WORKSHOP SYNOPSIS AND ASSESSMENT REPORT

for the

Facilitating Knowledge Mobilization at the Science/Policy Interface Workshop

September 10-11, 2012 Crowsnest Pass, Alberta

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February 2013

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ACKNOWLEDGEMENTS

EXECUTIVE SUMMARY

Participants in the Vulnerability and Adaptation to Climate Extremes in the America's (VACEA) project, and other interested individuals, held a two-day workshop at Crowsnest Pass, Alberta, September 10-11 2012. The workshop's purpose was to consider the transmission of scholarly research information to policy communities and the subsequent application of that information in concrete policy measures. The workshop featured eight scholarly presentations, three breakout group discussions and a concluding all-participants discussion session.

The consensus

The workshop participants achieved consensus around a number of key points and produced a list of strategic and tactical suggestions for enhancing the transfer of knowledge between scientists and academics to policy makers and other important stakeholders. Participants determined that knowledge mobilization was in many important respects an exercise in strategic communications. They agreed that the development of a strategic communications plan should be a VACEA project priority – an integral project component as opposed to an add-on or afterthought.

Items which featured prominently in the deliberations included the importance of clearly identifying and characterizing the audiences that researchers hoped to reach and convince with their information. Participants stressed that in crafting their messages, researchers must take into account the characteristics, interests and challenges that apply to any particular target audience. For example, participants identified the importance of understanding the constraints that policy makers operate within; e.g. four-year election cycles and the need to translate information into short-term policies that are publicly palatable. An additional consideration, given the five-country scope of the VACEA project, was the need to develop strategies which are context specific, recognizing the different conditions that exist in each country and among localities within each country. Another approach suggested was to provide stakeholders with tools that allowed for the practical application of research findings. A listing of the various strategic and tactical suggestions produced by participants is found in the concluding section of this report.

Differences in focus

Some participants struggled with defining the scope of the researchers' role and the relative importance of various potential audiences. A number of speakers envisioned a role for the researcher that extended to actively engaging in the application of their findings and

implementation of their recommendations at the community level. Others stressed the importance of community stakeholder engagement and held that community-level stakeholders were a more appropriate target audience than policy makers. Participants, holding somewhat different views, noted that the scope and duration of research activities such as the VACEA project restricted the amount of effort that researchers could devote to legacy activities such as long-term support related to implementation. In addition, a number of participants noted that notwithstanding the importance of community-based stakeholders in the knowledge mobilization process, policy makers constituted a critical audience.

The triangle of engagement model

One of the various knowledge transfer and mobilization models discussed at the workshop, *the triangle of engagement* model, (developed at the workshop) offered a bridge between the contending views just described. This approach imagines knowledge mobilization as a multidirectional process in which key stakeholder audiences can operate both as consumers and providers of information and as intermediaries who can assist in the transfer of knowledge to other corners of the triangle. Thus, the community stakeholder's role is that of a target audience as well as that of an intermediary who can contribute to the delivery of information to policy makers.

Follow-up

The workshop organizers and principle investigators with the VACEA project advised that they produce a summary assessment of the workshop and begin the process of incorporating its recommendations into their planning.

WORKSHOP THEME AND OBJECTIVES

The Vulnerability and Adaptation to Climate Extremes in the Americas (VACEA) project is an interdisciplinary multi-national research effort designed to address gaps in the current understanding of the consequences of global climate change for regional climate variability and extremes and the resulting vulnerabilities of agricultural and indigenous communities (Sauchyn and Santibanez, 2010). One of the VACEA project's goals is to provide new knowledge to strengthen the capacities of governance institutions and rural populations in Canada, Argentina, Brazil, Chile and Colombia to adapt to shifts in climate variability and the frequency of extreme events. On September 10 and 11 2012, approximately 30 VACEA project participants and invited presenters held a workshop at the Crowsnest Pass in Alberta, Canada to discuss the challenges associated with translating the findings of scientific research into policy action. The workshop was entitled *Facilitating Knowledge Mobilization at the Science/Policy Interface Workshop* (hereinafter referred to as the workshop).

Describing the problem and setting objectives

The introduction to the workshop agenda provides a brief description of the problem area that defined the central theme of the workshop and a set of three objectives that participants were asked to consider.

> *In the area of climate change one of the most complicated issues is the communication between science and policy. This is often referred to as the "science/policy interface." In order to improve this interface for the VACEA project, this Science/Policy workshop, "Facilitating Knowledge Mobilization at the Science Policy Interface," has been organized."*

The workshop agenda presents three workshop objectives:

1) Identify the main issues of the science/policy interface
2) Discuss experiences in relation to the science/policy interface
3) Define an Agenda for the Science/Policy Interface in the VACEA project

Workshop organization

The workshop was organized around four half-day sessions. The first half-day session (Part I of the workshop) considered objective 1 -- *identifying the issues*. The next two half-day sessions (Part II of the workshop) dealt with objective 2 – *the science/policy interface experience*. The third session (Part III of the workshop) considered objective 3 – *defining the knowledge mobilization agenda for the VACEA project*. Each session opened with two presentations by scholars and practitioners with expertise in workshop related issues. There were eight of these presentations in total. The presentations provided academic context and recommended methodological approaches for dealing with the challenges researchers confront at the science/policy interface. Presentations were followed by small breakout group discussions which ran from 1.0 -1.5 hrs. There were four discussion groups with from five to eight participants each. There was a final 1.25 hr. summary discussion session involving all workshop participants. That final discussion was preceded by summary presentation, by Dr. Gregory Marchildon. The group discussions were digitally recorded and transcribed, providing the content for this follow-up assessment of the workshop. Seven of the presentations were supported by Power Point slides.

The summary of the proceedings which follows provides a review of each of the workshop presentations. The review of the presentations is followed by assessments of the breakout discussions and the final all-participant discussion.

WORKSHOP PRESENTATIONS

Part I Presentation 1 (September 10)

Translating science and social science into public knowledge and converting evidence into policy

Presented by Dr. Jeremy Rayner, Professor and Centennial Chair, Johnson Shoyama Graduate School of Public Policy, University of Saskatchewan, Saskatoon, Saskatchewan.

Trust

Dr. Rayner considers the significance of issues of trust at the science/policy interface. The proposition that scientific knowledge constitutes a sort of gold standard is frustrated because the public and policymakers do not necessarily or effectively discriminate among knowledge sources. In addition, scientific knowledge is not free of either endemic or externally generated controversy (e.g. "Climategate") and questions have been raised about the quality of some "consensus science." Furthermore, perceptions about integrity in relation to scientific activity are not synonymous with accountability as it applies to policy makers (Jasanoff 2010). For example, peer review is an ongoing process that does not typically involve the ending of a career. Elections on the other hand can constitute career ending accountability for a policy maker. Additional frustrations arise in relation to differences in the scope and timing involved in policy making and scientific activity (Wynn 1992). For example, policy issues might require immediate decisions whereas scientific activity tends to constitute a work in progress.

Problem structure

Rayner proposes that the role of science in what are referred to as well-structured problems is that of providing answers to "bounded" technical questions posed by the policy community. The application of science within the bounds of well-structured problems helps transform uncertainties into more measurable risk (De Marchi and Ravetz 1999).

The challenges associated with sustainably managing a forest, on the (there)?? hand, can constitute a poorly structured problem. The challenges arise due to competing values positions (e.g. between groups and generations). Science has a critical role to play in solving these sorts of problems. However, these tend to be relatively unbounded problems requiring the application of science in progress. Accountability issues that arise in association with these sorts of problems

tend to be shared by "everyone" – that is across both the policy and scientific communities (Fantowicz and Ravets 1993).

The different values propositions presented by poorly structured problems can be manifested as political struggles between contending interests. The objectives of the scientific community thus become subject to and bound by those of political interests and the conditions that pertain to political/policy making processes such as policy paralysis [and perhaps policy windows].

Role of social science

Rayner employs Jasanoff's (2010) interpretation of the three ways that social science contributes to the policy making process. One of these is the instrumental role in which social science provides exert direction in the areas of governance, engagement, communication, and problem identification. The second role is that of interpretation – identifying "what is really going on here." This role involves the development of the new language required to understand problems and is in that sense an exercise in translation. The third role involves applying those translations to the development of normative frameworks for managing policy problems.

At the same time, social science can contribute to making the policy making process more difficult. Rayner states that it "greatly complicates the question of trust." Young disciplines asking new questions and posing new research questions can contribute to greater incomprehension on the part of the public. The willingness of social scientists to "wade into normative disputes" raises trust issues among policy makers who suspect that the research being generated poses threats to existing levels of consensus and/or particular interests.

Communication is critical

Rayner contends "the role of translator is not an easy one." He acknowledges that the value of the scientific contribution to policy making is hampered by the fact that much is "lost in translation." Indeed the contribution of science to policy making has been frustrated by challenges to its status as the gold standard of knowledge. It is in certain contexts, fair to criticize the apodictic overuse of the cliché, "sound science. However, this does not mean that the role of science cannot be strengthened. Science is after all an evolving institution which is capable of updating and strengthening its processes. Simply because the message is not always being heard should not be taken to mean "the baby should be thrown out with the bath water."

The key to resolving the translation problem is to realize that effective communication is a central function of any science/policy research project – not an optional on add-on extra. It needs to occur internally between researchers within their own communities and externally between researchers and the wider community. Effective communication requires awareness of the competing ways that problems can be framed. It also recognizes the need to adapt messages to the characteristics of the audiences one is trying reach. For example, communicating with people

in eastern Canada can require different approaches than those employed to reach an audience in the west.

Part I – Presentation 2 (September 1)

Harnessing multiple types of knowledge and networks to influence public and private-sector action on climate change adaptation.

Presented by Jimena Eyzaguire, Government of Canada, National Roundtable on the Environment and the Economy.

