Fostering Evidence-Informed Decision-Making for Protected Areas through the Alberta Parks Social Science Working Group

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Abstract: Since 2012, the Alberta Parks division in the Province of Alberta, Canada has been engaged in a process of building scientific, research, and evidence-informed capacity and practices across the parks system. Following a series of priority-setting workshops and agreements with the research, Parks management, and local communities, Alberta Parks has adopted a working group approach and subsequent framework, to support the research and decision-making goals of parks and protected areas management, and the research communities. This Social Science Framework is an innovative way to support evidence-informed decision-making in the public sphere by explicitly linking data-specific needs (benchmark data in social, natural, and applied sciences) with both established and emerging policy and research priorities. It is also a way to situate those needs within a broader goal of inter-organizational collaboration. This paper presents the background and developmental context to the framework, and its structure and desired functionality. The paper concludes with an assessment of the anticipated benefits and potential liabilities of this direction for linking academic and policy agents and organizations in a more formalized structure for environmental policy.

1. Introduction

Aichi Biodiversity Target 19 [1] calls for states to improve, share, transfer, and apply knowledge, science, and technologies to provide more and better information to support decision-making. In the realm of parks, such evidence-informed decision-making can help to improve areas such as management effectiveness, planning, and visitor experiences [2]. Commonly understood as grounded in scientifically valid and reliable research, evidence for decision-making includes not just the use of data, but also aggregation, synthesis, assessment, and analyses of those data (and their individual or collective analyses) to identify potential solutions to a broader question of "What should be done" and the complementary "How should it be done?" The choice of when, how, and how much to access evidence in management decisions is, therefore, influenced by individual judgments, an organization's culture, and an organization's rules, structures, and procedures [2,3]. Our study focuses on one agency, Alberta Parks (the provincial agency responsible for parks), to explore a process and framework developed to promote evidence-informed decision-making focused upon socially-based, and derived problems, and thus calling upon knowledge and evidence from the social sciences. For the purposes of this paper, we differentiate natural science (primarily concerned with natural events in the natural world) from social science (concerned with people and their behaviors, impacts, attitudes, and uses of parks and protected areas [4]).

Recently, Alberta Parks sought to enhance community engagement, scientific collaboration, and longer-term mechanisms to build upon its existing Plan for Parks and Alberta Parks Science Strategy (see below). Similarly, the results of an earlier prioritization

process [5] illustrated that while the visitor experience is indeed important to Alberta Parks, visitor-based methodologies required a complement to support a response to the range of questions identified. These goals were countered by concerns about the scientific literacy and interest of the provincial public and elected officials, the viability of evidence-informed policy-making at different levels of the bureaucracy, and the low availability of data and or synthesis work to inform decision-making. This tension demonstrated the need to develop and validate a multi-faceted and multi-functional structure, and process, to support evidence-informed decision-making [6] within the Province. In 2016, a framework was developed for Alberta Parks to facilitate the generation of knowledge through collaborative and applied research (in the natural, social, or health sciences), and to identify mechanisms that support and facilitate the translation, synthesis, and exchange of knowledge between scientific and decision-making communities.

Principles of evidence-informed practice and decision-making originated in the sphere of public health [6–11] beginning in the early 2000s. Discussions of evidence-informed decision-making have also occurred in the spheres of social services [12,13] and education [14,15]. In general terms, evidence-informed practices and decisions hinge upon the intention to "make well-informed decisions about policies, programs, and projects by putting the best available evidence from research at the heart of policy development and implementation. This approach stands in contrast to opinion-based policy-making, which relies heavily on either the selective use of evidence (for example, on single studies irrespective of quality) or on the untested views of individuals or groups, often inspired by ideological standpoints, prejudices, or speculative conjecture" (p. 3 in [16]). Evidence-informed perspectives are not grounded upon simply the provision or use of data—rather, they are focused upon the use of data, knowledge synthesis methodologies, experiential expertise, and the inclusion of contextual factors to determine solutions to specific issues or problems. However, evidence-informed decision-making models are often more difficult to conceptualize in the fields of social and applied sciences due to the context-dependent nature of social science data. Nonetheless, the use of evidence decision-making is critical in a variety of social and applied sciences, including protected area management, the focus of this study [1,17,18].

This paper presents the framework as an innovative synthesis of models in a way that resonates with the provincial context and shifting mandate for Alberta Parks. The ensuing discussion of the structure and functionality of this framework makes the following contributions: (1) it resulted from a formal collaboration between academic and management practitioners with a specific eye to research, knowledge mobilization of that research, and decision-support for Parks management; (2) it expands the stakeholder base for such work from park visitation to a broader context of both potential participants and audiences for evidence-informed decisions; (3) it was developed in response to not only academic and management needs, but a participatory and validated research and policy prioritization process; (4) it presents a relatively generic template that is (by definition) both adaptive and responsive to local/regionalized and stakeholder contexts; and (5) it seeks to counter common assumptions about the uptake of evidence [19] by the scientific community. To do so, we position the functionality of the framework within a 'policy design' approach [20], as well as an examination of some of the limitations and challenges faced in adoption and implementation. Our broader goal is to facilitate the use of evidence in Parks and similar management environment, provide insights for other park agencies across the country and around the world to enhance their evidence-informed decision-making efforts, and to support Aichi Biodiversity Target 19 that emphasizes improvements in knowledge and science to support biodiversity [2].

