Roundtable Report.

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WATER WEALTH IN AGRICULTURE:

Roundtable Proceedings.

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WATER WEALTH IN AGRICULTURE:

Roundtable Proceedings.

Event Date: October 5, 2022.

Location: USask Calgary Hub, Calgary, Alberta.

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EXECUTIVE SUMMARY

The Water Wealth in Agriculture event was hosted in conjunction with the Simpson Centre for Food and Agricultural Policy, University of Calgary, and the Global Institute for Water Security, University of Saskatchewan. The event brought together a diverse set of stakeholders concerned about water management from the perspective of industry, government, and research. Roundtable discussions were facilitated to discuss problems and potential solutions regarding sustainable water management for agriculture, and water management more broadly.

Participants emphasized the relevance of creating an environment of shared values and mutual trust in order to cultivate good policy. There was passionate discussion about expanding the notion of 'wealth' to include non-financial aspects such as happiness, time, and physical and mental health. Effective knowledge mobilization from researchers and academics was identified as an area that could be vastly improved upon. Participants spoke of how a better public understanding of 'where water comes from' and its' management could alleviate mistrust that is frequently associated with regulation.

Participants agreed on the need for an open data platform for water management that can be accessed by all water stakeholders across the country. Currently, data collection and storage happen within siloes, leading to models based on limited data. A 'one-stop' open platform would allow for integrated modelling which would create more accurate predictions and forecasting to inform policy decisions. Participants also stated that this may help in creating more common agreement on what problems need to be addressed.

Similarly to how current water data is being stored, water policies and their larger frameworks are created in isolation. Stakeholders at the event agreed that Canada needs centralized, all-encompassing decision-making regarding water. Water policies must be created from a holistic approach, one in which the policies function together to achieve larger context goals. This includes harmonizing water policies across multiple industries and jurisdictions. Participants spoke of the potential of the new Canada Water Agency to fulfill a role in looking at water policies from a holistic perspective. Furthermore, policies must be designed to outlast the short-term political ambitions of the individuals and parties in power at any given time.

The need for multi-stakeholder collaboration in policy creation was hugely emphasized by participants. Investment in two-way communication channels as well as ensuring government speaks to stakeholders when developing policy is required. Once policies are created, they must also include indicators and feedback loops to inform policy adaptation. Adapting policy in response to new data and information, as the uncertainty created by climate change and severe weather events is compounded, will be paramount in ensuring successful sustainable water management in the future.

BACKGROUND AND OBJECTIVES

On October 5th, 2022, The Simpson Centre for Food and Agricultural Policy, under the University of Calgary, organized a roundtable event in Calgary, Alberta, in conjunction with the Global Institute for Water Security, under the University of Saskatchewan. The event focused on the topic of "Water Wealth in Agriculture," and it assembled an array of relevant stakeholders including industry leaders, government representatives, and academic researchers focused on water. The Water Event's objectives were to identify challenges and opportunities related to water management in agriculture and to build a list of recommendations to inform stakeholders and policymakers to enable sustainable economic growth.

The event featured keynote speaker Terry Duguid, M.P., Parliamentary Secretary to the Minister of Environment and Climate Change, followed by two sets of panel speakers and corresponding roundtable discussions.

Two panels of invited speakers were asked to address the following: Water availability, protecting or using water, and insights from economics.

Panel 1: **Dr. John Pomeroy**, FRSC, Director, Global Water Futures, Director, Centre for Hydrology, Distinguished Professor, Department of Geography and Planning, University of Saskatchewan.

Dr. Tricia Stadnyk, P. Eng., Professor, Department of Geography, University of Calgary,

Canada Research Chair, Tier II, Hydrologic Modelling.

Dr. Diane Dupont, Professor, Department of Economics, Brock University.

Panel 2: **Dr. Frederick Wrona**, Professor, Department of Biological Sciences, University of Calgary, Svare Research Chair in Integrated Watershed.

Dr. Kerry Black, P. Eng., Assistant Professor, Center for Environmental Engineering Research and Education (CEERE) and Department of Civil Engineering, University of Calgary.

Dr. Corinne Schuster-Wallace, Associate Director, Global Water Futures, Associate Professor, Department of Geography and Planning, University of Saskatchewan.

Following each panel discussion, participants were led into breakout groups to discuss each of the following key questions:

1. How should we deal with competition and trade-offs surrounding water usage?
2. Which policies and investments are required to ensure wealth generation in agri-food through optimized water management?

The Simpson Centre provided neutral moderators to facilitate discussions as well as notetakers to capture the relevant information during the session. Stakeholders from diverse backgrounds were all given equal opportunities to participate and contribute in the breakout discussions.

A report was prepared to summarize the issues, opportunities, and challenges surrounding water management. Participants' responses and conversations were analyzed for themes, concepts that were reiterated by many respondents, and areas that were deemed as critical or most important. The final

report will be distributed to Alberta Government and Federal Ministries [municipalities as well?], the Water Futures Institute, Alberta Irrigation Districts Association, and to participants who attended the Water Wealth event. [Are we asking for participant feedback? Do we get people together again?]