Ezyguire describes the role of the National Roundtable on the Environment and the Economy (NRTEE) in the context of mobilizing climate change adaptation knowledge. The NRTEE takes a triangulated approach in delivering its mandate. It operates as a catalyst, convenor and advisor. Its efforts are described as a partnership between stakeholders. Its mission and media messaging focus on the idea of climate prosperity. In other words what climate and environmental research and awareness can contribute to economic well-being.

Project design

The design of knowledge mobilization components of research projects should include scoping strategies which identify the following: the space where progress is possible; the organizational niche which the project might occupy; and, an assessment of the outputs and processes "that could make a difference." The second area of focus in project design involves addressing analytical challenges. These include managing expectations about what can be achieved and being transparent about assumptions choices and limitations. Eyzaguire's presentation employs examples of knowledge mobilization activities to illustrate these design issues. These include the presentation of research dealing with the impacts of climate change across natural systems and societal activities.

Stakeholder engagement

The second key point presented by Eyzaguire describes strategies for ensuring optimal stakeholder engagement. These strategies should be incorporated into project design as part of the scoping exercise. They should embrace the following components: mapping out who should be involved and how; the inclusion of stakeholders in the scoping exercise; the creation of formal mechanisms for ongoing engagement; expose the work to expert and non-expert audiences; and, they should seek advice from expert and non-expert stakeholders regarding promising solutions.

Eyzaguire describes how effective stakeholder engagement employs a triangulated approach to engagement whereby various participants provide for the performance of important knowledge mobilization functions. These functions involve participants who operate as experts; influencers; connectors and doers. This approach is somewhat similar to what Malcolm Gladwell (2000) describes as the roles and functions required to popularize ideas i.e. connectors, mavens, salesmen.

Communications

Eyzaguirre's underlined the importance of strategic communications. The presentation describes how effective communication involves being deliberate about framing messages; balancing transparency and accessibility; adopting a proactive media strategy; and, being opportunistic with respect to outreach and dissemination. Ezaguirre described the importance of having strong communicators embedded in the research team. The presentation proposes that the reach of messages can be broadened through working with other organizations including the mass media and that an influence strategy should be built into project design. Influence strategies involve managing knowledge, relationships and opportunities.

Part II Presentation 1 (September 10)

Experience of the IACC (Institutional Adaptation to Climate Change Project

Presented by Dr. Harry (Polo) Diaz, Professor of Sociology University of Regina and principal investigator for the IACC and VACEA projects.

The IACC project

Dr. Diaz described the scope of the 2004-2009 IACC project as a "major collaborative effort" involving an interdisciplinary team of forty researchers from six universities (five Canadian and one Chilean). The project's goal was to develop a systematic and comprehensive understanding of the capacities of institutions to formulate and implement adaptive strategies for coping with climate change; particularly with respect to water management in dry region river basins. The project had a policy action perspective and made a "clear commitment to work with stakeholders: to provide information and to obtain advice from them about the project's themes and activities. The project had an extensive knowledge mobilization plan that included production of a website; the production of interim and final reports; a special workshop and report for government agencies; reports to communities; participation in workshops; and, the production of scholarly publications.

Mixed outcomes

Diaz identifies several indicators of success for the project in the area of scholarly outcomes. The project contributed knowledge regarding the vulnerabilities of rural communities and households and the effects of current and past government policies on vulnerability. In addition, the project contributed to an understanding of the impacts of severe drought in 2001-2002. It also developed climate change scenarios specific to each study basin and assessed the vulnerabilities of communities in the context of changing climate conditions. Indeed, the fact that these outcomes were generated under the auspices of an interdisciplinary approach assisted in consolidating scientific and social research around climate change vulnerability.

Notwithstanding, considerable success in the area of scholarly and scientific objectives, Diaz contends that the project was less successful in generating policy outcomes. Diaz reports, "No direct and clear impacts on government policies and programs and no significant actions [were initiated] within the communities." Indeed, Diaz's report on the lack of success in this regard illustrates the problems suggested by the workshop theme. That said, the project did foster collaborative relationships between academic and policy communities. It spurred the development of new research projects and provided job opportunities for student researchers in government agencies.

Barriers

Diaz identifies four barriers to knowledge mobilization that exist at the policy making level. These include climate politics; particularly in western Canada where there are high rates of scepticism regarding climate change and prominent political-economic institutions associated with the energy industry are highly influential. In addition, there is limited appreciation of the processes and contributions of science in certain policy making institutions. And, there is a lack of institutional channels for the incorporation of knowledge into programs and policies.

Barriers to knowledge mobilization are also evident on the science side of the interface. According to Diaz there is a lack of mechanisms for monitoring the effectiveness of knowledge mobilization efforts. In addition there has not been a history of solid collaboration with government agencies. And, there is a lack of adaptation options. Knowledge mobilization efforts tend to describe generalized goals as opposed to strategically designed objectives which translate readily into policy options for climate change adaptation.

Learning

The experience obtained under the IACC project can inform the knowledge mobilization efforts of the VACEA project. It is critical that policy makers and scientists work more closely together. It is also important to appreciate the roles of intermediaries that can enhance knowledge transfer

at the interface. Intermediaries can assist in the identification of relevant political actors and facilitate networking between scientists and policy makers. The process would also benefit if academics developed a better appreciation of how information can be framed in ways that will initiate action on the part of policy makers. For example, if policy people tend to respond to issues framed around cost-benefit analysis, scientists should develop their messages accordingly.

Part II Presentation 2 (September 10, 2012)

Experience of the Chilean Adaptation Portfolio – Strategies and the roles the state academia and end-users

Presented by Dr. Fernando Santibanez, Chilean Ministry for the Environment, Climate Change Adaptation Portfolio.

The climate change portfolio

Dr. Santibanez presentation describes the goals and operations of the Climate Change Office of the Chilean Ministry of Environment. The Climate Change Office is currently engaged in the development of a National Action Plan on Climate Change – a three years process culminating in 2015. The national plan will consist of six subsidiary plans focusing on 1) agriculture, livestock and forestry; 2) biodiversity; 3) fisheries and aquaculture; 4) health; 5) water resources, and; 6) infrastructure.

Santibanez described how the agency's assessment approach considers the opportunities and threats posed by climate change across space and time dimensions (i.e. short and long-term considerations at the spatial levels of the farm, the locality and the region). The Climate Change Office has developed a list of what it considers to be the components of a climate change adaptation plan.

A) to create climate scenarios
B) to establish/identify climate threats
C) to establish a homogenous target population
D) to select relevant actions for each stakeholder group
E) to assess the efficacy of each action
F) to establish technical, economic and cultural viability
G) to select and prioritize actions taken by groups

The planning effort involves several subsidiary objectives. For example, in the area of production technology there are four objectives: 1) improving water management; 2) improving soil conservation; 3) stabilizing and maximizing yields and: 4) improving energy efficiency.

Similarly, there are four objectives in the area of local infrastructure: 1) improving water management; 2) providing farmers with new water resources; 3) incorporating risk management as a farm management tool and; 4) protecting biological diversity.

The presentation also describes how the Climate Change Office has developed a comprehensive and detailed atlas of environmental, climatic and land use patterns across Chile as one of the initial steps in the production of the national adaptation plan.

Part II Presentation 3 (September 10)

Deliberation as knowledge mobilization: promises and perils

Presented by Dr. Gwendoyn Blue, Department of Geography University of Calgary.

Dr. Blue's presentation describes the Alberta Climate Dialogue project, a five year research effort (2010-2015) which is exploring "how direct engagement by citizens in policy making processes can enhance Alberta['s] response to climate change at municipal and provincial levels." The project itself involves deliberation on large scale involving partners from universities, government, civil society and industry. It is also multi-national in scope, including researchers and contributors from Canada, the US, Europe and Australia. Over 4,000 people from 38 countries have been engaged by the project.

Blue describes the principles and practices of deliberation and deliberative democracy. The process rests on the premise that democracy is based on the principle that "decisions should reflect the public will." The presentation cites James Franklin's assessment of the value of deliberative processes.

> *The public can best speak for itself when it can gather together in some way to hear the arguments on various sides of an issue and then, after face-to-face discussion, come to a collective decision.*

Blue contends that two trends dominate the application of deliberation strategies. These include: 1) efforts to enhance democratic governance by including citizens and the institutions of civil participation in decision making processes and; 2) the employment of deliberative processes to provide different types of evidence which can contribute to evidence-based policy making. Principles underlying deliberative processes assume that they inform the issues discourse, empower citizens and transform the trajectory of policy development. The presentation also provides a list of the component principles of deliberative democratic processes.

Blue contends that well-designed deliberation can improve decision making by increasing understanding of complex systemic challenges. It also contributes to the legitimacy of decision making processes because it includes the broader public and is perceived to be balanced and inclusive. She also suggests that it builds capacity and support for informed decision making.

Blue echoes Diaz's (Part II presentation 1) regarding the lack of network connections between decision making agencies and researchers – albeit Blue frames the problem as a lack of strong connections between the organizations of civil society and policy makers. Also in synch with Diaz, is Blue's contention that the mobilization of knowledge produced by researchers is frustrated by the lack of institutional fora. Blue also suggests that policy makers can place a low value on information that is not "immediately relevant of easy to implement." Blue's presentation underlined the importance of communications in the knowledge mobilization process identified by Rayner (Part I Presentation 1), Eyzaguirre (Part I Presentation 2) and Diaz (Part II Presentation 1). Blue states that the information developed by researchers is " not communicated effectively for diverse audiences."

The presentation describes the perils that can accompany deliberative processes these are presented under the heading "Lost in translation: the problem of incommensurability." Once again the workshop was asked to consider the importance of communications in knowledge dissemination. Blue reports that "We do not share common epistemic worlds: every communicative exchange across knowledge communities is a struggle over meaning and interpretation.

Part II Presentation 4 (September 10)

Implications of different world views of climate change in the science and policy interface (no slides were presented)

Presented by Dr. Norm Henderson Director of the Prairie Adaptation Research Collabotative (PARC) at the University of Regina.