2. Alberta Parks—Linking Parks, Research, and Decisions

2.1. Creating a Framework for Knowledge Mobilization in Social Science

Many models and frameworks have outlined procedures for evidence-informed decision-making, including Impact Assessments [6], the ROAMEF model (Rationale, objec-

tives, appraisal, monitoring, evaluation, feedback) [6], Evidence-informed Medicine [10], Realist Synthesis [21], and the Evidence-Informed Policy and Practice Model [15]. Other models explicitly incorporate the unique social context of an area into management actions and decisions. However, the models describing the processes of evidence-informed policy-making commonly fail to address how individuals and organizations generate evidence and conduct research that connects to policy actors. Evidence-informed practice and decisions (which call upon, but are not synonymous with research, nor "just" data—see Carnwell [22]) and research often remain separate from policy generation and governance (see for example [1,23–25]). The literature also fails to illustrate a methodology for how interactions between key stakeholders would be structured or the roles and responsibilities that each actor would hold (methods such as appreciative inquiry or participatory policy analysis tend to be more evaluative or research-oriented, rather than being focused upon supporting decision-making). There is, therefore, both academic and practical demand for increased engagement between decision-makers, practitioners, and researchers [26], particularly for knowledge transfer and capacity-building [6]. The Social Science Framework presented here is intended to fill this gap by explicitly linking researchers and decision-makers throughout the entire process of prioritization, research, knowledge transfer, and networking.

The two key models for the framework are derived from public health and health promotion: (1) the PRECEDE-PROCEED Model, first presented by Green and Kreuter in the 1970s with the most recent edition presented in 2005 [27]; and (2) the AMESH Model (Adaptive Methodology for Ecosystem Sustainability and Health), presented by Waltner-Toews [28]. While neither model was designed to support the specific challenges identified by Alberta Parks, the synthesis of different elements derived from: (a) the identification of both evidence-informed diagnostics (current state) phase as well as both proximal and distal factors influencing successful implementation; and (b) hypothesis-testing embedded in complex social, ecological, and economic systems, leads to a combination of structure and process well-suited to the Parks' context.

The PRECEDE-PROCEED framework was first designed and applied in health promotion in the 1970s to provide a structure for applying theories and concepts in a systematic way to plan and evaluate programs [29,30]. The initial stages of the model are designed to develop a deeper understanding of a community and to better design interventions that strategically and accurately address needs. AMESH is a more recent decision-making model (brought forward in the early 2000s) and focuses on a broader, more ecosystem-based form of health that integrates the well-being of people, plants, animals, and the physical integrity of the earth. Historically, the model has been applied to sustainable development and ecosystem management [31] (pp. 317–349) and has been tested in Nepal, Kenya, Canada, and Peru [32]. AMESH acknowledges the high levels of complexity within social systems and seeks to use narratives and other social science-based information as evidence that can inform leaders and policy-makers.

Given some of the challenges for Parks noted above (reluctance to incorporate or draw upon evidence, regional differentiation, changing provincial research priorities, lack of institutional research capacity, and tenuous linkages/funding with the research community), the Parks framework is driven by an explicit demand for research AND knowledge synthesis, translation, and exchange, as well as a need to incorporate multiple stakeholders (including those outside the research process) within the broader function of the model.

The decision-making model for Alberta Parks incorporates the following aspects of the PRECEDE-PROCEED model:

- Active Participation
- Measurable Objectives
- Data-driven decisions
- Community-focus

The model also incorporates the following aspects of the AMESH model:

- Holons as a management unit (elements that are both whole, but also parts of a whole (e.g., within a network—Koestler [33])
- Use of multiple perspectives in decision-making
- Incorporating narratives (a.k.a. storytelling) into the process
- Both scholars and local citizens are equal stakeholders
- Links are identified across scales and perspectives
- Social understanding holds a focus

2.2. The Alberta Parks Social Science Framework

The final framework (Figure 1) combines both models into an integrated and iterative system of decision-making and story-sharing to enhance both research and knowledge mobilization. The model allows managers and planners of Alberta Parks to incorporate both the rigor of the scientific method with the local and contextual creativity of stories and dialogue into their management decisions. Elements derived from PRECEDE-PROCEED provide a strong focus on data, evidence, and measurable goals. In addition, AMESH focuses on the importance of social factors within a system and allows for local citizens, park visitors, and park staff to share their own evidence through stories and narratives. This framework, therefore, provides a structured method for connecting academics, government officials, and community members at every stage of park management. The principles of integration, diverse perspectives, accountability, and adaptive management are explicitly articulated to maintain a strong culture of respect for the scientific process, and as part of a strong sense of community and shared narratives. Research, knowledge synthesis, translation, exchange, and networking are brought together as concurrent and necessary steps for capacity-building and development of best practices and policy. By clearly linking the scientific process with decision-makers and stakeholder groups, the Social Science Framework offers a unique and innovative methodology for supporting evidence-informed decision-making in the public sector.