PARTICIPANTS

Forty-four participants from academia, industry, and government attended the Water Wealth in Agriculture event. Participants came from Alberta, Saskatchewan, and Ontario. Academia represented the largest group of participants with twenty-six people, nine from the University of Saskatchewan, eight from the University of Calgary, one from Brock University, one from Lethbridge College, and the final seven representing the Simpson Centre. The event also hosted nine participants from the agricultural industry, seven from government, and one participant from the Calgary Chamber of Commerce. There was a concerted effort to balance the guest list between industry, government, and research. The table seating was designed to mix participants from different backgrounds in order to encourage collaboration from diverse perspectives.

KEYNOTE ADDRESS

Terry Duguid, M.P., Parliamentary Secretary to the Minister of Environment and Climate Change

Speaker joined the event via Zoom.

Five key topics discussed: The importance and efforts surrounding the Lake Winnipeg Basin; the Global Water Futures program; the effectiveness of the Prairie Provinces Water Board; water infrastructure; and the new up-and-coming Canada Water Agency.

The Government of Canada is currently engaged in efforts to protect the Lake Winnipeg basin. The basin, which hosts 70% of Canada's farmland, 62% of Canada's cattle population, and 40% of Canada's hog population, cannot succeed without access to a reliable and quality supply of water. The Lake Winnipeg watershed spans through 4 provinces (just touches Ontario) and 4 US states, it is our country's massive breadbasket, and in the context of climate change, we can no longer assume that water will be there when it is required.

"Sustainable management practices are key to ensure the protection of water bodies like Lake Winnipeg."

The variability of the prairie climate has been demonstrated in history, and modeling indicates the likelihood of more and more extreme weather events. "If we can consider water to be a finite resource, then we can become prepared and resilient under many weather scenarios." The Global Institute for Water Security was established at the University of Saskatchewan in 2011 to advance water research in Canada. In 2017, the scope for water research was broadened to several universities across the nation and included support for an Agricultural Water Futures pillar through the Global Water Futures program – the largest freshwater research platform in the world. The program is set to receive $15.25 million in funding to support the ongoing collection of data through observation platforms, water labs, and a network of instruments throughout Canada to provide data regarding flood, drought, and water quality issues.

We must recognise the need for strong and effective governance mechanisms such as the Prairie Provinces Water Board for facilitating collaboration amongst multiple jurisdictions. For over 50 years, the board has successfully enabled cooperation between the governments of Alberta, Saskatchewan, Manitoba, and Canada through the Master Agreement on Apportionment to "collaboratively set goals for the management of and protection of important trans-boundary waters and to equitably share water resources." The board is viewed both in Canada and abroad as being a successful blueprint for long-term collaboration amongst multiple jurisdictions. Inter-jurisdictional cooperation will become ever increasingly important as we are reminded daily of the impacts of climate change in the prairies, through floods, droughts, and fires, which are growing both in frequency and in their human, environmental, and financial costs.

As various industry sectors have water needs, most notably the agriculture sector, competition for water resources will arise, particularly in times of drought. Consequently, there is a rapidly rising need for innovative water related infrastructure for drinking water, wastewater, storm water management, flood protection, and irrigation. New innovative infrastructure is needed to address social, economic, and environmental challenges and opportunities. Natural infrastructure, particularly wetlands and riparian areas, play a vital role in in the ecological function of our prairie habitats. Innovative use of natural infrastructure will help mitigate the increasing risks of climate change and the associated extreme weather events to help support a safe and reliable food supply. The Canada Infrastructure Bank invested over $100 million in 2020 to modernize Alberta's irrigation systems, including improving water security and water use efficiency. Innovative grey and natural infrastructure can work in tandem with each other to support climate adaptation and resiliency.

"If we manage the environment sustainably,
we can maximise the amount of water available for all".

Given this context, the Government of Canada is seeking to create a new Canada Water Agency through the mandated cooperation between the Ministry of Environment and Climate Change and the Ministry of Agriculture and Agri-Food. Managing freshwater in a country as vast as Canada, with different regional issues, is extremely complex especially when multiple jurisdictions are involved. The Canada Water Agency will provide an opportunity for Canada to collaborate with other stakeholders to find the best ways to keep our freshwater safe, clean, and well managed. "By working together with industry, agriculture, all levels of government, indigenous communities, local authorities and landowners, scientists, and academia – the new Canada Water Agency will build on existing efforts and address gaps while supporting regional responsive efforts to freshwater challenges". It will take the collaboration of all these various stakeholders in order to address freshwater challenges and develop effective implementable solutions.

PANEL 1: WATER AVAILABILITY IN QUESTION. PROTECTING OR USING WATER. INSIGHTS FROM ECONOMICS

Dr. John Pomeroy, FRSC, Director, Global Water Futures, Director, Centre for Hydrology, Distinguished Professor, Department of Geography and Planning, University of Saskatchewan

Global Water Futures Observatories (GWFO), in the Canadian Rockies and Prairies "have been crucial to developing and verifying the coupled atmospheric-hydrological-water management models that were used to calculate potential outcomes." One of the potential outcomes calculated, is that the flows of small prairie streams will decline about 50% with expected climate warming by the end of the century. "We cannot continue to manage water for agriculture as we have in the past.