A climate of mutual ignorance

Dr. Henderson's presentation contrasted the cultural worlds of scientists, politicians and policy makers and offered some ideas on how they can effectively work together. He described the state of the conditions that politicians and scientists operate within as an environment of mutual ignorance. Science adheres somewhat arrogantly to the notion that it is the optimal font of knowledge. Yet, from the perspective of politicians, scientists are naive about the workings of the political world. Scientists may indeed have a firm grasp of the information produced by their disciplines. However, politicians understand public perceptions and how competing social

interests will react to that information. While science wears the mantle of disinterested or impartial objectivity, politicians assume that all actors have political agendas. Scientists need to appreciate that their positions will be perceived to have political motivations and consequences. In this light, it is essential that scientists acknowledge that these perceptions exist – and that politicians understand people and political conditions in ways that scientists do not always appreciate. In view of these conditions, science should strive to deliver or frame information to the political community that it can both understand and use.

Conflicting time scales

According to Henderson, "For politicians, taking the long view is a luxury." On the other hand, climate science, by definition, understands the world in temporal terms that extend beyond election cycles or the public's demand for quick fixes. Politicians operate within a cultural framework where the public's demand for instant gratification can frustrate policy trajectories that offer short-term pain in the service of long-term gain. Henderson suggests that this tendency is demonstrated by inaction in relation to the imposition of carbon taxes. He contends that the onus is on the scientific community to demonstrate the benefits of taking longer-term approaches to problems.

The uncertainty problem

Henderson contends that the uncertainty inherent in scientific assessments of issues is anathema to people operating in the political realm where public's react negatively to uncertainty and complexity. Simple quick-fix solutions to supposedly simple problems are preferred to the nuanced certainty and ambiguity associated with scientific views. Furthermore, ambiguity and uncertainty suggest the potential for unintended adverse consequences. In the age of "gottcha" journalism mistakes can prove costly to politicians. There is a tendency to be risk averse and a preference for no-regrets policy making that requires certainties that science is often unable to provide.

Strategies to employ

Understanding the characteristics of the political and policy making audience is critical to the effectively mobilizing scientific knowledge. Scientists need to deal with the reality that politicians require information framed with less ambiguity than they might like. Scientists should take a leaf from the communications play book employed by politicians and recognize the importance of consistently repeating key messages. They should also develop strategies which present political actors with solutions as opposed simply presenting them with additional problems. While it is important that key messages be consistent and emphasized through

repetition, it is also important to recognizes the importance politicians attach to novelty and newness. Key messages can be tweaked and repackaged in fresh ways.

Henderson described how climate science has been frustrated by the failure of some governments to openly and loudly talk about the threats of climate change. However, information framed around the benefits of preparedness or descriptions of climate variability (as opposed to more narrowly focusing on anthropogenic climate change) have resulted in progress. Research describing the impacts of drought or excess moisture wins greater acceptance in political circles than it would if framed as research describing the adverse impacts and causes of anthropogenic global warming. None the less, Henderson contends that it less than honest to suggest that efforts to mitigate the causes of global warming can be abandoned simply because the information is harder to sell to politicians. According to Henderson, the nub of this problem is that scientists know what they want to say but are unsure as to whether people want to hear it --- whereas, politicians know what people want to hear and it doesn't always coincide what scientists want to say.

Henderson contends these problems can be ameliorated through deliberative processes in which scientists deliver information that is framed in ways that can be understood and employed by the policy making community. He acknowledges that the outcome of effective deliberations is likely to contribute to the generation of policy options as opposed to actual policy decisions. By accepting that reality, the scientific community would be well advised to frame the messages it takes into the deliberative process in the form of policy options that can assist policy communities in translating science into policy – as opposed to assuming that science will or should be directly translated into policy.

Part II Presentation 5 (September 11)

Evidence-based policy, effective citizen engagement and the government-expert-public triangle: Lessons learned and potential for application.

Presented by Dr. Gregory Marchildon , Johnson Shoyama Graduate School of Public Policy.

Dr. Marchildon presented his description of challenges at the science/policy interface in the context of the 2001-2002 Romanow Royal Commission on Canadian health care. He described health care as a mature field in which has featured significant activity at the science policy interface over many decades. He explained that health care is a multi-disciplinary field (as distinct from interdisciplinary) where knowledge is regularly translated and exchanged between expert specialists and the policy community.

Marchildon explains that the Romanow Commission was required to address the fact that stakeholders did not approach health care issues with identical frames of reference. Furthermore, the Commission's work was challenged by its multidisciplinary characteristics whereby biomedical, clinical, population health and health systems services and policy intersected. An important early step in the commissions work was to "ostensibly bring structure to an unstructured problem." This approach echoes Rayner's (Part I presentation 1) contention that activity at the science/policy interface is less challenging when actors are dealing with "bounded" problems.

Triangle of engagement

Marchildon describes the deliberative process employed to determine directions for Canadian health care as a triangle of engagement that assimilated information gathered from three main points of origin. These points of origin included: 1) the Research Base which focused on the knowledge generated by experts or "science in progress," including the findings of public opinion research; 2) the Consultation and Dialogue, point of origin featuring exchanges with citizens and with and between experts and other stakeholders; 3) and, the Policy Options and Recommendations point where activity is focused around the roles and input of the policy development community e.g. governments. It is noteworthy that participants in some of the group discussions at the workshop suggested that knowledge mobilization efforts could benefit from the mutually reinforcing effects of this sort of triangulated approach. For example, it was suggested that by informing stakeholders at the community level about the significance of their research, scientists might develop allies who could support them in their efforts to win support among policy makers.

Polarization

Marchildon describes the seemingly inescapable fact that some policy issues are polarizing and controversial in nature. These tend to be "wicked" problems characterized by their unbounded nature and the presence of competing interests, values and philosophical assumptions that will inform decisions. In relation to health care, polarization occurs in association with funding and organizational issues. Similar challenges arise in relation to social welfare and, important to the objectives of the workshop, in relation to climate change. Despite the fact people, parties and stakeholders differ in their assessments one policy approach will be privileged over others (and no policy is a policy decision).

Innovative approaches (evidence-based deliberation)

Marchildon describes innovative web-based tools that are facilitating evidence-based deliberation in the health care field. One such site operated by the Manitoba Health Research

Council provides a forum where controversial science and expert information is posted and made available to journalists. These sorts of sites can enable the media to contact an expert" for evidence-based commentary on issues. They can assist media in understanding complex and technical problems by responding to them with answers to specific queries and by putting them in contact with researchers. In addition, the site makes videos featuring experts who describe various issues areas. Another important feature is the fact the sites can be managed to function as two-way communication vehicles that can aggregate and assess what the media has been saying about an issue. Assessments of media activity are thus available to inform the expert and policy communities about how information is being presented to the public. It is noteworthy that this was the first presentation at the workshop to include discussion of the role of the media in the knowledge mobilization process.

Part II Presentation 6 (September)

Canadian Agriculture and Water: Decision Support Tools, lessons learned and potential for application.

Presented by Darrell Corkal, P. Eng. Agriculture and Agri-Food Canada and Allan Howard, Agriculture and Agri-Food Canada.

Theme

Corkal and Howard present the knowledge mobilization challenge in the context of agriculture on the Canadian Prairies. The central message of the presentation is that knowledge mobilization is facilitated when the information developed by science is translated into forms that can be usefully applied by the wider community. They explain that research and knowledge should be linked to end-user needs. To that end, the presentation recommends that research-based knowledge be incorporated into assessment tools which can be readily employed in decision making by agricultural producers and policy makers. The presenters contends that within the contexts of climate variability and climate change successfully applied scientific knowledge contributes to more successful adaptation – it enhances the adaptive capacity of agricultural producers and water managers and can inform policy decisions and government program delivery.

Context

The presentation begins with an overview of the agricultural industry including the climatic and hydrological conditions which affect it. The climate/agronomic exposures and sensitivities that obtain in the region are described; focusing on the region's historical experience with recurrent drought. The presentation also describes water use issues in the region, focusing on the South

Saskatchewan River Basin (SSRB). The major streams in the basin pass through portions of the Palliser Triangle – the driest region of Prairies, noted for its perennial moisture deficits. The SSRB supplies most of the water used for irrigation in the region. Irrigation constitutes the largest consumptive use of water on the Prairies. However, dryland farming (farming dependent on precipitation) is by far the most predominant form of agricultural production in the region. While noted for its droughts, the region's climate also generates stressful conditions at the other end of the moisture continuum – the Prairies also experience recurrent damaging floods. The timing of precipitation in combination with other climate conditions such as heat units and frost free periods sets the thresholds under which successful production occurs on the Prairies. Understanding changing climate patterns is critical to decision making related to the selection of crop varieties and farming methods.

News you can use

The presentation describes the component parts and steps involved in the development of assessment tools based on climate research. These include developing climate extremes indicators based on the analysis of historical trends; making projections based on climate change scenarios; and employing decision support tools for assessing appropriate responses to changing conditions. An important element in constructing assessment tools is the transfer and translation of knowledge from the institutions where it is developed and resides to stakeholders who will be making use of it. This involves the mobilization of information collected under routine monitoring practices (e.g. soil moisture and stream flow monitoring), engaging in long-term planning and the development of user-friendly tools such as crop yield and irrigation calculators.

Corkal and Howard present the Landscape and Infrastructure Resiliency Assessment (LIRA) model as an example of an effective assessment tool. LIRA is described as a five-part system which maps the landscape; provides hazard forecasts; predicts the impacts of hazards; develops, and ranks adaptation options and; arrives at informed adaptation decisions. Another tool described is the Invitational Extremes Tournament exercise in which water users and management practitioners are required develop adaptation options based on simulated variable climate conditions over a series of years.
The presentation suggests knowledge mobilization strategies in the form of assessment tools that the VACEA project might consider.

- Climate information should be scaled to the sub-basin level;
- Link/incorporate both hard science and social science dates into adaptation planning;
    - Pilot test the Climate Extremes Tournament
    - Pilot test the Landscape Infrastructure Resiliency Assessments (LIRA);
    - Develop a social module (social science/economics) for use under LIRA;

- Integrate economic, environmental and social assessments;

Corkal and Howard conclude optimistically by noting the benefits now available through new research models, early warning systems, data products and international standards.

