined that a consensus decision system is crucial (Landmann, 1988; Berkes, 1989b; Peter & Urquhart, 1991). Majority-voting procedures may be necessary in rare circumstances where the SRM body faces an impasse. However, according to Borrini-Feyerabend et al. (2000) voting should be avoided as it always guarantees an 'unhappy minority'.

Consensus-based decision making requires face-to-face meetings in an appropriate setting, disclosure of all relevant issues and information, and flexibility in the development of solutions. It also requires time limits, active participation of all members, and guarantees concerning the implementation of decisions. Consensus style decision making relies heavily on perceptions of process integrity (i.e., a sense that those involved in SRM want to do their best and are personally committed to achieving fair outcomes, as are their agencies and communities). Strong facilitation is required to ensure that *heavyweights* do not dominate or mislead a consensus

process, and that there is balance in how and what information is considered. Ultimately, the goal is to produce informed decisions based on as complete a representation of ideas and information as possible within reasonable timeframes and budgets.

Delphi experts advocated the application of alternative group interaction techniques in SRM decision-making to unlock the creative potential of participants and to provide all team members the chance to influence outcomes. In the past, Delphi experts experienced success with documenting ideas on flip charts; however, this approach has become an easy to apply favourite but in some cases is ineffective in eliciting ideas from particular representatives (e.g., those uncomfortable speaking in public, who are illiterate, or whose first language is not English). Several different participatory methods can be employed to stimulate and record ideas including qualitative mapping, observational walks, group interviews, brainstorming, the Nominal Group technique, problem analysis, conceptual frameworks, SWOT analysis, focus groups, workshops, the Delphi process, or guided visioning (Gallagher, 1988; Durning, 1989; Scholters, 1990; Robinson & Redford, 1994; Agar & MacDonald, 1995; McNeely, 1995; Borrini-Feyerabend, 1997; Jeanrenaud, 1997; Barton, Borrini-Feyerabend, deSherbinin, & Warren, 1998; Huntington, 1998; Kothari, Anuradha, Pathak, & Taneja, 1998; Smith, Cooley, Tousignant, & Cunningham, 2000). By bringing diverse factions together through common interest, such group work represents a vehicle to overcome conflict (Varga & Vereseg, 1992). Each idea generation technique has strengths and weaknesses that should be assessed in light of the specific SRM situation. These techniques involve the use of varying degrees of anonymity, individual and group work, oral and written input, graphic and performance tools, and listening. Customary forums may also have a role in consensus decision-making. For instance, the SRM group could

consult with local representatives and community leaders to determine if a culturally specific event is suitable.

5.5.5.2 Community Participation in SRM Decision-Making

Delphi experts delineated several aspects of community participation in the SRM decision-making process related to preparation, time frames, meetings, dependency, local power dynamics, parochialism, and community spokespeople. These are elaborated below.

5.5.5.2.1 Preparation

Delphi experts indicated that a promotional and preparatory phase is a necessary precursor to community involvement in decision-making. During this initial phase, opportunities for participation in SRM decision-making should be advertised through a variety of local media. Wolfe (1988) also determined during planning exercises in northern Ontario Aboriginal communities that a preparatory phase contributes to community 'readiness'; generates interest in participation; develops community-determined concepts, principles, and working structures to guide participation; and develops awareness of SRM issues and local needs.

5.5.5.2.2 Time Frames

Delphi experts suggested establishing a realistic timeframe for participation that provides the maximum number of community members an opportunity to be involved. This requires taking into consideration factors such as seasonal on-the-land activities, daily work schedules, differences in men's and women's availability, the timing of community events, and local

customs. Posting a schedule of SRM activities and deliverables will allow community members to plan their involvement in advance.

5.5.5.2.3 Meetings

Vuntut Gwitchin experts suggested that SRM groups should conduct more meetings in Old Crow and should spend more time in the community once there. As one Vuntut Gwitchin expert said: *Don't fly in on day, have an afternoon meeting, and then fly out the next morning. Take more time with the people.* This will increase the visibility of SRM in the community, enhance the number of participation opportunities, and lend credibility to the process (Witty, 1994; Wolfe-Keddie, 1994; Chambers, 1999).

5.5.5.2.4 Dependency

The present study found that community members need to more actively pursue participation opportunities and to take responsibility for bringing their views forward. Generating community involvement is not the sole responsibility of an SRM group. Some government experts expressed frustration at the amount of time and effort they expend in encouraging community participation to little or no avail. Vuntut Gwitchin experts explained that decades of exclusion from decision making by a centralised bureaucracy, imposition of externally generated policies and programs, acculturative pressures, and decreased community well being have led to distrust, dependency, and indifference. In overcoming these obstacles, it will be critical for any SRM regime to take a long-term view in helping the community to determine and to realise its goals, and to establish a pace of involvement that the community is comfortable with. Similarly Warner (1997) in a study of Caribbean conservation and development determined that an inherited tradition of top-down

administration and a legacy of dependence were key constraints to SRM participation but that gradual, participatory development overcame these constraints.

5.5.5.2.5 Community Power Dynamics

Some Delphi experts warned that unequal access to power within the Old Crow community can heavily impact both the process and outcomes of SRM initiatives. Local elites can dominate participation opportunities and effectively become a conduit to the SRM group for restricted, vocal interests. In this case, community participation favours particular interest groups and issues, masks differences and silences divergent positions, and functions as no more than a select advisory group. This is simply another form of co-option, yet the community itself initiates it. Corruption, nepotism, and coercion occur at a local level and this can subvert communal goals and values (Cox & Mair, 1988). For instance, as Reed (1995) concluded in a study on co-management in hinterland areas, specific local actors can coalesce to skew participation towards a narrow set of values, thereby restricting broad, community level involvement. This proves cautionary for SRM groups and communities alike. Given the above organisational and procedural conditions, unified positions are as likely to be the result of factional coalitions and muted dissent as they are to represent a genuine community-wide consensus. Special attention must be paid to factors such as internal community dynamics and the process for identifying local experts if genuine community participation is to be achieved. Participation processes that include the perceptions and insights of otherwise marginalised community members can strengthen SRM by contributing widely held yet weakly expressed values (Western, 1994).

5.5.5.2.6 Parochialism

Government experts in the Delphi project pointed out that parochialism in its many forms can conflict with the broader mandate of an SRM regime. Delphi experts described instances where in public meetings influential local people rejected the need for resource prohibitions or protective measures related to migratory ducks, geese, and swans, unaware of the habitat destruction, hunting pressure, and pollution threatening the survival of these birds in overwintering locations. Western and Wright (1994) also found that local communities are frequently unaware of the larger political, economic, ecological or social forces at play in a resource management setting.