As can be seen in Figure 1, the synthesis of these two models and processes is broadly consistent with the policy process but more nuanced and linear in function. This framework takes a systems-oriented approach to link research to both the local community and population context, as well as the systemic structures. Specifically, the identification of pre-disposing, enabling, and reinforcing factors (that shape not only the definition and scale of issue identification but also the likelihood of successful interventions) is a key addition to supporting parks' management with evidence and engagement—a key element is an emphasis on the active participation of local stakeholders at different points of both research and knowledge mobilization. In fact, the conception of this framework as a participatory and iterative series of interactions between researchers, decision-makers, and stakeholders is also a key element. While exogenous factors may trigger priorities, the inclusion of an a priori prioritization process means that a range of stakeholders (parks' staff, researchers, and community members) are invited to identify their own priorities, problems, goals, and solutions—such stakeholders are not merely consulted, but actively invited into the process. At the same time, it is important to note that this is not necessarily a community-focused or participatory action research process (although it can be)—the framework is intended to link and support research, engagement, and implementation, but with a particular emphasis upon parks' management. Steps 1–3 of this process, therefore, hinge upon building dialogue from issue or research priority, to local and contextual understanding, to systems-based qualitative and quantitative assessments and interpretations of those issues. This process, given the importance of social and integrative questions for parks' management, helps create shared foundations for solutions, decisions, and implementation.
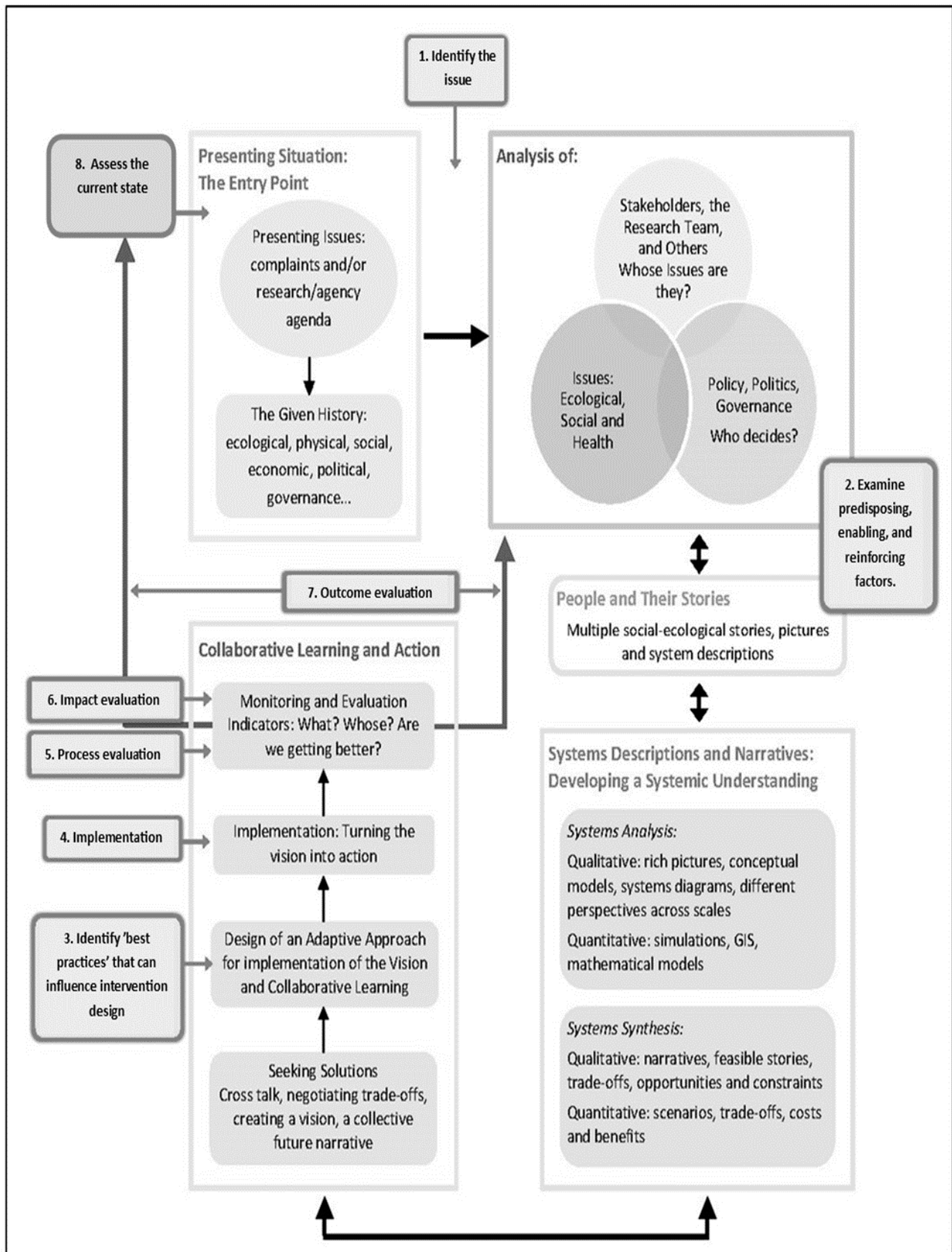
Figure 1. An adaptive framework for evidence-informed parks management and policy.