Part III Presentation – W*orkshop Summary Presentation* **(September 11)**

Common Issues/Unique Challenges (no slides were presented)

Presented by Dr. Gregory Marchildon, Johnson Shoyama School of (Public) Policy

Thematic Summary

Dr. Marchildon summarized some the themes which had dominated the workshop presentations and discussion group sessions. His summary served as a lead-in to concluding discussion session involving all participants. The summation highlighted the discussion of roles within the knowledge mobilization process (e.g. experts, connectors and influencers) and questions about target audiences (i.e. the inclusion of all stakeholders including those at the community level and/or policy makers). Marchildon also noted the prominence given to the challenges presented by the political cycle and the reluctance of political decision makers to develop policy around certain issues (e.g. climate change). He suggested that solutions could lay in employing intermediaries in the process; particularly those that are not dependent on short-term government funding. He also described the role of universities and university-based teaching in translating and exchanging knowledge. The presentation of these points prompted a number of questions and comments, leading to the wider discussion of the learning outcomes generated by the workshop and the selection of knowledge mobilization options for the VACEA project. Questions about goals and roles at the interface proved contentious for some participants. Some participants stressed the role of community engagement and the need to deliver research in forms that were applicable to solutions at the community stakeholder level. Others assumed the goals of the workshop were to deal specifically with issues at the policy interface, reminding the group that the role of academics and the VACEA project itself were distinct from delivering policy and programming.

Following Marchildon's summary comments, workshop participants engaged in a discussion of workshop learning outcomes and the various knowledge mobilization options available to the VACEA project.

GROUP DISCUSSION SYNOPSIS

There were four discussion groups which are identified by number: Groups 1-4. The size of these groups ranged from four to eight members each. Group membership was generally, but not always, consistent throughout the workshop. There was one breakout session for Part I of the workshop and two for Part II. The Part III discussion session involved all workshop participants.

There was one break-out session dedicated to the discussion of the Part I Theme: *Identifying the issues.* A question intended to stimulate the discussion was presented to the groups: *What are the major themes in the science/policy interface?* A summary of the discussion for each group is provided below.

Group 1 Breakout Session 1

Trajectory of the discussion
The discussion was framed around what participant's identified as the central objective of the workshop "How do we get results [of climate change research] to people and the government?"

The group achieved consensus around a number of items related to strategic communications planning. These included the need to develop a communications plan for the VACEA project (as per the Rayner and Eyzaguirre presentations). That plan should "effectively identify the project's audiences." Participants suggested that target audiences included both policy makers and the wider public. Furthermore, when addressing communications to policy makers, participants stressed that it is important to reach them at all levels of activity – e.g. from front-line civil servants to senior bureaucrats to cabinet ministers. The importance of effectively framing messages was discussed: "the appropriateness of the message, clarity of messages and how to deliver [messages] to stakeholders." The value of engaging professional communications specialists was considered; although cost issues were identified as problematic. Another element of the communications exercise discussed was the need to produce deliverables – e.g. recommendations or tools which can be applied by stakeholders. And, participants were reminded of the need to have VACEA project materials translated into Portuguese, Spanish and English.

Roles and barriers
 Attention was given to the role of academic research in providing information to the public and governments. The value of directing communication to non-government stakeholders in civil society was a recurrent theme stressed by this and other groups over the course of the conference. A participant from Brazil noted that university research enjoyed a high level of trust

in that country. He also noted that effectively mobilizing academic knowledge at the policy level runs up against the conditions imposed by managerial systems responsible for budgets. It was suggested that the role of the university in Canada was influenced by entrepreneurial considerations and the funding criteria set by government funded agencies and, increasingly, the private sector. In addition, participants noted the importance of translating academic language – making it understandable and useful to wider audiences. It was suggested that by making research findings more directly applicable to problems, the work of academics would find wider acceptance.

Participants identified two barriers to knowledge mobilization on the political side of the science/policy interface. These included the fact election cycles frustrate long-term planning and programming. And, the fact that (in Canada at least) political actors can be in conflict with the results of research. It was suggested that organizations from civil society more readily operate outside the barriers faced by academics and political actors. It would be advisable to ngage with these organizations and employ them as partners and intermediaries.

Group 2 Breakout Session 1

This group also arrived at a consensus around the idea that a communications plan should be built into the VACEA project and that the goals of the project should be consulted when constructing that plan, "Your goals should direct your communications strategy."

Significant discussion was focused on determining the audiences at which VACEA communications should be directed. "There is no one interface. There are multiple interfaces and levels of engagement. Not just policy makers." One participant stressed that communicating results was a form of accountability which should include making knowledge useful and applicable to target audiences. He added that accountability needs to be accommodated within the project in general as well as within its communication activities.

One of the participants echoed Luntz's (2007) contention that to communicate effectively, messengers must "jamb their feet into the shoes of their listeners."

> *We need to put ourselves in the politicians' shoes, understand their problems and interests. They see the world differently. They think differently and are largely unaware of science issues. We have to understand that…You need to address the characteristics of your audiences when framing communications.*

Some participants stressed the importance of engaging intermediaries at the science/policy interface. This discussion was linked to Eyzaguirre's characterization of knowledge mobilization as a triangulated process involving intermediaries --- experts, connectors and influencers. The

role of the media as an intermediary capable of communicating with multiple audiences was noted. The media was said to provide "short cuts" for delivering messages from researchers to their various audiences. However, participants suggested that the media has its own agendas – which underlines the need to have a communications plan that allows for monitoring and directing media relations.

Some speakers suggested that the wider goals of the VACEA project needed to recognize the roles of stakeholders at all levels including communities as: 1) recipients of information who could benefit from information that was directly applicable to their problems; 2) experts in their own right, capable of informing science and social science and; 3) as useful intermediaries who could influence political action, assuming that political actors purportedly operate in the public interest.

Participants discussed the value of engaging politicians and politically influential intermediaries (champions and connectors) in the discussion and dissemination of VACEA research. Examples from Latin America and Saskatchewan were discussed in which the engagement of particular government ministers and politically influential individuals had contributed to the application of climate change research in policy making. One participant said that there were politicians in Canada who had little or no interest in climate science or the application of its findings. He noted the recent public protests by Canadian scientists protesting the muzzling of scientists by the federal government.

One participant commented that "if the two main players at the interface do not want to talk, we need to get a third party to act as intermediary – " that third party is the public and communities. However, that takes time. To effectively engage people as the third actor you have to empower them and inform them to make them your advocates."

Group 3 Breakout Session 1

The discussion in this group opened with a challenge to the characterization of the knowledge mobilization interface suggested by the workshop's title and theme. Participants argued that the VACEA project's goals should involve more than communicating knowledge to policy makers. It should recognize that there are other important stakeholders who constitute important target audiences.

> *There is something missing in characterizing the communications exercise as occurring at the science policy interface-- other publics should be considered. We need to clarify who the target audience is. We need to define the target audiences and there is more than one target audience.[We] need to convince the general public.*

According to some members of this group, the workshop's theme does not acknowledge that the project's goal is to deliver useful tools to farmers and others at the community level who will apply adaptive measures. Instead it is focused on communicating with policy makers. In this regard, the theme of the conference is "biased" – in that its focus is on political actors and not "end-users – the target group."

An important consideration in identifying the appropriate target audiences (or publics) was to recognize who would benefit from the research. "There is direct benefit… who receives the benefit, yes the direct benefit of the measures proposed." The principle beneficiaries or end-users of the research need to be informed. There is an assumption built into the workshop theme that if academics pass the knowledge on to government, that the stakeholders will then be informed [that's the government's job] My job [the role of the researcher] is done and I don't think that's working."

> *We have seen shifts in thinking about where the interface should occur. The perception that decision making at the policy/science interface has been challenged since the 1980s when wider engagement with civil society was increasingly thought to be important. Citizen science and groups from civil society are challenging the idea of what knowledge is – there are actors besides science which have knowledge claims like indigenous knowledge. So rather than a science policy interface it is now more of a triangle -- science, policy makers, the public.*

There was agreement around the idea that the knowledge mobilization effort should be a triangulated process. "It is a stakeholder question. We have three target groups… the trinity: science, policy makers and stakeholders." The discussion placed less emphasis on the role and responsibility of state institutions in the process than is suggested by the conference theme. Participants suggested greater responsibility was owed by researchers – to communicate directly with stakeholders at the local level. Participants suggested that academics did not view the communication process broadly enough. "Academics hold a conference and make presentations or conduct a study so they can get their articles published and are unconcerned with what happens with the information."

The group stressed the multi-directional nature of the communications triangle, recognizing the role of expert knowledge located at the community level. "We need to acknowledge expert knowledge at the local level and cannot assume that academic and scientific knowledge is more valuable than local knowledge." A representative from a community-based organization held that academics needed make a greater effort to listen to what people at the local level had to say. Another participant argued that knowledge dissemination should be a bottom up, not top down, process. These comments were answered by a researcher who reminded participants that the

VACEA project had indeed been doing just that – hundreds of interview were being conducted with community members; listening to them was a significant component of project work.

Contradictions
A participant from Alberta maintained that farmers and local organizations were not going to accept the information presented by science unless scientists first won their trust. Furthermore, farmers and community-based organizations are not particularly interested in hearing more about climate change and environmental problems. Apparently, presenting information related to these topics reduces their trust in science. This, she said, is primarily because the information tends to come in the form of finger pointing – e.g. agriculture is blamed for excessive water use or methane emissions. There is a sense at the community level that other publics (e.g. urban residents) concerned with environmental problems expect the agricultural community to bear the costs of remediation. The speaker reasoned that local communities are not going to be interested in knowledge which adds economic stress to their lives or threatens livelihoods.