This study also found that the intense conservatism of some local people can blind communities to their environmental impact or to their responsibilities to the wider world. By way of illustration, several Delphi experts discussed continued use of oil as the primary energy source in Old Crow despite VGFN's opposition to oil and gas exploration and development and despite dramatic evidence of climate change in the Arctic. It is challenging for SRM when a community's values conflict with sustainability principles or the broader impacts of local priorities are ignored.

5.5.5.2.7 Disenfranchisement

Elders in the Delphi project were very concerned about the mix of voices emanating from the community. They worried about the undue influence of people who are *caught between cultures*, those who have drifted away from traditional ways and teachings and are not yet anchored to new values. These people do not live by the tenets of Vuntut Gwitchin TEKMS nor have they articulated Vuntut Gwitchin TEKMS with non-traditional knowledge (Francis, 1992; Stevenson,

1996). According to Elders, these people have no guide for living, do not express traditional values, and cannot speak for the community. In their view, extensive re-education of disenfranchised community members and attempts to reconcile new and old ways are required: *Training is really important. Got to get training from old people about our way of life. Today young people got to get training in white people way of life too. Got to know what those people do. At the same time you have got to learn old people's way. Would be really good to see young people in the bush so they could know how they are going to use it.* Elders can find powerful allies for these efforts in SRM groups who also want to prevent the estrangement of people from the land and a traditional lifestyle.

5.5.5.3 SRM Negotiation Framework

This research determined that SRM actors need to meet and discuss issues of joint concern with the purpose of agreeing on: a common, long term SRM vision related to the resources at stake and the social, economic, cultural, legal, and political issues surrounding them; short- and medium-term shared goals to achieve the SRM vision; an action plan to accomplish these goals, which includes determination of work plans that allocate responsibility for tasks and development of schedules for the delivery of action items; and an on-going monitoring and evaluation process. This framework is discussed below.

5.5.5.3.1 Developing a Common Vision

In the present study, participants indicated that the initial step in negotiations is to clearly define the common vision on which to base SRM. This vision provides an overall framework for the SRM process and should be broad enough to encompass the range of desired outcomes. The

process of developing a common vision consists of four basic steps: communication initiatives aimed at education and social learning; identification and involvement of key participants; application of participatory techniques to generate a common vision; and enshrining of the common vision.

5.5.5.3.1.1 Communication Initiatives

To launch the visioning process, Delphi experts recommended that the SRM group undertake communication initiatives with communities, other institutions, and stakeholders to introduce them to the SRM regime (see section 5.5.3). Communications should aim to promote understanding and open dialogue about issues such as the nature of SRM and why it is needed; who initiated the SRM process; what steps the process involves; and how people can participate. As an information and education initiative, this will acquaint the public with the SRM concepts and potentials, and as a social learning exercise, it will help people begin the process of transforming SRM to accommodate the local cultural and resource setting. During this initial stage, each party to the SRM agreement should arrive at an internal consensus to determine the values, interests, needs, and concerns it wants to bring forward; to define its capacities; and to decide what role it wants to play in management (e.g., advisory, executive, decision-making, benefactor). By the time negotiations commence, each group should be well informed, organised, and ready to participate.

5.5.5.3.1.2 Participants

Experts suggested the visioning process should include all entitled and responsible actors in SRM (e.g., those with genuine proprietorship). In particular, experts emphasised a *bottom-up* or

grassroots approach to prevent the imposition of a pre-determined SRM process and the domination of the process by a specific individual or interest. Not only SRM representatives, but also community experts (Elders, community leaders, expert resource users) and senior resource managers from government should be present. This lends the process credibility and empowers frontline people to fulfil their commitments. Equally important is involving the decision-makers that will ultimately approve the SRM plan. As one expert cautioned: *Too often, well-minded local residents work with SRM representatives to prepare a resource management [vision] only to find at the final stage that the vision is unacceptable to decision-makers.* Significant effort at this early stage to establish linkages between the SRM group, the community, stakeholders, decision-makers, and the broader public is likely to be returned ten fold later in the process when agreements need to be formalised and implemented.

5.5.5.3.1.3 The Visioning Process

In the present study, experts suggested that the SRM visioning process should consist of a series of gatherings (e.g., initial community workshops to solicit input from all concerned parties and formal follow-up meetings of SRM representatives to finalise the common SRM vision). Government experts advised that an independent professional should facilitate these meetings. The expected outcome of this gathering - to establish a base of common interest and concern - should be clearly stated (Durning, 1989). In these meetings participants should be encouraged to visualise their options by discussing long-term directions for SRM or imagining the kind of world they would like to leave future generations: *We should talk about the ancestors and what we want for the grandchildren and the unborn.* No matter what information-gathering approach is used during visioning, all ideas should be recorded without discrimination and with emphasis

on a visual and concrete description of the future. Similar ideas can be clustered and developed as elements of the common vision. By discussing the environmental, social, economic, and cultural legacy they desire, participants can develop a consensus vision of the desired future (Borrini-Feyerabend, 1997).

During this discussion of values that frames the setting of goals, conflicts and disagreements are likely to arise and will require negotiation, consideration of trade-offs, and compromise (Gordon, 1993). Social consensus is difficult to renounce and is critical during later negotiation phases when conflict may arise. SRM participants should understand that specific goals will be developed at a later stage to achieve desired benefits and to alleviate prominent fears.

5.5.5.3.1.4 Enshrining the Vision

The present study determined that an SRM group should write down their common vision in clear and concise language and enshrine it in some type of social contract before any SRM initiative or project begins. Delphi experts suggested this process of legitimisation could be achieved by celebrating the common vision using locally respected customs. Ritualising the common vision publicly and symbolically validates it. The choice of ceremony is a local and cultural concern. Experts in this project recommended combining traditional and modern elements in the ceremony. For example, the SRM group could host a community feast and distribute gifts to participants followed by Elders' prayers, and a public reading and signing of an agreement. The celebration could continue with speeches and traditional dancing. According to Borrini-Feyerabend et al. (2000) agreements are legitimised when they are accepted and recognised as binding by both the people who developed them and society as a whole.

5.5.5.3.2 Developing a SRM Strategy

After developing a common vision, this study found that an SRM group should define a strategy to accomplish their common vision. This entails describing core SRM issues, developing short- and medium-term shared goals, defining actions to achieve these desired results, and creating work plans and schedules.

The process of establishing shared goals should begin with a discussion of current resource issues and trends. Delphi experts emphasised: *This is an area of great concern. It will be impossible to negotiate a resource plan unless there is agreement from the outset about priority areas.* Ultimately, the SRM group needs to agree on a description of current conditions as well as the key issues to be addressed by the process. SBRMS and TEKMS should be used to develop a balanced snapshot of the existing resource setting. Through communication initiatives with local communities, involved resource management institutions, and other stakeholders, the SRM group should: outline the existing environmental, cultural, economic, and social issues for the SRM area; compile background information about the region (e.g., from oral history, archival sources, past research); and define the legal, political, and institutional context of SRM (e.g., existing legislation, agreements, traditional tenure systems). This discussion furthers the collaborative process in that SRM partners come to a common understanding of the history and context of management (Johnston, 1999). Once established, the current conditions should be compared to the SRM group's future vision. Outlining the main points of difference will reveal the primary areas where shared resource managers must focus attention. Some areas will be of common concern, while others will have added significance for a particular partner. According to Delphi experts, it is necessary to break down the long-term vision into these smaller, workable components. This set of core SRM issues forms the foundation of the SRM strategy.