Having established the contextual and systemic narratives that surround the issue in question, the secondary phase of this framework is oriented toward linking evidence

with stakeholder vision, future scenarios, planning, and design. This combination of collaboration, negotiation, design, and evidence "flow" is an important response to the common "uptake" challenge for evidence. As Lawton [19] noted, just because evidence exists does not mean it gains usage or traction in decision-making. As a result, Steps 3–6 are not only based on the foundation of dialogue and interaction but are particularly oriented to acknowledging evidence, setting that evidence within the local or place-based context of the issue. As part of moving from the current state (diagnostic), causal, and contextual factors, the latter stages of this framework recognize that complex eco-social systems are understood best when diverse and different perspectives are brought together. The methodology, therefore, makes explicit the participation of local people and the use of 'nonexperts' to shape a community's understanding of their ecosystem. Drawing explicitly from AMESH, the key elements in this process include:

- Local stakeholders and researchers come together to identify alternative courses of action (looking at multiple scales and from various perspectives)
- Stakeholders choose, develop, and implement a plan that incorporates governing, monitoring, and management actions.
- Outside investigators try to understand the system, the process, and how interactions may influence our understanding.

As might be expected, the conclusion of this process (steps 7–8) is, in fact, not an ending. Instead, the assumption is that the combination of engagement, monitoring, indicators, and co-design leads to an on-going process of issue identification, clarification, systems analyses, and adaptation across and within multiple pillars of action (environment, social, economic, cultural, and governance). Not only is this process consistent with the realities of adaptive management and dynamics of change within both ecological and social systems, but it also has the potential to address, or mitigate, a common response from community members and organizations. Rather than situating stakeholders as a source from which solutions or input can be "extracted" or as a subject of study, this process situates engagement, action, and evidence as three pillars of an on-going and long-term framework.

2.3. The Alberta Parks Social Science Working Group

The call for socially-oriented research and the principles outlined in the Plan for Parks [34] and the Science Strategy [35], sparked the creation of the Alberta Parks Social Science Working Group (SSWG). This group consists of representatives from multiple post-secondary institutions across the province alongside park managers, Alberta Parks executives, and other members of the broader ministry of Environment and Parks. The purpose of the SSWG is to increase the capacity for social science research within Alberta Parks for the benefit of park management. Such groups are not uncommon (e.g., the Conservation Biology Social Science Working Group is one international example), but a scan of comparable efforts conducted in 2014 identified a tendency toward either natural science frameworks (e.g., Ontario, the USA, and Greece) or "integrated" scientific frameworks (such as those identified at the local and provincial levels in Canada, and local, regional and state-level frameworks in the USA, Australia, and South Africa). Socio-cultural aspects can be brought into these conversations but are rarely the sole focus of an initiative [36].

In addition to these frameworks, significant attention has been placed (particularly in the USA) on developing frameworks to measure and manage the scope and impact of the visitor experience [37]. Presented by Manning [38], the Visitor Experience and Resource Protection (VERP) framework is a 9-step process intended to link public engagement, resource use, and key assets within management zones, and identifying quality indicators and standards in order to generate long-term monitoring, as well as management strategies. This approach draws from, and aligns with, the Limits to Acceptable Change framework (as used in New Zealand [39] and the USA [40]), as well as frameworks and methods (e.g., Visitor Impact Management (VIM) and Visitor Activities Management Process (VAMP)) created

to inform management, identify recreation and tourism opportunities, and assess the effects of (typically increasing) human use in order to reach desired outcomes [41].