> *They are already bombarded by groups throwing up species at risk at them --- people who want their land for conservations uses ... There are all these groups knocking at the door [making these sorts of claims] and they would probably see it [VACEA results] as just another environmental group asking them to do something for the benefit of the public.*

In other words, the information presented by researchers needs to be framed as information that can directly benefit the local community in the short term as opposed to information that is critical of their livelihood activities. Researchers should be asking what they can do to help people at the local level as opposed to telling them what they need to do.

The group did not deal with the challenges and contradictions presented by the combined effects of two of the propositions raised in the discussion: 1) recognizing the validity of local knowledge and; 2) avoiding the presentation of knowledge to local communities which they might find disturbing. Under these constraints, a hypothetical researcher wishing to present information to community-based stakeholders about the need to adapt to the adverse impacts of climate change is restricted from doing so if "expert" knowledge at the community level denies the existence of anthropogenic climate change or if the information threatens to add to economic stress or suggests the disruption of livelihoods.

Group 4 Breakout Session 1

The discussion in this group echoed Eyzaguirre's characterization of the communications triangle and the benefits of engaging the public and other actors as intermediaries in presenting the case for mobilizing scientific information in policy making. The knowledge mobilization

problem was described as an integration problem – the integration of knowledge between scientists and between scientists the public and policy makers. The discussion also characterized the differences in roles and goals between the scientific community and politicians.

A participant form Brazil described the crux of the problem at the science/policy interface as the "low capacity of the scientific world to translate knowledge into solutions….Policy makers need to integrate solutions into their activities. Scientists cut reality into pieces and make deep analyses of discrete parts of the world." But this is where the scientific effort typically ends – scientists don't have responsibility for implementation. "So we need to develop a more integrative approach in science" that makes it more amenable to application. At the same time, "there is a low capacity for policy makers to believe in science." This participant described a successful example of knowledge mobilization in Brazil where scientists provided knowledge to the local population which enabled them to lever funding from government agencies to finance activities in support of biodiversity. It was admitted that knowledge mobilization is a challenging process exacerbated by complexity. "They [policy makers] want very simple solutions, but populations have complex problems that demand complex solutions."

Another participant suggested that a similar situation obtained on the politicians' side of the interface. Complex policy solutions are more difficult to sell to the public than simple answers to simple problems. "…I think sometimes the responsibility lies with the scientist to not make things overly complex – to simplify results so you can actually get them into the public discourse." At the same time some of the speakers held that it is indeed the policy maker who is responsible for collating community needs and developing appropriate policy responses. Indeed, there seemed to be greater emphasis on the role of government in the knowledge mobilization process on the part of the participants from Latin America than among participants from Canada who had much lower expectations about the role and responsibilities of state institutions. There appeared to be an expectation on the part of Latin American participants that the state had an interest in implementing public policy informed by science. The Canadians, on the other hand, were sceptical about the willingness of their governments to embrace scientific information or to take action in response to it.

Reciprocal communication
One of the participants affirmed the comments made by speakers who described the benefits of engaging the public on behalf of knowledge mobilization. At the same time he suggested that communications is a reciprocal process and there should be some obligation recognized on the part of policy makers to listen to science.

> *For me, policy is a product of values and choices, and the need to make choices based on values that reflect different interests. So science is only one dimension, and I think that society needs to understand us…what science is all about. I think politicians come to us*

looking for certainty and we cannot provide that. It is impossible for us… In order to facilitate knowledge mobilization we need to understand each other…So we need some sort of mechanism to help us do that.

This speaker acknowledged that a significant amount of discussion at the workshop had focused on the obligations on the part of scientists to become better communicators and more engaged in the marketing of their findings. Indeed, other participants had described the need for a new kind of scientist capable of communicating knowledge that was digestible for policy makers and the public. The first speaker turned the problem around by asking "do we not also need a new kind of politician" one who is prepared to embrace and employ scientific knowledge? "People keep saying it is our responsibility to do this or that. But I am not so sure that policy makers should get out of the assessment of the knowledge mobilization problem without taking some blame."

To a certain extent as a politician you are accountable to the people who elected you, and you are not always able to make them happy. At a certain moment, you need to explain that there are no easy solutions to their problems. Finding solutions can be a very long-term process. But if you don't accept this there is no way to develop positive outcomes.

Policy windows and politics
According to another speaker, knowledge mobilization could be enhanced if scientists presented information in more usable form reflecting the policy makers' need to develop emergency response systems, or systems for monitoring water and climate conditions. The need to develop adaptation measures and civil defence responses to climate related disasters is perhaps providing a policy window in parts of Latin America [e.g. Mendoza Province, Argentina] facilitating the incorporation of more science into policy making. One of the participants echoed discussions taking place in other groups by noting the importance of temporal considerations and the challenges presented by election cycles. Policy makers take a very short term approach to the problems, whereas climate science is focused on the long-term. One participant suggested that this condition made it essential for scientists to package knowledge as solutions that can be implemented in the short term – give them a way to win with science. Another consideration raised was the proposition that politics is a competitive activity. A scientist successful at winning supporters in government might generate antagonism among its electoral opponents.

Interdisciplinary approach
One of the participants suggested that role of understanding the needs of communities and policy makers could be performed by the social scientists engaged in the VACEA project. In other words, they could be providing information about the barriers and opportunities for communication between the three points on the triangle – science, the public, policy makers.

Intermediaries could be used to translate and break down discrete silos as well as integrating science.

Breakout Session 2

There were two breakout sessions associated with Part II of the Workshop. The focus of discussion for these sessions was the question: *What do we learn from these experiences that we should do and integrate into the knowledge mobilization plans for the VACEA project?*

Group 1 Breakout Session 2

Planning for interface activity
A question posed by one of the participants encapsulated the trajectory of this group's discussion -- Is the VACEA project accounting for the interface in a strategic way or simply going to submit its findings and hope for the best? Another participant acknowledged the call to action suggested by the question stating, "It is up to the VACEA project to create its own interface plan." He added that it would be helpful to develop a systematic process to achieve that end.
Another speaker described elements of a systematic approach "We should be planning for this at the front end perhaps hiring a professional communicator." Group members reiterated comments from previous discussions and the presentations regarding the desirability of identifying and employing intermediaries and champions to facilitate VACEA's knowledge mobilization efforts and the need to include a wide range of stakeholders in the process. However, another group member held that it would be time consuming and potentially expensive to broaden the mobilization process across too many sectors, suggesting that governments were arguably the most important target audience to reach.

The group revisited some of the underlying challenges associated with the transfer of knowledge from the scientific community to the policy community. One of the participants stated, "The production of new knowledge is great academically but carries no weight politically." Participants suggested that this barrier could perhaps be overcome by producing and packaging information in a form that policy makers find more readily applicable to their problems.

> *In the political world you need concrete deliverables they can point to and describe to the general public. We need to communicate beyond vice presidents of research at universities, panels of academics, journals – we need to communicate to government. And we need to do that without just communicating problems.*

It was suggested that mobilization could be facilitated by fulfilling needs not met elsewhere, "We should be delivering scientific information that is not normally deliverable." Questions raised but not thoroughly weighed by the group was, "Will the project propose specific recommendations e.g. financial instruments for producers? Do we have specific or broad ranging

recommendations including a discussion of pros and cons?" One participant held that the mobilization plan needed to incorporate a degree of flexibility "The project itself should influence the shape of the process because we will learn as we go."

According to one of the speakers, regardless of how the mobilization plan might be constituted it would be difficult to measure success, although it was nonetheless advisable to incorporate some sort of evaluative mechanism into the plan.

Comparisons with other projects
The participants also discussed some of the challenges identified by presenters who described the knowledge mobilization successes and failures of other projects. Disappointment expressed by people involved in the IACC project was qualified by noting that the political climate changed part way through out the IACC project which had an impact on the degree of integration that occurred. The governments in place when the project was launched were not in office when the project concluded. The previous government were potentially more amenable to adopting solutions recommended by the researchers. One of the participants stated that it is important that researchers realize some things are simply out of their control. None the less they should "Recognize the extent that it is in your hands and structure a plan that is strategic and intelligent. For the drought project they wanted a one page report with bullets."

In describing the attitude that researchers on a drought project encountered when dealing with political actors one of the group members reported, "They wanted the key message, they wanted it to be a happy story and they wanted to test it. They want a grand opening of a centre or a photo opportunity." Another participant described how the VACEA project could learn from the problems encountered by the IACC project. "The IACC project included interdisciplinary presentations but not an interdisciplinary dialogue. We need to have a plan in place to do that at the start of the project in order to use it at the end."

A speaker who participated in the IACC project described how encouraging community engagement could be a disappointing exercise. "Community engagement is time consuming and costly -- do we do it? Another participant reminded the group that the VACEA project is already involved in significant interaction with community members through an extensive interview process. Although, questions arose as to whether community research is the same thing as dialogue. Some held that dialogue involving the presentation and discussion of research findings demanded an additional step.

Tailoring the process to VACEA
Two of the participants stressed the advantages that the design of the VACEA project offered in relation to garnering the attention of the policy community. For example, the VACEA project is a much more comparative study than the IACC project. Its activities may be more successful in

one country than another. It will allow us to learn what worked where and what did not. "If the comparisons are rich enough we could be effective [in encouraging policy makers to embrace the results].

Participants also identified the importance of recognizing that the problems, conditions and solutions that obtain in each of the various study countries are not likely going to be generic. The project needs to indicate where there are important differences. Furthermore, research findings and deliverables will have to be tailored to reflect those different situations. For example, "With a highly conservative government in office in Canada you will want to be able to say we are doing something concrete – deliverables will be important." In Brazil, on the other hand, researchers may find they have greater success at influencing the political process. And if so, the project should identify why this is the case.

Group 2 Breakout Session 2

The audience identification problem
One of the participants in this group discussed an insight he developed in response to Gwendolyn Blue's presentation whereby he identified politicians as the key audience as well as a key intermediary between scientists and community stakeholders. "For the politicians, the client is the people. For the scientific community the client or customer is not defined. If scientists identify the politicians as their client it would be very easy to align [direct and simplify the communications strategy] and provide them with tips about what to say to the people." Another participant added, "You have to go to the policy level…to influence the really big decisions – the overarching socio-economic and climate change policies."