Next, strategic shared goals should be developed to address each core issue. These goals outline the broad outcomes that SRM participants desire and relate to specific elements of the common vision. They aim to transform the current situation in the short- and medium-term. These shared goals are the building blocks of the management strategy. Experts warned against the prevalence of high-priority, short-term goals and suggested balancing immediate concerns with longer term, proactive thinking.

The SRM group should determine how to progress towards the future by developing actions to accomplish each shared goal. This step aims to make what is desirable a reality (Borrini-Feyerabend et al., 2000). It is important to breakdown complicated or onerous actions further into a detailed list of tasks. Up to this point, vision and goal statements were general and broad. At this stage, SRM participants need to provide concrete details, focusing on the question of *what exactly needs to be done and how can we achieve it?* Alternate actions should be assessed based not only on their desirability but also on their feasibility. Delphi experts explained that, as an array of options surfaces, people's differences become evident and complex conflicts often arise. At this crossroad, collapsing the large SRM group down into small groups or using alternative participatory techniques to tackle the implementation of each shared goal is advisable. Each SRM partner may have strong interests attached to certain alternatives since different actions have different costs and benefits. Reaching a consensus on an action plan may be challenging so giving everyone space and time to describe what s/he wants and why s/he wants it is a critical element of affecting compromise: *If people feel that they were heard and their input was effectively considered, agreement is easier to achieve.*

The objective in the last stage is to identify a work plan and schedule to implement the SRM action plan. The SRM group should start by identifying each actor's broad roles and

responsibilities. Tasks and actions should be divided among SRM partners equitably, according to the capacities, resources, and strengths of each party. Next, a schedule for deliverables, reporting, and the evaluation of results should be determined. Actions should be accomplished within a set period of time. It is important to celebrate the completion of SRM tasks. Publicly honouring the accomplishments of the SRM group will promote local ownership of the process, generate acceptance of the outcomes, and sustain people's commitment.

5.5.5.4 Community Participation in SRM Implementation

The present study showed that certain SRM responsibilities are best accomplished at the local level (see section 5.5.5.5). It is important to make the SRM implementation strategy publicly available to demonstrate who will undertake specific components of SRM plans and to clearly illustrate a strong commitment to local involvement. Delphi experts suggested flexibly phasing-in local management functions as the community gains capacity. Experience and evaluation will determine how the community wants to strengthen its involvement in SRM implementation.

5.5.5.3.1 Transferring Benefits

Experts in the present study felt SRM was more successful and community participation more probable when there were mechanisms for returning SRM benefits back to local people. Communities cannot be expected to shoulder the costs of SRM while benefits accrue to outsiders (Fisher, 1995). Delphi experts suggested that SRM benefits could include employment, training, compensation payments, increased access to resources, or more intangible forms such as empowerment, local organising capacity, and the reinforcement of TEKMS. It is noteworthy, as

other researchers have found, that despite assurances of long-term gain, short-term benefits are necessary proof of the efficacy of SRM (Donovan, 1994; Pearl, 1994; Strum, 1994).

5.5.5.3.2 Strengthening Community Institutions

Delphi experts indicated that there is limited capacity among Vuntut Gwitchin community members and organisations to perform the varied functions currently required of them in SRM (e.g., advocacy, policy development, research, monitoring, enforcement). Thus, SRM groups face a challenge in strengthening existing community institutions and in creating new ones where needed. As Renard (1991) concluded, action is required to reverse trends of dependency and to promote reclamation of local responsibility. However, according to Warner (1997), undertaking to realise the potential of community contributions to SRM necessitates intentional care and ongoing maintenance.

Delphi experts recommended several initiatives to promote community building and to enable local participation at all SRM stages. Mechanisms are required to provide for joint delivery of SRM at the local level (e.g., local staff committed to the daily process of SRM). Community building requires a dedicated SRM staff person to act as a local 'animator' (e.g., assisting the community in securing relevant information, networking, accessing external funding sources, or undertaking organisational development). Providing appropriate training in a variety of disciplines related to SRM can also aid local people in taking the lead on important SRM projects such as TEKMS research, resource restoration and enhancement, public outreach and advocacy, community economic development, and resource monitoring programs.

5.5.5.3.3 Ensuring Equity

This study found that SRM implementation activities must not disadvantage particular groups or individuals in a community. Delphi experts were concerned with fairness and pointed out that support and compliance are more likely to be achieved if the costs and benefits of SRM are distributed fairly. For instance, advertisement of SRM employment and training opportunities should be timely and widespread. While discussions of equity in this study were limited in scope, other researchers have pointed out the importance of equity in SRM between different communities, at the level of national interests, and in terms of people remote from local management areas (e.g., those wanting recreational opportunities) (Sarin, 1993; Fisher, 1995).

5.5.5.5 SRM Monitoring and Evaluation

Periodic monitoring, evaluation and modification of the SRM vision, shared goals, and action plan were identified as important in the present study. An adaptive management outlook can give SRM partners confidence to take calculated risks and to accept innovation. Dale (1989) and Rein and Schon (1986) advocated an approach where participants are engaged in 'conversation' with their situation, a dynamic where the situation 'speaks' back to participants, they listen, and change in response. Monitoring criteria and indicators of success is one way to engage in this discourse and to track the achievement of desired results. Experts insisted that management decision dogma (the attitude that *we made a management decision and now we have to defend it even if it does not appear to be working, otherwise we will lose credibility*) should be strictly avoided.

SRM partners need to participate in continual reshaping of SRM processes and solutions. This is particularly important in the present study since many researchers have reported an

Athapaskan worldview in which the future is seen as uncertain and beyond control (Goffman, 1974; Guedon, 1974; Scollon & Scollon, 1980; Thompson, 1984). Gallagher (1988) reported that Athapaskans 'condition' the future, saying 'if' something happens rather than 'when'. Vuntut Gwitchin experts explained that speaking of the future with great certainty is presumptuous. Thus, monitoring plans to see if they achieve intended outcomes and returning regularly to adapt them is key. This includes monitoring the implementation of SRM plans to distinguish problems, evaluation of the SRM process and outcomes to identify lessons, and developing actions and changes based on evaluation findings. Monitoring should parallel the SRM implementation process and should track process and technical issues (Warren, 1998). SRM represents a dramatic reorientation in policy and practice, and existing approaches are likely inadequate to accommodate this change (Fisher, 1995). Social relations, values, economic conditions, traditions, beliefs, knowledge, and the environment itself are also likely to transform over time. Adaptive systems are necessary to respond to change, whether it is rapid, as in a wildlife population crisis, or slow, as in the evolution of local management institutions (Barborak, 1995; Munro, 1995).