Based on the need to incorporate existing social science research in the decision-making process, the need for *new* social science research, and the need to operationalize social science processes and initiatives, the SSWG was the collaborative venue tasked with providing a clear structure for integrating science-based evidence with Park management. Specifically, the projected outcomes of the Social Science Framework incorporate objectives identified by the working group and derived from the Alberta Parks Science Strategy, and the Alberta Plan for Parks. The full list of outcomes includes:

- Supporting an increase in the amount, quality, availability, and use of social and applied science in, on, and relevant to parks and protected areas;
- Creating a 'Community of Practice' between government, academia, and communities for carrying out social science research and implementing effective parks management;
- Supporting knowledge synthesis, translation, and exchange (KSTE), building upon previous research, prioritization, and data collection to support and expand operational capacity and linkages to the scientific community;
- Increasing capacity to make informed decisions that positively affect parks and their users, enhancing the ability of managers and staff to integrate social science into management and operational approaches. This extends to increasing capacity for both researchers and decision-makers to execute and integrate social science; and
- Implementing an adaptive management process that works to carry out evidence-informed action.

3. From Recreation to Evidence and Community Informed Management

3.1. Historical Overview

Alberta's first provincial park legislation—the *Provincial Parks and Protected Areas Act*—was enacted in 1930 [42], resulting in Alberta's first provincial park at Aspen Beach in 1932. The original purpose of provincial parks was to provide small recreation sites for Albertans to swim, picnic, and relax. In the subsequent years, the purposes of parks have evolved, reflecting not only public and collective values, but also new perspectives on recreation, tourism, conservation, and the natural world. The Alberta Provincial Parks system is now comprised of a network of protected areas distributed across the province, each with varying levels of visitor facilities and park programming managed by Alberta Parks staff. Alberta now manages 473 provincial parks and other protected areas [43], covering 27,666 km^2 [44]. Provincial legislation and regulations provide varying classifications for each park and also provide direction for management of the areas, *including* preserving critical wildlife habitat, recognizing wilderness areas (most strictly protected areas; no development permitted) and natural areas (preserve sites of local significance; allow low-impact recreation) [45].

3.2. Parks and Protected Areas: Planning Documents

Released in 2009, Alberta's *Plan for Parks* outlined a 10-year strategic plan to "ensure Alberta's parks and recreation areas remain protected yet accessible to Alberta's growing population" [34] (p. iii). The plan recognizes the increasing tension between a growing population with its resulting demands for accessibility and the need to manage our parks for environmental conservation. To address both needs effectively, the plan outlines priority actions and strategies to enable these actions. To achieve the desired outcomes of people-friendly communities, healthy ecosystems, and sustainable prosperity, the plan promoted "knowledge-based decision-making - Decision-making is informed by natural and social science, evidence and experience, which includes traditional knowledge of Aboriginal peoples." [34] (p. 4). Recognizing the importance of evidence in decision-making, the *Plan for Parks* provided a foundation for other initiatives, including the Science Strategy, the development of research priorities, and the nascent Social Science Framework.

The 2010 *Alberta Parks Science Strategy* was born from the Plan for Parks as a key action to fostering evidence-informed decision-making [35]. The Science Strategy's outcomes include increasing scientific information about parks and their visitors, increasing capacity to make informed management decisions, and creating a culture of respect for the value of science in park management. As Lemieux et al. [1] note, the potential benefits of evidence-informed approaches are not maximized in Canadian protected areas management, even though managers may value and incorporate different forms of evidence in their decision-making, information produced by staff, and from within their organizations are given priority. Other forms of evidence, such as Indigenous knowledge and peer-reviewed information, are valued and used less and can reflect a disconnect between managers and the research community.

In order to create a successful platform for incorporating science into park planning, the Strategy outlines specific objectives, including: (1) improving communication with the research community, (2) improving dissemination of information, (3) establishing partnerships, (4) establishing research centers, (5) involving staff in science, and (6) ensuring support for science. In response to the objectives of the Science Strategy—specifically objectives (1) and (3)—the Province and the University of Alberta, Augustana Faculty signed a Memorandum of Understanding (MOU) in 2009 that promoted shared objectives while maximizing the value and effectiveness of each organization. Ultimately, these objectives formed the core of the framework's intended functionality but were operationalized by the results of a province-wide research and policy prioritization process.

3.3. Research Priorities

One priority action identified in the Science Strategy was to set research priorities for Alberta's provincial parks. Research priority-setting processes have been in use at the international, national, and regional levels [46] to link researchers, the public, managers, and policy-makers in a variety of settings. Some research priority processes are based on assessments by individuals (e.g., Eagles) [47], but our study used a community-of-practice-based process originating with Sutherland et al. [48–50], and later adapted by Rudd [51,52], Fleischman et al. [53], and Hallstrom et al. [5]. Such work can have both instrumental effects (by directly influencing policy objectives, language, or even policy tools), but also conceptual effects by gradually "infiltrating" public policy and shifting the values, audiences, and contexts that inform policy design [20,52].