This approach stands in contrast to the model preferred by members of Group 3 whereby community stakeholders are the key audience which can also act as intermediaries in communicating with policy makers. Other Group 2 participants indicated a preference for a triangle model which involved multi-directional communications between scientists, politicians and community stakeholders as preferable. The utility of finding intermediaries or champions (including the media) to assist scientists in mobilizing the knowledge they produce, particularly at the interface with political actors, was also revisited by the group.

One of the speakers proposed that the audience one chooses to target depends on the nature of the problem one is trying to address.

> *If you are seeking local solutions you can engage the people and come up with changes to, say, management practices, the way you manage soil and water and crops and forests in the local watershed. People will buy in because they ownership of those resources.*

> *Once you start talking about policy that is external to the region – the audience you need to reach [policy makers] is in the capital city.*

In deciding who the VACEA project's target audiences are, one of the participants said, "Remember that the overall goal of the project is to help make the communities more resilient." Another participant commented that at the same time project participants needed to acknowledge that climate change adaptation is not going to solve everyone's problems –"It should not be oversold."

Useful deliverables
One of the speakers proposed that knowledge mobilization could be enhanced by presenting target audiences with "good examples of what can be done…not only abstract ideas." She added that the messaging should be solutions oriented, presenting "opportunities, positive thinking, showing happy stories instead of showing problems and being messengers of bad news."

This participant explained that the VACEA project's focus on adaptation to climate change over the long-term could be framed in ways that were useful and palatable to audiences in the present. For example, contemporary climate hazards generate ample grounds for enhancing adaptive capacity in the present – regardless of whether or not audiences, such as politicians, are interested in addressing longer-term issues. Other participants agreed that the packaging of the message was critical to its acceptance.

Tactical suggestions
Participants presented a list of tactical suggestions for potential inclusion in the VACEA project's knowledge mobilization activities. The suggestions are listed below in the order they were presented. The reader should note that the transcript of the discussion provides little indication as to the level of support any of these suggestions garnered.

- Do not wait until end of the project to develop a communications/knowledge mobilization plan.
- Employ standard communications techniques such as repetition and message consistency.
- Recognize that drought and other extreme exposures can provide policy and communications windows.
- Develop simple 150 word descriptions of the focus and activities of the project in each participating country.
- Messages should be tailored to each country whereas the overarching strategy is consistent.
- Scenario-based plans have proven to be an effective project deliverable in previous knowledge mobilization efforts.

- When communicating with the community don't simply tell them what they already know or telling what they have to do – they need to be part of the decision making process. It is a two way process – don't point fingers.
- Don't lead with your chin, by focusing on anthropogenic climate change (which is suspect in some communities) keep climate projections in your back-pocket.
- Make use of champions, first adopters and opinion leaders as communications intermediaries – their contributions have a multiplier effect.
- Frame climate change adaptation as a way to improve the conditions of the poor as a means to address poverty issues.
- Present/frame climate change as one of the stressors in an already stressed environment -- the message becomes easier to understand and appreciate when we recognize "that those stressors are already there (like low prices, poor access to water), the situation becomes even more serious when we impose climate change on those elements."

Group 3 Breakout Session 2

In assessing the transcript for this group's discussion one is reminded of Cassandra and the frustration that arose from her being able to look into the future only to find that no one would believe her forecasts. This group's discussions illustrated how frustrating dealing with knowledge mobilization issues and processes can be for researchers and community members – and how the process can generate cynicism.

There was a consensus among group members that the principle audience for the project should be the communities – those people living and working in watersheds as opposed to politicians. Participants asserted that the principle goal of VACEA, and similar projects, should be to produce solutions that offered benefits to the public at the community level. However, group members were sceptical about the capacity of researchers to engage effectively with either communities or policy makers. A participant repeated assertions made in the first breakout session to the effect that the findings of environmental research were too often presented in the form of finger pointing. She suggested that rural community members in Canada did not want to learn about or apply information that threatened their already stressed livelihood situations -- anthropogenic climate change for example. Participants were no less sceptical about the capacity of politicians to deliver the findings of science to the public: "The problem is that the public don't trust politicians or universities." Furthermore, politicians were deemed incapable of accurately delivering scientific messages because, "they are only interested in telling people what they want to hear."

Even when politicians appeared to be engaging with communities – their actions could be characterized as cynical. Policy initiatives undertaken in Alberta to engage people at the

community level in the water governance discourse were described as window dressing. "The watershed councils are just a front to make it look like they [government] are doing something, when in reality they don't listen to us."

Scepticism extended to challenging the methodology of the VACEA project. Some participants held that the project was flawed because community-based needs and knowledge should be a primary focus of the research. One participant supported the VACEA methodology, stating that gathering community-level input through ethnographic research was a major component of the project. She herself had engaged in some 140 in depth interviews with agricultural producers and community residents. Other participants remained unsatisfied. They held that interviews were not actually engagement or dialogue and remained unimpressed when told that community presentations and interactive discussion of the research were also built into the methodology. The snowball method of acquiring interview participants employed by the Canadian researchers was challenged by a participant who advised that randomized sampling is integral to generating scientifically valid and useful findings.

One of the participants provided comments related more directly to the theme of the session. She asked how the declining influence of neoliberalism in Latin America might be affecting the knowledge mobilization process. There was some discussion around the idea that neoliberal hegemony in western Canada might be contributing to the challenges and opportunities associated with the dissemination of scientific knowledge and the capacity for deliberative democracy.

Group 4 Breakout Session 2

Dedication to the communities
The role of the community in research, knowledge mobilization and the implementation of project findings was also the focus of discussion for this group. One of the researchers working on community assessments stressed the importance of working with communities to develop implementation of adaptation strategies and to monitor and assist in their implementation. For this researcher it was critical that the project not simply ask community members to give up their time to participate in interviews. This participant argued that VACEA should ensure that project participants return to the communities to present their findings and provide the communities with ongoing support in exchange for their cooperation. These sorts of efforts were described by one participant as "a project" legacy.

Some participants stressed that for the successful application of research results required meaningful community engagement. Bottom-up knowledge development and community input into the prioritization options could succeed, whereas top down measures imposed by government and researchers were less likely to be effective. One participant said, "We need to

reflect the issues that the community sees as critical and timely as these are the ones more likely to be addressed." Thus, working with the community is integral to generating adaptation strategies that will actually be adopted -- as is supporting the community in the planning, implementation and evaluation phases of the process.

Practical barriers

While a number of participants shared this view, it was not uncontested. Other speakers questioned whether the researchers working on this sort of project had the capacity (the skills, time and funding) to help communities design and implement adaptive measures: "That wasn't our mission [for the project]. Our goals do not include engaging in rural development. Our mission is to work with the community at the moment of selecting options. It is not our role to apply the plan – other institutions have to do that." One participant suggested that it was up to the stakeholders, NGOs and the government to assess and develop adaptation measures and policies.

> *Do we want the project to work with the community in terms of development and a strategy of adaptation? Do we* [university researchers] *have the capacity to do that? If you asked me 20 years ago I would say yes… but more and more I recognize that maybe I don't have the resources to do it…I think that we need someone who can help us work with the community… we need a mediator* [intermediary]*….maybe it is up to local NGOs to work with the community and act as a mediator between the community and us… It is not our role to develop or implement projects – We need to distinguish between the research phase and the implementation phase. Implementation is up to the communities,* [NGOs] *and the government… It is government and agencies from civil society that have the capacity to do the work. They are the intermediaries required to assist in implementation at the community level. Our job is to evaluate and select strategies for adaptation and convey that information to stakeholders and policy makers… To be honest, one of my concerns is that if it is left to us – we won't do it.*

It was noted that while the group may want to work more closely with communities on implementation, the mission of the project and the objectives of the workshop "have determined that we want to work with policy makers." A participant reminded the group that the VACEA project, not unlike other research projects, had an end date. "The project is finite. We're not going to be there to the end of time making sure that implementation is occurring … the project has a 2.5 year lifespan and a predetermined budget." Participants holding this view were, however, amenable to considering strategies for assisting in implementation and for evaluative follow-up work within the confines of the project's limitations. Nonetheless, one participant cautioned the group that it was unwise to envision delivering an overly ambitious level of support to communities. He said, the group needed to be careful about thinking it can make "a

heroic departure" from the roles and structures that govern the VAEA project and similar research activities.

Some participants were sceptical about the capacity of governments and communities alone to develop and implement adaptation strategies. One asked, "… do governments in Canada have an appetite for doing anything? And a participant from Latin America suggested that if implementation were left in the hands of some communities, where resources were limited, it was possible that nothing would happen. A potential solution suggested was employing a triangulated process which engaged researchers, community stakeholders, NGOs, intermediaries and governments. This sort of multi-faceted approach was deemed more likely to succeed than simply handing research results over to either the communities or government.

A degree of consensus emerged around the idea that the project could ensure that communities were engaged in a meaningful dialogue in conjunction with the presentation of the project's conclusions. It was held that this could facilitate the development of adaptation strategies – the next phase of the process. And, if the resources could be made available through the VACEA project (or a follow-up project) an evaluation of progress on adaptation at the community level could be conducted.

Strategic and tactical considerations
One of the participants held that scientists could play an important role in coordinating the development of adaptive strategies and could play an intermediary role. For example, in Argentian and Canada where federal-provincial rivalries can frustrate policy development, scientists might play an honest broker role.

A speaker from Chile described some of the knowledge mobilization activities that had achieved some success in that country: 1) getting participation from all points of the triangle in developing strategy; 2) providing training to public sector actors in applying adaptation strategies and the incorporation of adaptation research into school curriculua; 3) developing common set of exposure-sensitivity indicators and evaluative tools for assessing adaptive actions; and 4) finding clear support for these actions.