SRM evaluation should identify the positive and negative aspects of completed SRM programs or plans, and generate lessons that can be applied to the design of future plans. Evaluation is necessary to refine the process of SRM (e.g., community participation, communication, operating procedures, decision-making process), and to assess the effectiveness of SRM activities. As Warren (1998) concluded, linking past experience and future initiatives lends continuity to the SRM process and increases people's motivation. Evaluation that leads to "proof of change is vital to convince people [that] their input was valued and that the process was worthwhile" (Higgelke & Duinker, 1993:ii). Quantitative and qualitative techniques can be used

in SRM evaluation. Delphi experts indicated that evaluation must be culturally sensitive and must include local evaluation methods. A variety of tools are available to assess SRM activities including simple cost/benefit analyses, general before and after comparisons, on-site observations, identification and scoring of key qualitative indicators, mapping social and environmental changes, or the use of photos of SRM activities to stimulate evaluation (Warren, 1994, 1995, 1996; Mori, 1996).

Most importantly, SRM evaluation should result in learning. SRM groups and communities need to recognise their mistakes and to transform them into sources of knowledge by 'telling stories' of what was learned along the way (Stein & Edwards, 1999; Borrini-Feyerabend et al., 2000). SRM representatives must be committed to individual growth and the SRM group must be committed to innovation, flexibility, and learning by doing. It is important to disseminate the results of SRM evaluation to a network of other communities and SRM organisations in order to advance collective understanding of the practice of SRM.

5.6 FUTURE MODIFICATIONS AND APPLICATIONS

5.6.1 Limitations

Limitations - Section Overview

- Limitations of the modified Delphi method relate to feelings of isolation and loneliness resulting from low personal contact, restricted continuity and synergy, limited relationship building potential, and the vulnerability of a participant-centred process. In addition, the findings of a Delphi study may be difficult to implement if powerful individuals outside the process (e.g., decision-makers) fail to buy-in.

The limitations of the methodology identified by experts relate primarily to the advantages of face-to-face group communication not achieved by the modified Delphi method (Table 4.38). In the researcher's opinion, these limitations did not seriously impact the Delphi group's performance or task effectiveness; rather, they impacted experts' level of satisfaction. It is noteworthy that of the few dissatisfied Delphi members, most were government experts. Although these experts resisted accepting a novel, unconventional method of inquiry, the benefits of the modified Delphi approach for Vuntut Gwitchin and the majority of government experts far outweighed this resistance.

Some government Delphi experts felt isolated and lonely as a result of low personal contact with other group members and the principal researcher. They missed the social and interactive aspects of group work: *Some of the fun was missing from Delphi.* Vuntut Gwitchin experts also missed the pleasures of working as a group: *Working with people in Old Crow is a lot of fun. There is always humour, good food, and lots of activities outside of work hours. In Delphi,*

participants missed out on these types of positive interactions. Dinner was a good idea - more activities like this interspersed throughout.

In the present study, it was challenging to sustain in-depth communication among experts because of delays between rounds, a limited number of exchanges, and limited direct interaction between participants. Long distance participation had temporal costs. The more immediate, spontaneous conversation that would take place if participants were face-to-face was lost. The lag between responding and receiving feedback was difficult for some experts: *It is like a slow motion dialogue. It is not as responsive as a group discussion.* Long distance participation made the probing and follow-up that is possible in a group setting more difficult to accomplish; for example, the Delphi process restricted people's ability to challenge other experts' thinking, seek clarification on issues, explore issues in added depth, and receive positive personal feedback without delay. A few participants felt this diminished the creative and synergistic potential of the group. Two Delphi experts suggested that combining, summarising, and paraphrasing ideas to reduce Delphi feedback into a manageable size also restricted in-depth communication (e.g., blending a number of similar positions into a single summary statement could mask subtle differences in experts' thinking). However in face-to-face settings, in-depth communication is also impeded -- in this case by differing assumptions, backgrounds, languages, cultures, gender, status, and knowledge (Beebe & Masterson, 2000). Finding ways to promote more in-depth communication among experts is an enduring challenge in all types of structured communication (Rotondi & Gustafson, 1996).

Another major challenge in the present Delphi process was realising the relationship building benefits of face-to-face groups. A certain amount of trust, respect, camaraderie, understanding, and familiarity developed over the course of the present Delphi exercise. However, it was

difficult to replicate the interpersonal potential of face-to-face group work (e.g., people spending time together in informal settings). According to some experts, this Delphi application did not foster a high level of relationship building among experts: *The greatest shortfall of Delphi is the lack of personal interaction to build the trust and respect that's necessary to value and consider other people's perspectives along with one's own values and ideas.*

The success of a Delphi process relies heavily on participant commitment, whereas face-to-face group work is facilitator-centred (Needham & deLoe, 1990). Researchers in the present study had limited control over participation; if experts were unmotivated, uninterested, frustrated, or hesitant, their contributions could have suffered. Experts had liberty to contribute as much or as little as they wanted (e.g., not to review feedback, not to prepare for interviews, or not to spend time writing responses). Researchers could only encourage, remind, arouse, and guide. For example, if an expert were unhappy, s/he had to raise her or his concerns with the researchers or problems only worsened. Alternatively, people needed to read to gain the full benefit of feedback. As one expert suggested: *To participate in a meaningful way in Delphi is challenging and requires a lot of focus and commitment on the part of participants. For example, I needed to energise creative thought processes for significant periods of time.*

5.6.2 Suggested Modifications

Suggested Modifications - Section Overview

Suggested modifications include:

- Additional opportunities for social Delphi group interactions
- Side conversations
- Conversation histories
- Improving the timing of feedback materials
- Securing organisational commitments
- Increased task leadership from researchers
- Combining the Delphi method with face-to-face group work.

This section presents recommendations for further adaptation of the modified Delphi method with a view to improving the design of future projects by creatively addressing the limitations identified in section 5.6.1. Suggested modifications are aimed at enhancing the potential for in-depth communication and relationship building, continuity, and participant motivation.

Additional opportunities for social Delphi group interactions (e.g., assembling the group at the beginning and the end of the project) were recommended by Delphi experts to promote teamwork, to enhance familiarity among members, and to encourage ownership of the process and the results. Alternatively, if all experts had computer access, an Internet forum (e.g., chat room or home page) could be devoted to socialising. There are many electronic innovations available to enrich Delphi processes ranging from web-based discussion groups to computer mediated Delphi as a substitute for the traditional mail-out approach. The utility of increased social interaction is outline in the literature which suggests that, as individuals know more about each other and increase their history as a 'social group', in-depth communication is more likely (Turoff & Hiltz, 1996). Other researchers have found that increasing social-emotional exchanges

can facilitate consensus development and eliminate misunderstanding (Hiltz, Johnson, & Turoff, 1986).