The research priority-setting process for Alberta Parks occurred in 2012 and 2013, with the results first disseminated within the agency, and then published in the *Journal of Park and Recreation Administration* (for full details regarding project methodology and results, please see Volume 37, No. 3 [5]). After reviewing the list of top 20 research questions for both regional and provincial parks management, some themes emerged [5]. First, the questions emphasized the struggle between maintaining a balance between conservation and recreation in a province pushing economic growth. Second, 56% of the priority research questions were grounded in the social sciences. The need for social science is supported by recent reviews of research priorities for other park and resource management systems [47,54,55]. These two observations highlighted the need to incorporate both existing and new social science research into park management, and to extend the scope of research for parks management beyond conservation biology to include a broader range of issues that extended across all five pillars of sustainability. Specifically, the prioritized research themes for Alberta Parks include understanding demographic and social changes; visitor experience expectations; benefits of parks and protected areas in the eyes of the populace; understanding the contribution of parks to well-being; how to effectively collaborate (particularly rural and Indigenous partners); and expectations around Parks' role in conservation and recreation.

4. The Alberta Parks Social Science Framework as an Exercise of Policy Design

Although the framework was the result of a collective process of response (to research and decision-support needs), engagement, and deliberation, it is possible to analyze the emergence of the framework as a result of a design-oriented process. More specifically, using the concept of 'policy design' [6], it is possible to articulate the higher-level factors that shape good design (audience, values, and context). Doing so offers insight into the guiding and driving forces that influence how policy, politics, and practice may intersect (see [5,46]).

4.1. Audience—The Organizational Dimensions

Several actors are involved in the process of the framework (Figure 2). Working groups operate closest to management actions by identifying knowledge gaps, coordinating research activities, and connecting on-the-ground researchers and decision-makers. A Research Group—comprised of representatives of working groups and chaired by an Alberta Parks Science Coordinator—works on a broader scale to develop research questions, allocate funding, operationalize research priorities, and initiate and support processes of research, knowledge transfer, and networking. Still broader yet, a Research Advisory Group consisting of the Science-Coordinators, Alberta Parks executives, and high-level members of academic institutions provides broad level strategies and linkages on a provincial scale. Various working groups provide focused research efforts on specific topic areas in natural science, social science, and health science.
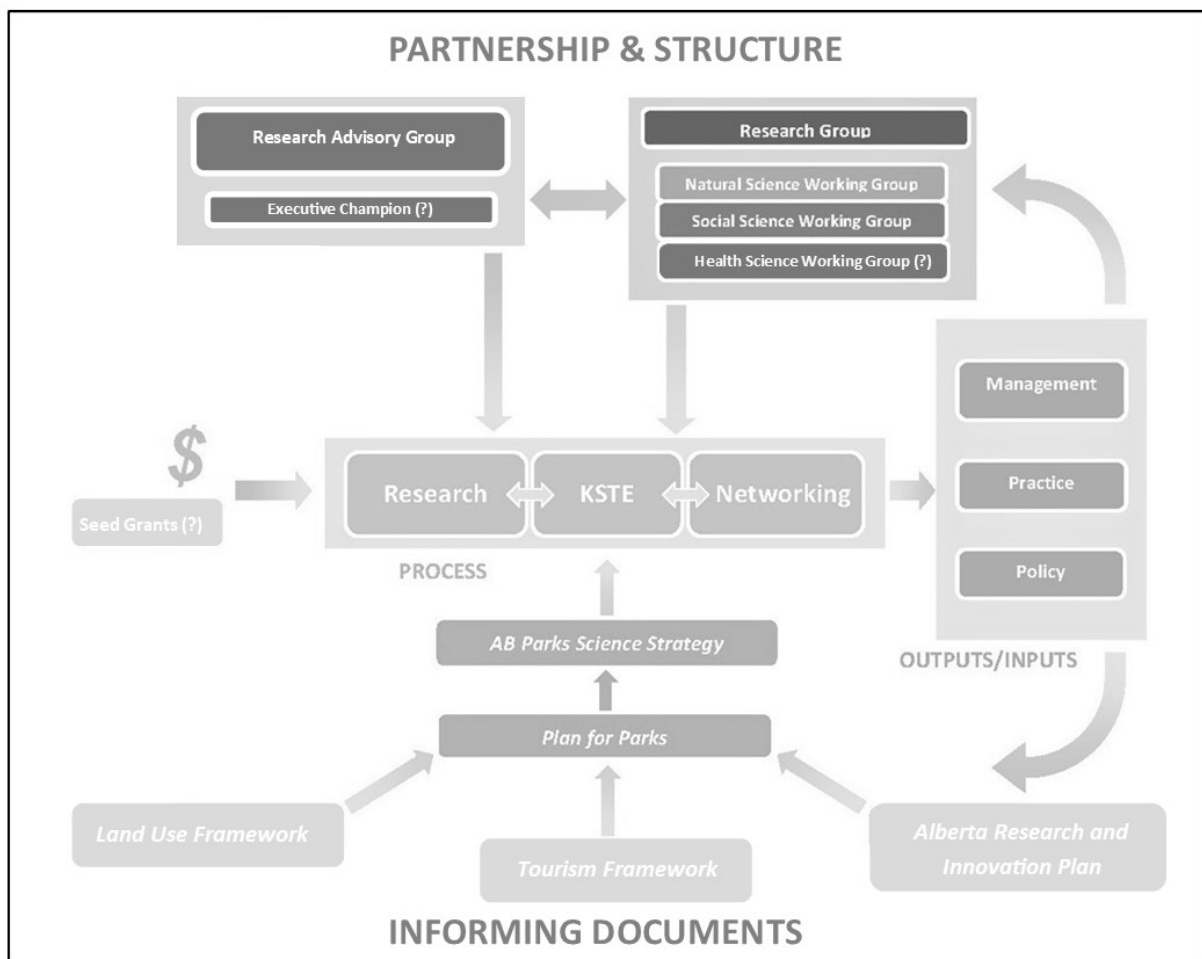