Breakout Session 3

This was the second breakout session associated with Part II of the workshop. The questions posed by organizers to stimulate discussion included: *1) What are the insights we have learned that can help in the science/stakeholder/policy interface that can be used by the VACEA project? 2) What should be the mechanisms to engage with stakeholders? 3) How do we integrate knowledge, choices, people's views, interests of the local communities and the different stakeholders into the knowledge mobilization plan of VACEA?*

Group 1 Breakout Session 3

Participants presented and discussed a series of strategic and tactical ideas that could potentially be incorporated into a knowledge mobilization plan for the VACEA project. A number of the suggestions presented, focused on communicating with community-based stakeholders, suggesting that participants had accepted the proposition that the project's target audiences included both policy makers and communities.

One of the strategic challenges identified involved the translation of scientific knowledge into "digestible" form for lay audiences – politicians and stakeholders. It was noted that the language employed in an academic publication was rarely suitable for other audiences. Speakers dealt with the contradictions that arise when researchers strive to incorporate local knowledge and local preferences into their findings and at the same time introduce those elements which are developed through "their own range of vision" -- the perspectives of their disciplines and expertise. One speaker stated that the different forms and sources of knowledge needed to be differentiated. This could facilitate the structuring of communications approaches, whereby local expertise was acknowledged and externally generated knowledge was provided diplomatically – as a contribution to the local discourse as opposed to a top down imposition of "preferred knowledge." In addition, it was held that community-based knowledge is integral to understanding "what works and what doesn't." In other words, the community may be credited with having a more intimate and legitimate appreciation of what its own goals and limitations are – the contribution of researchers would be to facilitate local goal achievement by providing structured approaches that combined local knowledge and concerns

Participants agreed that internet-based communications vehicles offered considerable potential for the dissemination of VACEA messages. They noted the importance of making the web site attractive to target audiences, e.g. policy makers, scientists and students. This, it was suggested, could be accomplished by providing assessment tools that had utility for policy makers and stakeholders. Additional vehicles such as a phone app and a Wikipedia posting were mentioned.

Another option discussed was to hold policy fora under the auspices of university institutions such as the Johnson Shoyama Graduate School of Public Policy.

Group 2 Breakout Session 3

Strategic planning
One of this group's participants was asked to describe the process that her organization employs in developing and implementing its communications/knowledge mobilization strategies. The approach she described employed an advisory group with representation from the various knowledge producing sectors of the project. Consultations with the advisory group occurred throughout the course of the project and provided direction on the relevance of the information being collected and how best to communicate it.

Other participants underlined the need to involve stakeholders in the development and application of project findings as a method to encourage buy-in. "They need to think that the ideas are theirs," as opposed to thinking of them as a top down decision imposed on them.

The importance of incorporating the different local contexts associated with the project into knowledge mobilization activities was stressed by a Latin American participant. He noted, for example, that hydrological drought was not a major adaptation issue in parts of Argentina where dryland farming is dominant and agronomic climate challenges are associated with local precipitation events.

Goals identification
The discussion demonstrated confusion among participants about the fundamental goals of the VACEA project and how those goals should be reflected in the knowledge mobilization/communications strategy. Some speakers held that the ultimate goal of the project was to enhance adaptive strategies at the community level. Therefore, communications should be directed at communities. It was noted that this approach was different from the one suggested by the workshop theme which assumes that policy makers were the principle audience. Apparently the goals of the project were interpreted differently by participants from different countries. For example, it was suggested that in Chile the VACEA research would be viewed as a stepping stone on the path toward additional projects and implementation. A Canadian participant wondered if the goal was to simply prepare and present a report for government – or whether additional emphasis would be placed on transferring knowledge to communities and supporting the development of community-level adaptation strategies.

This discussion promoted the group members to jointly recommend that the VACEA project precisely identify who the target group(s) for its research findings and messages is/are. Two group members argued that farmers should be the primary focus. Others added that

intermediaries capable of communicating with farmers and policy makers needed to be thought of as a key audience. Networking with and through other institutions and piggybacking on existing structures and processes were described as additional and important strategic considerations.

The confusion and conflicting opinions regarding audience identification was explained by one of the participants as a result of the peculiar nature of the VACEA project.

> *VACEA is a project with a twist. We have a focus on extreme events – climate extremes. But what we are really hoping to do is prepare people to work together. We are using information about droughts and other hazards, things that directly affect them, as a vehicle to teach them about something else* [the need to collaborate in order to enhance adaptive capacity and community sustainability]. *We are also hoping to convince policy makers that they have to be interested in this. It's a little sneaky.*

Canadian participants noted some of the challenges they faced with respect to roles in developing adaptation strategies and implementing them. The process was thought to be frustrated by a lack of institutions capable of coordinating and supporting the process. The dismantling of the PFRA, a Canadian federal government agency which formerly dealt with agricultural drought problems, was identified as a case in point.

Group 3 Breakout Session 3

A significant portion of this group's discussion focused on community engagement. One of the participants stressed the need to schedule more meetings between researchers, local watershed committees and municipal governments to update them on the project's findings. This participant said, "One year between meetings is too long," they had to be much more frequent. This speaker added that the objectives of follow-up meetings should be to provide community stakeholders with assurances that their opinions and interests were being considered and that the work of researchers was being put to practical use. This participant assumed that research findings are already available and that the project had ample time to implement them before the project is wound up. "People will be very upset if the research is not put into action. We are supposed to have 2.5 years so what's the problem? People would be happy to learn we are producing deliverables to give them options for moving forward."

Echoing this group's discussions during Breakout Session 2, some participants questioned the VACEA project's interview process for Alberta. Again, participants held that interviews provided only a snapshot of community conditions and that additional steps were required to assess local needs and opinions. The alternative approach proposed was to hold a series of meetings including interview participants, local NGOs, municipal officials and researchers.

These meetings would discuss themes identified by researchers based on the first round of interviews.

The foregoing assessments were challenged by a participant who held that the goals of the VACEA project, including its knowledge mobilization goals required, more assiduously addressing strategic questions.

> *I'm sorry, it's not just about meetings. I think first of all we need to develop a communications plan and define a strategy for engaging stakeholders… You have to identify the different types of stakeholders you want to reach and, for each group, define a specific communication strategy. The overall goal of the communications strategy should be to achieve the final objective which is to engage the stakeholders. So my suggestion is, first of all to identify who the stakeholders are, and how they are. Who are their leaders? What is their language? We need to know these things to define a strategy for talking to them -- to have a successful discussion. Just holding meetings is not enough.*

Other participants concurred with the need for strategic communications planning and suggested that that process could identify policy makers and other groups as appropriate target audiences. This suggestion refocused discussion on the workshop theme and prompted the question, "To what end will our communications strategy be applied? Should it not be directed at where we can influence policy? Do we focus on the municipal level, watershed committees, the province?" One of the participants added that insurance companies experiencing increasing climate related liabilities might be both an important target audience and an intermediary in efforts to influence policy.

One of the participants responded that principle audience should be local stakeholders including municipalities and the local watershed committees. This participant explained that watershed groups could be an effective knowledge mobilization intermediary in Alberta. When a watershed group could demonstrate wide community support for a policy or program initiative, it had the potential to influence the provincial government. Another participant suggested that farmers and other grassroots stakeholders were capable of certain forms of autonomous adaptation. And for those areas of research suited to autonomous application, farmers and the community are the appropriate target audience. Other adaptations require action on the part of external institutions (e.g. policy makers in government). When institutionally initiated applications of research are required – policy makers are an appropriate communications target.

Some participants were sceptical that information related to climate change would be readily embraced by either community members of politicians in Alberta: "There's not a lot of support for climate change... it's a waste of time talking to the province."

One speaker reiterated earlier workshop comments regarding the value of developing decision support tools. He argued that the transfer of knowledge would be enhanced if researchers provided stakeholders with information in forms they could apply in their own national regional and community context.

Group 4 Breakout Session 3

This session opened with a summary of the group's Breakout Session 2 deliberations. It was noted that there had been a consensus around the idea that the VACEA project's knowledge mobilization strategy should reflect the triangle model, involving researchers, community-based stakeholders and policy makers. In addition, this process would allow for significant bottom-up influence on the part of communities. There had been considerable discussion around the potential for legacy and implementation activity. For example, some participants hoped that permanent fora might be established in the wake of the VACEA project that would provide for community participation. However, not everyone was convinced that a consensus had been achieved regarding the extent to which the VACEA project would engage in these sorts of activities. One of the participants reported, "I think there was agreement that the project was able to provide certain things to communities such as suggestions for ongoing strategies – but we were not going to participate in their implementation."

One of the participants observed that while a good deal of attention had been focused on communicating with community-based stakeholders, there were also important reasons to direct communications toward policy makers. He noted that many of the things communities require come with economic costs and sometimes require resources not readily available at the community level. "They have lots of needs but they don't always have the money or resources to address them…They would appreciate information that will help them access funding and resources."

Indeed, some of the participants stressed that knowledge mobilization was an educational activity. But in addition to educating people, researchers should provide them with tools they can employ to address their current priorities. One participant suggested that the project should strive for a balance between providing information and methods for making practical use of that information.

Some participants stressed the value of encouraging ongoing input and feedback from community-based stakeholders. Others suggested there are logistical limits associated with going

back to the communities for additional input. Each iteration requires time and money. Furthermore, there are conceivably limits to the amount of time that researchers can reasonably expect stakeholders to devote to the project. One speaker asked, Do you want to make them sick and tired of you? One alternative mentioned was to designate individuals from each target audience or stakeholder group as representative who could be more closely engaged with the project.

Ideas were presented which offered solutions to challenges in the areas of stakeholder engagement, educational activities and providing stakeholders with practical deliverables. For example, websites for each country could be developed offering interactive and educational functions and providing LIRA type assessment tools. The websites could possibly perform a one stop shopping or library function for adaptation information -- linking users with other sites.

Final All-Participants Discussion Session

Following Marchildon's summary comments, workshop participants engaged in a discussion of workshop learning outcomes and the various knowledge mobilization options available to the VACEA project.