Side conversations could be encouraged. Delphi participants could be instructed each round to contact one other Delphi project member to discuss project issues directly. These side conversations could take place via telephone, face-to-face, or using e-mail simultaneous with but independent of the primary conversation (e.g., interviews or self-administered surveys). In order to preserve anonymity in the process, experts would not reveal their code names. When researchers perceive important topics being neglected, see areas of misunderstanding, or want to encourage conversation in a particular direction, they could also initiate side conversations. Researchers would be responsible for summarising these exchanges and providing them to the entire group. The time allowed for side conversations would be brief; experts would provide input within a few days. The purpose of side conversations would be to encourage in-depth, spontaneous treatment of issues and to enhance feedback, not to increase the burden of participation. Side-conversations have potential to increase the level of identification and familiarity among participants and to reduce feelings of isolation. They may also increase the value of the information experts receive, thereby motivating participation. Side conversations would provide an avenue for each Delphi expert to raise questions, solicit information, obtain clarification, or seek a second opinion interactively. Rotondi and Gustafson (1996) found that such interactions outside of a structured communication process allowed members to explore ideas in greater depth and reduced isolation.

In order to preserve the richness of the Delphi group's thinking and to increase synergy, conversation histories could be developed. These would record all comments experts provide on a single topic throughout the project. Conversation histories could make the similarities and

differences in experts' thinking more visible and could reveal, in added depth, the reasoning behind people's positions. They might also enhance continuity by providing a mechanism to link ideas on important topics from round to round and by sustaining an exchange among experts. Similarly, Rotondi and Gustafson (1996) found that organising Delphi experts' responses like a transcript or a conversation from a drama facilitated the development of in-depth communication.

Experts in the present study suggested enhancing continuity by staggering the distribution of feedback materials to *keep project issues in the forefront of experts' minds*. Instead of concentrated pulses of material, information could be provided in a more frequent, sustained manner. For example, to maintain interest and involvement, newsletters could be disseminated between rounds or stimulating expert quotes and interesting findings could be provided as bulletins via mail or e-mail on an ongoing basis.

Although the present research was not directly tied to any group's objectives, there may be benefits of acquiring organisational commitments in future research. Delphi researchers could solicit concrete contributions from participating organisations in terms of staff time and financial resources by focusing a Delphi study on an area of concern. Experts felt organisations would *expend considerable resources to have their problems solved*. This could give experts *more time to work on Delphi tasks and to make Delphi a priority*. Experts recommended decreasing the duration of each round and requiring experts to immerse themselves in the Delphi process for one week a month. Experts also felt that participants' motivation would increase if Delphi performance could affect professional evaluations or future prospects. Sponsoring organisations could also ensure that a Delphi groups' recommendations were implemented. Baradecki (1984),

Bijl (1996), and Bertin (1996) all demonstrated that a Delphi exercise works particularly well when a group has a mandate for change from powerful and influential sponsors.

Increasing researchers' task leadership behaviours may help a Delphi group move more readily towards its goals. Task leadership includes initiating, co-ordinating, summarising, elaborating, and gatekeeping (Barnlund & Haiman, 1960; Fielder & Garcia, 1987; Hersey & Blanchard, 1992; Beebe & Masterson, 2000). In future applications, Delphi researchers could contribute more to the group's effort by making additional procedural observations and recommendations, giving additional background information, co-ordinating side conversations, requesting that individuals elaborate on or clarify ideas, directing people to issues that involve them, organising social events, intensifying contact procedures, or providing additional summaries of feedback to improve clarity and comprehension. For instance, researchers could provide summary sheets defining key words used by experts in the Delphi process on an ongoing basis to enliven thinking, increase continuity, and decrease cross-cultural misunderstanding.

The Delphi method could be used in combination with face-to-face meetings such as focus groups, workshops, or the Nominal Group technique, capitalising on the advantages of different methods. Delphi experts suggested holding a luncheon at the beginning of each round to orally present feedback and allow experts to interact informally. Another proposal was to create small, specialised working groups outside of the Delphi process. These groups could address specific topics and provide products to the Delphi group to stimulate thinking and deepen communication.

5.6.3 Recommendations for Future Applications

The previous discussion has demonstrated that the modified Delphi method made major contributions to cross-cultural communication, participation, and idea generation among Vuntut Gwitchin and resource managers, and that it succeeded in identifying essential elements of SRM in the north Yukon context. Although any particular demonstration of Delphi efficacy cannot be taken as an indicator of the more general validity of the technique (since demonstrated effectiveness is partly dependent on factors such as the characteristics of the panel, the task, and the study design) findings from the present application, in combination with evidence from other Delphi studies (Bijl, 1996; Rotondi & Gustafson, 1996; Ziglio, 1996) that reinforce the validity of methodological adaptations undertaken in the present work, suggest that the modified Delphi method has potential utility in other SRM settings.

There is an increasing commitment to the development and success of SRM (Western & Wright, 1994; Fisher, 1995; Kofinas, 1998; Berkes, 1999; Warren, 1998; Usher, 2000). Yet, relationships and exchanges of experience and information amongst SRM partners are often far from ideal, thereby hindering SRM effectiveness and efficiency (Roberts, 1994a, 1994b; Beckley, 1998). Opportunities for improved participation, cross-cultural communication, and critical thinking in SRM are a necessity (Borrini-Feyerabend et al., 2000). In response to this challenge, the modified Delphi method could be used to assist First Nations and resource managers to identify the essential elements of effective SRM in other resource settings and cultural contexts. It may also function as a mechanism for developing aspects of SRM partnerships in the north Yukon and elsewhere (e.g., making a decision on contentious or sensitive issues or developing a cross-cultural SRM communication strategy). Beyond the SRM arena, the modified Delphi method may find application in other areas requiring cross-cultural

communication, participation, and idea generation (e.g., social services, education, health, governance). Although the basic features of the modified Delphi method will remain the same, their specific usage will vary from one circumstance to the next in response to unique local conditions (e.g., duration of the study, level of anonymity desired, number of panellists, specific expert selection criteria, manner of remuneration). Further research to assess and to develop these potentials is warranted. Several recommendations for successfully implementing a modified Delphi method in a cross-cultural environment are advanced below to assist future applications.

- Researchers should consider employing the methodological adaptations (section 3.2) and the data management and analysis procedures (section 3.3) outlined in the present study.
- Different methodological adaptations may be required based on the culture, needs, and preferences of different expert groups.
- The definition of expert should be varied according to the context within which the Delphi is applied.
- Systematic expert selection procedures should be used to determine the number and type of panellists. Soliciting panel nominations using progressive network referrals from non-participating experts and identified Delphi experts is recommended.
- Explicit, formal selection criteria are required to determine individuals' expertise and ability to participate.
- Delphi researchers should evaluate experts' motivation in order to identify mechanisms that could enhance the commitment and contributions of experts.