Figure 2. The organizational dimensions and process of the Social Science Framework.

All of these actors engage in a process of KSTE and Networking. Research allows data to be gathered, then KSTE transforms data into useable information and translates it into relevant messages for each stakeholder. Finally, networking allows stakeholders to engage in dialogue and pursue solutions alongside one another. These processes are not a linear progression of steps; rather, social science initiatives may include any combination of research, KSTE, and networking activities. It is crucial for individuals and organizations from all three groups of stakeholders (government, communities, and academia) to engage in these activities, as they embody the principle of partnership and diversity outlined in the framework's conditions for success.

Through the activities of research, KSTE, and networking, social science knowledge and information will increase. This evidence can then be incorporated into management decisions, help create adaptive policies and plans, and support the implementation of on-the-ground best management practices. Once they have been implemented and/or enacted, policies, practices, and management actions become inputs that inform the direction of future initiatives.

4.2. Values—The Conditions for Success

In order for any of the outcomes listed above to be realized, several conditions must first be in place. These conditions include structural aspects of governance within Alberta Parks as well as relational conditions between stakeholders.

- **Executive Support**—The Social Science Framework must be championed by a member of the AB Parks Division executive to increase its credibility and allow for high-level support and oversight.
- **Accountability**—Both researchers and decision-makers have to be held accountable to one another and to the objectives of the framework.
- **Culture of Respect**—The use of scientific information for the purpose of evidence-informed decision-making must be recognized and valued within the Government of Alberta.
- **Integration**—Horizontal and vertical integration must occur across every level of decision-making.
- **Partnerships**—No single group will be responsible for carrying out the work of the Social Science Framework. Governments, academics, and communities (which include citizens, NGOs, companies, etc.) must work together to accomplish the objectives of the framework.
- **Diversity**—Individuals participating in the Social Science Framework process should represent broad and diverse perspectives.

Like many governmental initiatives, such frameworks do not stand alone. In this case, the Parks' framework is complemented by three other relevant frameworks: The Land Use Framework (2008), the Tourism Framework (2013-20), and the Alberta Research and Innovation Platform (2012). As a result, beyond the higher-order values noted above, Alberta Parks and this framework are also embedded in a series of policy and political values identified for land use more generally, including striving for a balance between local investment, economic development, and sustainability of ecological and social assets. The Parks' framework, therefore, provides evidence and engagement across all 3 initiatives, while also speaking explicitly to three Land Use Framework outcomes of:

- People-friendly communities with recreational and cultural opportunities
- Healthy ecosystems and environment
- Healthy economy supported by our land and natural resources.

4.3. Context—Balancing Evidence with Demand in Alberta Parks

While fields such as medicine, public health, engineering, and planning consistently look to emergent, better, and best practices to inform the decisions, actions, and evaluations conducted as part of their practices, the context for Alberta Parks presents some challenges.

In particular, as this framework is intended to reach out to regional offices and supports more centralized provincial decisions, it entails organizational, practitioner, and cultural change at both levels. Particularly in the regional offices, one challenge is the broader limitation of scientific literacy within Parks staff. In many cases, the staff has moved up through the ranks from a time when only a high school diploma was required. While they may have extensive experience in Parks management, conservation, or interpretation, they may not have been organizationally or educationally conditioned to factor research, knowledge synthesis, or the work (applied or theoretical) of the research community to their jobs. This is particularly pronounced within the common characterization of regional parks management, which is a balance between annual cycles and crisis management. This complication presents a common set of challenges for the inclusion of evidence in decision-making. Such challenges include effectively connecting researchers with those in positions of authority, and addressing the common (mis)perception by policy-makers that social science is less rigorous, reliable, or valid than the natural or health sciences.

As Carnwell [22] and others [1,56–58] point out, there is a complex array of barriers to the use of evidence, with most literature pointing to organizational and political barriers as more prevalent, versus issues of personal capacity or ability. In essence, and as Lemieux [1] and Cvitanovic [57] emphasize, organizational and institutional norms of practice, poor alignment between research questions (and methods) and the needs of decision-making, and cultural factors (such as inter-departmental or inter-organizational difference) can be significant.