Strategic considerations

Participants in the summary session underlined the need to identify the goals and objectives of knowledge mobilization in the context of the VACEA project's mandate. Some participants stressed that an important objective of the workshop was to determine how to impart knowledge to policy makers. That effort was indentified as a component of larger questions such as, who are the audiences with whom researchers should be communicating? Indeed, the preferred focus for communications, i.e. audience identification, was somewhat contested ground at the workshop. Is the focus simply politicians and the policy community or is it the stakeholder community in general? Resolution was sought via the suggestion that the focus could be directed toward both policy makers and other stakeholders, including those at the community level. Participants referred back to the triangulated approach described by Eyzaguirre and other presenters, suggesting that the process of communicating with stakeholders at the community level could contribute to the building of an advocacy base which could assist in taking the messages developed by researchers to politicians.

Some workshop participants hoped the VACEA project would have a lasting legacy, providing stakeholders with useable information that could be employed in long-term decision making for years to come. Other participants noted that the VACEA project has a 2.5 year lifespan—with funding arrangements alone suggesting that its research and dissemination activities are finite.

Nonetheless, some participants held that the project can indeed play a role in encouraging the development of more long-term activities built around permanent websites hosting various assessment tools. The project could perhaps encourage the development of more permanent fora -- where VACEA's work on adaptation issues can become part of a long-term process. There were some participants who held that to have optimal value the VACEA project should focus on delivering useful information to communities and provide them with support in implementation. Other speakers, reminded participants that this was somewhat beyond the mandate of the workshop and perhaps the academic research efforts of the VACEA project in general

A number of participants stressed that to effectively address the workshop's theme, the VACEA project must actually plan for knowledge mobilization, recognizing this entails an exercise in strategic communications. Participants provided comments describing the details of what such a plan would include. A question which prompted discussion was, "How do we deliver value?" That question led into a discussion of tactical considerations such as the creation of user-friendly assessment tools and the development of communications networks. A number of concrete activities directed at strategic communications were suggested and are described below under the heading *strategic suggestions and tactical suggestions*.

CONCLUSIONS

Areas of consensus

The workshop generated consensus around a number of key points and produced a list of strategic and tactical suggestions for enhancing the transfer of knowledge from scientists and academics to policy makers and other important stakeholders. Participants determined that knowledge mobilization was in many important respects an exercise in strategic communications. They agreed that the development of a strategic communications plan should be a VACEA project priority – an integral project component as opposed to an add-on or afterthought.

Notwithstanding the importance of the consensus that merged in relation to the strategic communications/knowledge mobilization plan, this section of the report will revisit the workshop's purpose and objectives and provide an overview of the central themes and conclusions of the deliberations.

Revisiting the workshop objectives

The stated purpose of the workshop was to meet the following objectives:

1) Identify the main issues of the science/policy interface;
2) Discuss experiences in relation to the science/policy interface;
3) Define an Agenda for the Science/Policy Interface in the VACEA project.

Both the presentations and discussion sessions succeeded in addressing these objectives. Indeed, the third objective was realized by the decision to incorporate a knowledge mobilization/strategic communications plan into the VACEA project. The deliberations in regard to objectives 1 and 2 expanded on the notion of knowledge mobilization by assuming that both policy makers and community-based stakeholders were appropriate target audiences for the projects findings. The triangle model was recognized by many participants as an appropriate approach to reaching multiple audiences. In addition, the triangle model recognizes benefits of viewing knowledge transfer as a multi-directional process.

Focusing on practical application

Another approach to knowledge mobilization considered by workshop participants was the development of concrete deliverables that could support adaptation activity at both the community and policy making levels. This approach assumes that by delivering information in readily applied format, researchers can enhance the uptake and application of their findings. A number of tactical approaches were described and discussed including the Landscape Infrastructure Resiliency Assessments (LIRA) model and engaging stakeholders in simulation activities based on climate and hydrological forecasts for their localities. Other tactical approaches discussed included the development of websites that offered one stop shopping for people interested in context specific adaptation strategies; could serve as a library for adaptation information and provide links to important information sources; could host interactive exchanges and discussions and; offer access to assessment tools and simulation activities.

Reassessing goals

The discussion of strategic communications was accompanied by a reassessment of the goals of the VACEA project. Many participants agreed that the project's ultimate objective was to enhance adaptive capacity at the community level. Some wondered whether this meant that communications should be directed primarily at community level stakeholders. Indeed, some participants held that the project was obliged to assist in the implementation of its findings at the community level. Other participants held that communities often lacked the resources required to implement adaptation strategies, necessitating support from governments in the form of policies, programming and financial support. Given the roles that policy makers are asked to play they constituted an important target audience for receiving VACEA project information. Furthermore, the limitations of time and financial resources that defined the VACEA project made it unlikely

that it would be able to play a significant role in implementation – those activities would fall primarily on communities and government.

Triangulated approaches

Workshop participants identified the *triangle of engagement* model as a methodology which could incorporate the researchers, community-based stakeholders and policy makers in a multi-directional communications process. Under this model it is assumed that researchers both convey and receive information from the other corners of the triangle. Similarly, the occupants of the other corners (policy makers and other stakeholders) are engaged in providing and receiving information. The triangle model was attractive to those participants who stressed the importance of listening to communities and incorporating local knowledge into the research process. Another benefit attributed to the triangle model is its ability to accommodate intermediaries and champions into the knowledge mobilization process. This interpretation of the model envisioned the corners of the triangle occupied by "influencers, connectors and doers." Some participants noted the role that the media could play in influencing and informing a variety of audiences. Others described the benefits their research projects had realized by connecting with opinion leaders and influential political actors who championed their work. Participants stressed the advantages that could be derived from developing strong network connections with influencers outside the research community.

Numerous strategic and tactical suggestions

The workshop produced an extensive list of strategic and tactical suggestions for enhancing knowledge mobilization. While not all of the suggestions achieved consensus standing, some did. There was wide agreement that the VACEA project required a knowledge mobilization strategy. It was also agreed that the strategy should have the status of a built-in project objective that incorporated an evaluation component to measure the strategy's ongoing success. Participants were advised that VACEA project coordinators would initiate the development of the plan. The strategic and tactical recommendations provided by participants are provided below. The items listed under the *strategy suggestions* heading can reasonably be assumed to be consensus items – although participants were not polled for agreement. It is reasonable to conclude that the items listed below as *tactical suggestions* garnered the status of interesting ideas and food for thought as opposed to widely-agreed to participant recommendations.

Strategy suggestions

1) The VACEA project needs to develop a knowledge mobilization/strategic communications plan. As was suggested in the Rayner and Eyaguirre presentations, this

sort of planning should not simply be an add-on, an extra frill or afterthought. It needs to occupy an important place among project objectives.

2) Determining "who will do the work" is an important step in developing the communications/knowledge mobilization strategy. Some participants in the discussion sessions recommended engaging communications specialists to direct and assist in the process.

3) Performance objectives for the strategy should be clearly established, allowing for periodic and summative assessments of the success of the strategy.

4) Clarification of who the target audience(s) is/are is essential. For example, if researchers are hoping to address challenges at the science/policy interface, are politicians and senior bureaucrats the only audience? What is the degree of emphasis that should be directed at communicating with other stakeholders?

5) Researchers should make use of a triangulated methodology for communicating research information and engage in strategic network building. Activity in this area could include building knowledge sharing networks; finding advocates, champions, and influencers who can help deliver knowledge to various audiences including politicians. Indeed, one participant noted that "linking the different worlds of experts, stakeholder communities, connectors and actors was key to mobilizing research-based knowledge." To this end, participants stressed that the VACEA project should develop relationships and deliberative dialogues with stakeholders, intermediaries and external actors who can convey research findings to specific stakeholder groups. Researchers should make use of influential champions who can connect different worlds. Some participants emphasized the role of media relations within the knowledge mobilization process. The possibility of directing information toward educators for use in schools was also noted.

6) Piggybacking strategies should be encouraged. Researchers do not always need to reinvent the wheel. There are existing knowledge dissemination and implementation frameworks which the VACEA project can take advantage of – existing programs and activities such as government agricultural programming which can advance knowledge mobilization. In addition, knowledge dissemination and implementation tools such as LIRA (see the Corkal and Howard presentation) can be adapted for use in the various contexts that obtain in the VACEA study countries. Similarly, existing frameworks such as the Chilean Climate Change Portfolio or the watershed committees in western Canada can perhaps be utilized in the dissemination and application of VACEA's knowledge products.

7) Consideration should be given to lasting contributions for the project. The knowledge generated should be packaged and made available in forms that can be utilized by stakeholders beyond the life of the project. Key to this could be the provision of useful products such as context-sensitive assessment tools, permanent public fora and follow-up research and engagement projects.

8) The VACEA project should capitalize on its five-country focus to generate examples that might have more general applicability, serving to inform mobilization activities in more than one setting.

Tactical suggestions

A series of suggestions for tactical actions associated with the overarching strategic considerations were suggested by participants. They are listed in summary form below:

1) The VACEA project should engage in a variety of dissemination activities including the maintenance of a useful interactive web-site; generating a media presence (e.g. local newspaper articles); Wikipedia entries.
2) There should be context specific websites for each VACEA country – these websites should not simply be duplicates of each other. They could form part of a project legacy.
3) Information/websites for communities should assist in developing a clear understanding of the issues and provide supply (water) forecast indicators (assessment tools) and provide decision support tools such as the maps used in the LIRA process as well as scenario-based forecasts.
4) Websites could be supported by a Wikipedia entry for VACEA.
5) The project could hold policy fora where research is presented directly to the policy making community, possibly through partnerships with other organizations such as policy think tanks and Universities (e.g. the Johnson Shoyama School of Public Policy or the University of Calgary.
6) Researchers need to make their findings digestible -- they need to communicate in ways that are understandable and as interesting as possible.
7) Make use of the media including the production and submission of commentary/opinion pieces and news releases. Have researchers available for media interviews.

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