- A Delphi project should employ a community researcher who is identified by the involved First Nation.
- Delphi researchers should exhibit the qualities and skills outlined in section 5.3.4 and section 5.3.1.1.1.
- Delphi researchers should ensure the use of Aboriginal languages and should employ qualified, experienced local translators.
- Data collection methods should be adapted to the needs and preferences of expert groups and should allow for both oral and written communication.
- Cultural translation of research and evaluation questions as outlined in section 3.2.2.3 is recommended to increase understanding and the chance of meaningful responses.
- Cultural translation of Delphi feedback as outlined in section 3.2.2.5 is recommended to accommodate a variety of communication styles and to improve readability and comprehension.
- Researchers should attend to the design and organisation of feedback workbooks and research workbooks to increase interest, enjoyment, and appreciation of content.
- Anonymity should be preserved to increase the level of expert equality and to decrease communication barriers.
- The use of code names is recommended to enable experts to develop Delphi identities, to follow other's thinking from round-to-round, and to specifically address others.
- Delphi researchers should attempt to build relationships among experts to ensure the outgrowth of open and in-depth Delphi communication.
- Biographies, background information on expert views, and a bilingual glossary of common terms may enhance mutual understanding at the outset of a project.

- Qualitative feedback should be emphasised and elicited to reveal the rationales behind experts' judgements and the conceptual basis of experts' thinking.
- The use of participant quotes in Delphi feedback is recommended to enhance mutual understanding and to help experts recognise their individual contributions.
- Avenues for experts to directly exchange ideas inside (e.g., Expert Talk Back) and outside (e.g., side conversations) the Delphi process should be provided.
- Monitoring participant satisfaction using in-progress evaluations is recommended to adapt to the needs of different expert groups and to inspire experts' sense of responsibility for the success of the process.
- Delphi experts should be remunerated in a manner commensurate with cultural norms and/or professional requirements (e.g., gifts, monetary incentives).
- Communication mediums should include electronic mail, priority courier, facsimile machine, and in-person delivery of research materials to improve continuity.
- Delphi researchers should employ contact procedures to enhance response rates, monitor participation, and make experts feel valued (e.g., personalised e-mails, house visits, telephone calls, thank you notes).
- Methodological adaptations should also be identified on an ongoing basis in partnership with the community researcher, local translators, and pre-test subjects.

5.7 SUMMARY OF CONCLUSIONS

In conclusion, the modified Delphi method was successful in bringing experts with diverse backgrounds together to work on a complex, common problem when it was not practical or desirable for them to do so in person. Both qualitative and quantitative findings in this study indicated that the modified Delphi method succeeded in engendering participation, facilitating cross-cultural communication, and generating critical ideas and structured thinking. Key characteristics that contributed to these accomplishments included expert selection and motivation, communication adaptations, conflict management, and maintenance of a positive group climate. Participation in the present study positively impacted experts; it stimulated cognitive enhancement, moral development, empowerment, and personal and professional change. Eleven essential characteristics of SRM in the north Yukon experts identified were: a strong community-based approach to SRM; development of a common SRM vision and shared goals; skilled facilitation of a SRM group; partnership building efforts; elimination of cultural biases and stereotypes; effective communication among SRM partners; involvement of effective Aboriginal and government SRM representatives; collaboration among government agencies and First Nations to collect, understand, and store knowledge and information related to both SBRMSs and TEKMSs; using all available knowledge and information to make SRM decisions; development and use of effective SRM communication methods and media; and fulfilling the communication requirements of SRM. Future applications of the modified Delphi method should consider adaptations outlined in section 5.6.2 in order to enhance cross-cultural communication and understanding, and should follow the recommendations outlined in section 5.6.3.

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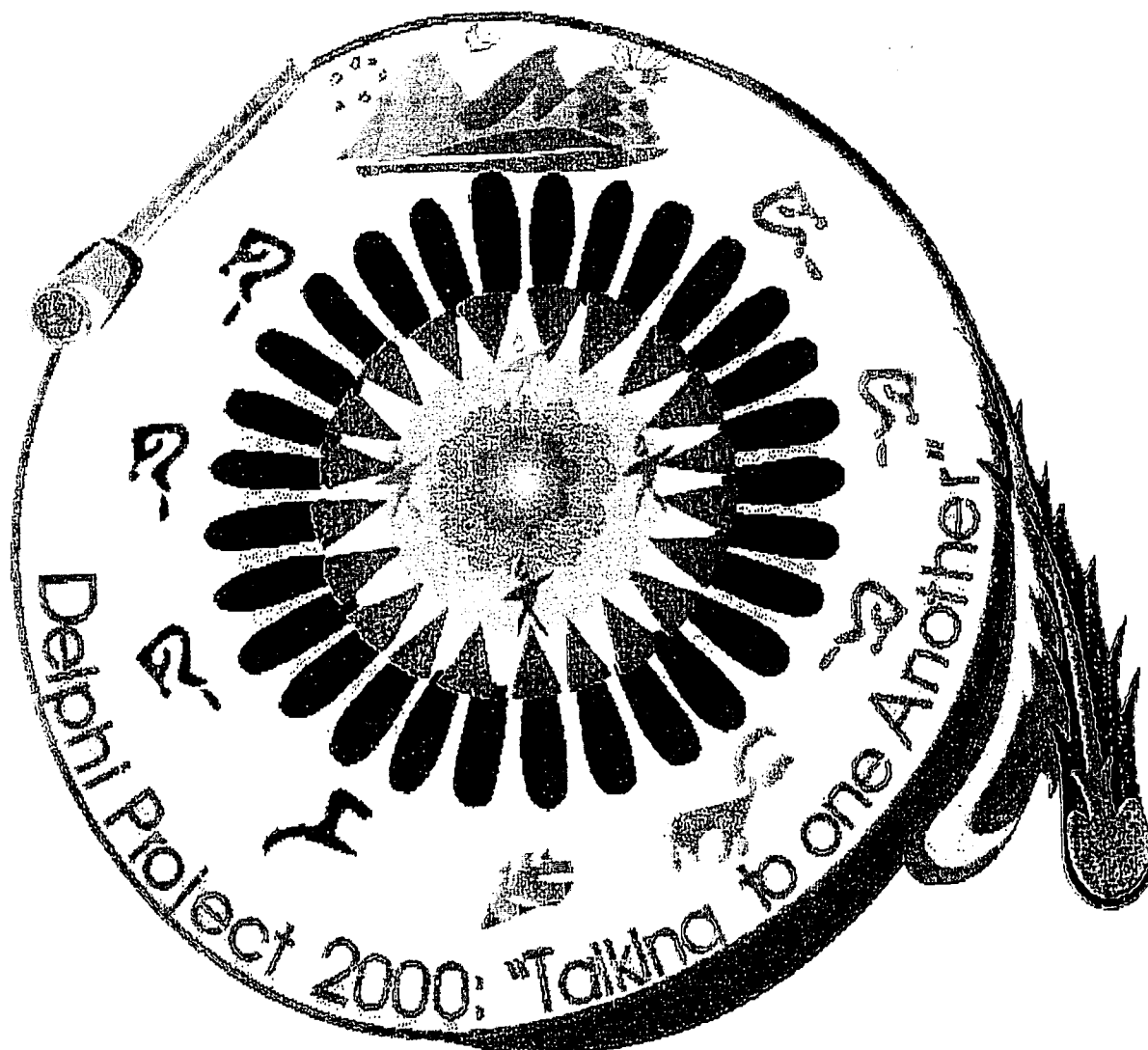
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APPENDIX A – DELPHI PROJECT LOGO