A similar challenge exists in the perceptions that decision-makers (in Parks and in other jurisdictions—see for example [59]) have regarding research and its desired role in public management, decision-making, and policy-making. As noted above, there is no clear distinction drawn (conceptually or in practice) between social science, applied research, and business analysis, but there is also a broader sense of uncertainty about the implications and obligations of evidence-informed decision-making. Specifically, some participants have noted that decisions need to take place even if there is no evidence and (as was not uncommon under previous governments both nationally and provincially) even if the evidence contradicts the policy (see for example [60–62]).

5. Conclusions

Along with increasing public pressure to provide parks as purely recreational spaces, Alberta Parks has also seen significant environmental events such as flooding, droughts, fires, and similar naturally occurring events that are exacerbated or even accelerated by human actions. As a result, there is a broader realization and growing openness to linking park management to research, data, and evaluation. At the same time, there is also a realization that, to date, there has been no structure or mechanism beyond personal connections to develop those relationships in practice.

There are significant benefits and opportunities presented by the implementation of the Social Science Framework for government bodies such as Alberta Parks. Specifically, this initiative not only operationalizes earlier and higher-level planning and strategic directions for Alberta Parks, but procedurally it provides an opportunity to link natural and social sciences with both community and management perspectives. The combination of models and processes is intended to foster evidence-informed decision-making and to embed the realities, meanings, and applications of that evidence into local and place-based contexts. Doing so provides regional or eco-systemic variability and is functionally a step toward adaptive decision-making. That form of decision-making is intended to balance the rigor and validity of scientifically derived knowledge within local and regional narratives, experiences, and priorities. Making these links should in turn balance the objectivity of data with the variation of the local and lived experience.

At the same time, there are also exogenous factors that influence the successful implementation of the framework. Political factors (including the reorganization of ministries, changing political, fiscal, and electoral priorities, re-assignments of both ministerial and

operational staff) can have profound (and typically negative) impacts upon uptake. In this case, having both a historical record of collaboration and a process that supported the initiation and creation of the working group and framework were critical conditions that facilitated the role of champions within Alberta Parks at both central and regional levels. This combination also facilitated a clear sense of direction and alignment from earlier planning documents, through to establishing research and knowledge mobilization priorities, to the adoption of the framework itself.

While such champions were clearly major factors in the development of the framework, their presence is also a vulnerability. Personal events, illness, job changes, and shifting leadership can all directly affect the ability of any such champion to advocate for, or use, a framework such as this. Implementing such processes may appear counter-intuitive or inefficient to new leadership, and when combined with some of the cultural and organizational dynamics noted above, may result in the decision to proceed as usual (without evidence or collaboration) in order to accelerate the decision-making process.

Similarly, the reality of this (and any policy-making process) is that evidence cannot be the sole input. Beyond the details of the Alberta Parks case, it has long been established that there are significant political dimensions to public policy, and park management is no different. In addition to broader issues of public opinion, attitudes, and behaviors, both party-specific and bureaucratic rationalities also influence uptake, alternatives, and implementation [63,64]. This creates an additional challenge, but also a benefit, for the framework. As Marleau and Girling [18] note, such a process is very much intended and was designed to not only keep science "at the table" but to spark and support cultural shifts toward evidence-informed management and decision-making. However, in the absence of formal institutionalization and adoption, keeping science more generally, but particularly social science, within Parks, decision-making will continue to be faced with political, experiential, and attitudinal barriers.

In conclusion, while the development of the working group and framework are important steps forward for evidence-informed decision-making and collaborative research within Alberta Parks, the real test remains in the implementation and funding of the process. While other provinces in Canada have identified the need for comparable frameworks and approaches, the work undertaken in Alberta is (thus far) largely unique in parks management in Canada, and particularly as a result of its emphasis (and inclusion) of social and applied sciences. As a result, being able to engage not only in a prioritization exercise that demonstrated the validity and importance of social science research to park managers was critical, but so too (we expect) was the capacity to engage a broad spectrum of park staff, administration, and research staff from post-secondary institutions in the formulation and review of the framework. Furthermore, being able to draw from multi- and even transdisciplinary work such as PRECEDE-PROCEED and AMESH were also critical attributes for this project—an earlier scan for comparable initiatives in Canada showed an emphasis upon research or KSTE, but limited evidence of structures or approaches that had any potential to link the two. In the same vein, this framework may provide a set of unanticipated (yet positive) consequences, largely through the potential to engage and collaborate with community-based stakeholders. Given the increasing public and political interest in citizen science, as well as a series of already established relationships with stakeholders, such as conservation and recreational non-governmental organizations, a significant opportunity may lie in the development of scientific capacity and engagement across both parks and stakeholder groups, not only as inputs into research or policy, but also as active participants in both science and parks management and policy (through implementation, enforcement, public engagement, pilot studies, and assessment).

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