APPENDIX B - DELPHI ROUND 2 RESEARCH QUESTIONS

When you answer these questions, please focus on the North Yukon. All of the questions refer to shared resource management where the Vuntut Gwitchin First Nation, territorial government, and federal government occupy and use the same land, sharing rights and responsibilities. Examples of the situations we are referring to include places such as the Old Flats Crow Special Management Area, Fishing Branch Ecological Reserve, Vuntut National Park, Rampart House, LaPierre House, or the range of the Porcupine Caribou Herd.

Cross-Cultural Understanding

1. In your view, what are the underlying causes of cross-cultural misunderstanding in shared resource management?
2. How does cross-cultural misunderstanding affect shared resource management?
3. In your view, what promotes cross-cultural understanding?
4. Can you suggest some benefits or advantages of cross-cultural understanding in shared resource management?

Appropriate Management Process

1. In your view, what are the underlying causes of an ineffective shared resource management process?
2. How does an ineffective management process affect shared resource management?
3. In your view, what promotes an effective shared resource management process?
4. Can you suggest some benefits or advantages of an effective shared resource management process?

Decision-Making Regarding Resources

1. In your view, what are the underlying causes of flawed decision-making in shared resource management situations?
2. How does flawed decision-making affect shared resource management?
3. In your view, what promotes effective decision-making?
4. Can you suggest some benefits or advantages of effective shared resource management decision-making?

Communication

1. In your view, what are the underlying causes of miscommunication in shared resource management situations?
2. How does miscommunication affect shared resource management?
3. In your view, what promotes effective SRM communication?
4. Can you suggest some benefits or advantages of effective communication in shared resource management?

Building Relationships

1. In your view, what are the underlying causes of weak or adverse relationships in shared resource management?
2. How do weak or adverse relationships affect shared resource management?
3. In your view, what promotes strong relationships in shared resource management?
4. Can you suggest some of the benefits or advantages of strong relationships in shared resource management?

Developing Capacity

1. In your view, what accounts for inadequate capacity to participate effectively in shared resource management?
2. How does inadequate capacity affect shared resource management?
3. In your view, what promotes capacity building in SRM?
4. Can you suggest some of the benefits or advantages of adequate capacity in shared resource management?

Knowledge and Information

1. In your view, what is it about different knowledge systems (e.g., scientific knowledge systems and traditional knowledge systems) that can lead to problems in shared resource management?
2. How can such difficulties related to knowledge systems affect shared resource management?
3. In your view, what promotes the effective use of traditional knowledge systems and scientific knowledge systems in shared resource management?

4. Can you suggest some of the benefits or advantages of the traditional knowledge systems and scientific knowledge systems bring to shared resource management?

Maintaining Relationships with the Land and Developing New Opportunities

1. In your view, what are the underlying causes of resource use and management conflicts in the context of shared resource management?
2. How do these competing goals, values, or priorities affect shared resource management?
3. In your view, what promotes resolution of resource use and management conflicts in SRM?
4. Can you suggest some benefits or advantages of resolving these conflicts in shared resource management?

APPENDIX C - DELPHI ROUND 3 RESEARCH QUESTIONS

1. Presented below is a top 50 list. This list consists of two parts: the top 25 negative influences on shared resource management and the top 25 positive influences on shared resource management (i.e., causes of problems and successes). These lists resulted from Delphi experts' Round 2 feedback.

Cross-Cultural Understanding

Negative Influences

1. Cultural biases and stereotypes - pre-determined views about people; assuming groups of people have certain characteristics; making assumptions about how and what other people think
2. Misinterpretation of actions, events, or ideas because cultural filters prevent understanding
3. Unwillingness to share and explore each other's cultural views and values

Positive Influences

1. Exposure to and education about other cultures: breaking down ignorance and gaining awareness and understanding of other cultures
 2. Skilled facilitation of a co-management group
 3. Spending time together and developing personal relationships
-

Appropriate Management Process

Negative Influences

1. Failure to develop a common vision, shared goals, and common direction at the outset of a process
2. Inadequate input and participation by all necessary stakeholders
3. Use of inadequate/inappropriate information

Positive Influences

1. Team building
 2. Strong community based approach – extensive community participation and involvement; informing and involving the community in ways that are meaningful and appropriate to them
 3. Clear definition of each group's roles and responsibilities
 4. Detailed understanding of the resource under consideration
-

Decision-Making Regarding Land and Resources

Negative Influences

1. Top down as opposed to bottom up decision-making - lack of balance between community needs and interests and higher level needs and interests
2. Pre-determined process and outcomes - application of pre-existing decision-making models which are unsuited to local needs and realities or preconceptions about desirable decisions
3. Lack of a consensus-based decision-making process

Positive Influences

1. Appropriate First Nation and government representatives involved in co-management
 2. Conflict Resolution – a process to make difficult choices and deal with deadlocks/impasses that meets the needs and requirements of all stakeholders
 3. Effective communication between co-management partners
-

Communication**Negative Influences**

1. Language differences – information is not conveyed in understandable forms, misunderstandings related to language and terminology; use of technical or complicated language
2. Cultural differences in communication styles and requirements
3. Underestimating communication needs in co-management

Positive Influences

1. Use and development of useful and appropriate communication tools and mediums to convey information
 2. Participants need to be comfortable and have meaningful opportunities to communicate
 3. Listening
-

Building Relationships**Negative Influences**

1. Failure to overcome historical tensions and suspicions stemming from past relations between First Nations and “white” society
2. Mistrust
3. Lack of capacity to participate in shared resource management

Positive Influences

1. Equal power-sharing, balancing authority between co-management partners
 2. Long term commitment, stability, and continuity in players involved in co-management relationships
 3. Strong leadership
-

Capacity Building**Negative Influences**

1. Inadequate financial resources to conduct co-management
2. Lack of formal and informal cross-cultural education opportunities for government and First Nation people
3. Too many demands on too few people capable of meeting them leading to fatigue and burnout

Positive Influences

1. Appropriately designed and delivered training programs offered in the community and at outside institutions
2. Building work plans and deciding on priorities at local levels
3. Adequate staffing or human resources

Knowledge Systems**Negative Influences**

1. Different knowledge systems suggest different and competing interpretations of events, courses of action, and visions of the future
2. Difficulties summarizing and presenting scientific knowledge and/or traditional knowledge in understandable and meaningful forms
3. Failure to explain to each other and understand how the different knowledge systems are generated, validated, preserved, and shared
4. There is no good definition of either knowledge system – each is described in general and imprecise ways

Positive Influences

1. Preservation, teaching/transmission of traditional knowledge systems
2. Synthesis of the two systems- use all available knowledge and information to make decisions
3. Collaboration between government and First Nations to collect, understand, and store knowledge and information related to both systems

Maintaining Relationships with the Land and Developing New Opportunities**Negative Influences**

1. Different value systems, views of the world, and desired benefits from the land/resources - competing goals, values, and priorities
2. Different interpretations of existing legislation, laws, policies and procedures
3. Lack of access to and sharing of information - important information is not used by all the people who need it

Positive Influences

1. Considering tradeoffs and compromises
2. Recognition and respect for other people's values
3. Joint delivery of programs and services

a) **Review the top 50 list.**

b) **Select the ten influences (positive or negative) that in your opinion are most important.** After reviewing the top 50 list, it may be that an influence you want to discuss is missing. If this is the case, write the new influence down in a clear, concise manner. Add it to your priority list. Ensure that this list still contains a total of no more than 10 items.

- c) **Rank your 10 choices in order of importance** - from most important (1) to least important (10).
 - d) **What would you do to resolve or realize each of the ten items in your list?** We suggest you try to limit your recommendations for each item in your list to no more than 5 actions.
 - e) **Elaborate on how you would implement each of the actions identified above.**
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- 2. a) **Describe a positive experience you have had with shared resource management.**
 - b) **Why was it positive?**
 - c) **Describe a negative experience you have had with shared resource management.**
 - d) **Why was it negative?**
-

3. Presented below is a list of 10 terms and phrases used frequently by experts in the discussion of shared resource management in Delphi Round 2.

- Sustainable Land Use
- Working Together
- Satisfactory Community Involvement
- Power-Sharing
- Effective Communication Tools
- Effective Representatives
- Developing Common Goals
- Respecting Others
- Sharing Information
- Skilled Facilitators

- a) **What do these terms mean to you? In your own words, please indicate what you consider each to mean.**

APPENDIX D - DELPHI ROUND 4 RESEARCH QUESTIONS

1. Presented below is a top 11 list. Using a combination of the number of times each of the 50 influences was selected and the importance ranking given to each, the following 11 items were identified by participants as those most important in terms of their influence on shared resource management (SRM).

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- **CCU n 1:** *Cultural biases and stereotypes; pre-determined views about people; assuming cultural groups have certain characteristics; making assumptions about how and what other people think*
 - **CCU p 2:** *Skilled facilitation of a shared resource management group*
 - **CCU p 3:** *Spending time together and developing personal relationships*
 - **SMP n 1:** *Failure to develop a common vision, shared goals, and common direction at the beginning of a process*
 - **SMP p 2:** *Strong community-based approach; extensive community participation and involvement; informing and involving the community in ways that are meaningful and appropriate to them*
 - **MDL p 1:** *Appropriate First Nation and government representatives involved in shared resource management*
 - **MDL p 3:** *Effective communication between shared resource management partners*
 - **COM n 3:** *Underestimating communication needs in shared resource management*
 - **COM p 1:** *Development and use of effective communication tools and mediums to convey information*
 - **KS p 2:** *Synthesis of scientific and traditional knowledge systems; using all available knowledge and information to make decisions*
 - **KS p 3:** *Collaboration between various government agencies and the First Nation to collect, understand, and store knowledge and information related to both scientific and traditional knowledge systems.*
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- a) **Review the top 11 list.**
 - b) **Rank these 11 items in order of their importance to shared resource management** - most important (1) to least important (11).
 - c) **Select the 3 influences that in your opinion are critical to shared resource management.**
After reviewing the top 11 list, it may be that an influence you want to discuss is not included. If this is the case, write the new influence down in a clear and concise manner. Add it to your priority list. Ensure that the list still contains a total of no more than 3 items.
 - d) **If you were going to set up a shared resource management system that had a high probability of success, what would it look like in terms of your top three choices?** Your response should take into consideration the 11 points identified by the group as priorities. Also contribute your personal experiences, knowledge of existing shared resource management systems, and new understanding derived from the Delphi discussion.
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2. Describe a hypothetical shared resource management system, undertaken in the North Yukon after the implementation of the Delphi group's recommendations for improving the practice of shared resource management. Although it evolves in response to unique local contexts, we believe that several general characteristics of successful shared resource management can be described.

- a) **Review the SRM framework provided below.** After reviewing the framework, it may be that an item you want to discuss is not included. If this is the case, write the new category down in a clear manner.

i) Guiding Principles

ii) Institutional Structure

- formation (reasons for forming, formality)
- board size
- membership
- roles and responsibilities
- mandate
- vision and goals
- management approach
- funding
- administrative support

iii) Operations

- board meetings
- participant skills
- access to information

- research
- training/education
- decision-making process
- community involvement and consultation
- incorporation of traditional and scientific knowledge
- internal communication
- external co-ordination and communication
- delivery of programs and services

b) **Use the framework to identify characteristics of an ideal shared resource management system.** Your response should take into consideration the 11 points identified by the group as priorities. Also contribute your personal experiences, knowledge of existing shared resource management systems, and new understanding derived from the Delphi discussion.

3. This question focuses on the implementation of experts' Round 2 recommendations. **Although the following themes were evident in general recommendations from round 2, it is not clear precisely how they should be implemented. Please pick 2 of the following themes and describe explicitly what implementation procedures you would recommend.**

- a) What are the components of a good *SRM communication strategy*? How would you evaluate the effectiveness of this strategy?
 - b) What are the components of a good *SRM community involvement plan*? How would you evaluate the effectiveness of this plan?
 - c) What steps should be followed to *develop and implement SRM goals*?
 - d) What are the attributes of an effective *system for storing and accessing information relevant to SRM* (i.e., scientific and traditional knowledge)?
 - e) What *basic rules for working together* should a SRM group adopt?
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4. **Presented below is a list of 10 terms and phrases used frequently by experts in the discussion of shared resource management in Delphi Round 2.**

- Traditional Knowledge
- Satisfying Participation
- Resource

- Well-run Meetings
- Experts
- Interesting Presentations
- Values
- Easily Understood Information
- Protecting Traditional Knowledge
- Good Communicators

a) **What do these terms mean to you? In your own words, please indicate what you consider each term to mean in the context of shared resource management?**