- Benefits to storing earlier flowing mountain water for drier, hotter irrigation seasons
- Drought: benefits to supplementing prairie precipitation in some dryland farming regions with irrigation to take advantage of increasing growing degree days
- Integrated River Basin Management: water management must take into account the Saskatchewan-Nelson Basin right to Hudson Bay, including ecosystem needs, water supply, irrigation, and hydroelectricity"

Dr. Tricia Stadnyk, P. Eng., Professor, Department of Geography, University of Calgary, Canada Research Chair, Tier II, Hydrologic Modelling

While most of Canada is expected to see an increase in river basin runoff due to increased melting from climate warming, Alberta is projected to be an anomaly where water runoff actually decreases. Climate change is increasing uncertainty, and unfortunately, most of our current models are not equipped to simulate human impacts (such as irrigation). This brings us to "a new breed of models" – the Integrated Water Resource Management Modelling (IWMM). This type of modelling uses models to feed other models, for example, a climate model will feed a water quantity model which will feed an optimized water use management model, which in turn will go back and feed a new climate model. We need to make sure we are investing in the right areas. While models can help, we need to hear from the people on the ground to understand where the best and most relevant investments are to facilitate the best possible policy decisions.

Dr. Diane Dupont, Professor, Department of Economics, Brock University

We need to be speaking the same language. The conversation cannot just be about the quantity of water available, but rather, we need to think about is it available at the right place, in the right time, and at the right quality. Who owns the water? Most water in Canada is either owned by the province or the federal government. From an economic lens, water is thought as an asset, a valuable resource. We want to be able to maximise the value of this asset by making allocation decisions, who should be using, when should it be used, and in what quantities. This becomes complicated with government managing it, there are many different constituents whose needs they want to help with, which leads us straight into competition. Two main uses we can put water towards, active use, and passive use. Active use, for example, you're drinking water from the tap, you're using water for irrigation purposes, using water for recreational purposes. Passive use of water, for example, ecosystem services, such as wetlands, water streams, and the sustenance for the habitat and the animals who reside there. We have a pretty good understanding of how active water uses work and what they will look like going forward, however, we have very little information how passive uses will look in the future. A key concept in this conversation is opportunity costs. That is, what do we give up by making decisions today about water usage. We must recognize that not all wants will be able to be fulfilled. We need better integrated Canadian water policies. Need a longer-term policy horizon. Our modeling works within a 60-year time frame, however, the policies alongside function within 3–4-year spans. We need investment in data collection, the

information regarding values for different uses is not there, and this is needed to address conversations around competition and trade-offs.

ROUNDTABLE DISCUSSION 1: HOW SHOULD WE DEAL WITH COMPETITION AND TRADE-OFFS SURROUNDING WATER USAGE?

1. GRIEVANCES WITH CURRENT POLICIES

Partakers at the event discussed the problems with current policies and practices surrounding water. Currently, water is being managed as a commodity, instead, participants believed that it should be managed as an obligation to the environment. Our incentive system is not aligned for water (and the broader environment), we have incentives backwards in terms of environmental externalities, an example that was mentioned is free shipping on Amazon. Another issue presented by participants is that we have spent billions on infrastructure, which while it has benefited our society, it has been at the expense of indigenous communities and the environment.

Water policies are outdated across the provinces, while industry and general life has changed, the policies have not. Furthermore, participants called attention to the fact that when we export certain goods which used water as an input, such as food, we are partaking in water trade. Some of these export commodities are locked into contracts regardless of context at the time, for example, during a drought we will still be exporting livestock feed. Lastly, stakeholders questioned the (extremely cheap) water permits for large corporations to bottle our water for sale.

2. THE VALUE OF WATER

Participants identified the lack of a consistent monetary valuation of water as being a barrier to understanding trade-offs when creating policy. They indicated that there is a need for multi-stakeholder consensus on the valuation of water and trade-off priorities as it is difficult to create policy and determine trade-offs if there is no agreement on value. Participants also mentioned the potential for having multiple grades of water, and corresponding ‘value’ and prices. For example, there could be a high-grade, drinking quality water of high value, and a lower quality, less treated water with a lower monetary valuation for activities such as irrigation, where there is not necessarily a need to use the highest quality of water.

Lastly, participants conversed about the need to ‘value’ ecosystems and aspects within it, such as water, inherently. Fundamentally, how we think about ecosystems and the environment must shift in terms of how we ‘value’ them. Participants underlined the necessity to transform thinking of the environment’s value and its resources away from being simply ‘just another commodity’ towards a more Indigenous perspective of ecological sustainability which emphasizes inherent environmental value.

3. PUBLIC EDUCATION

Stakeholders underlined the need (and obligation) for academics to mobilize knowledge from their research to the public and other sectors of society more consistently and efficiently. Participants

particularly brought attention to the idea that if we want people to change their behaviour, they need the relevant knowledge to inform the change. Coupled with this idea was the thought that if we want to regulate something, we need to be prepared to educate on the topic and demonstrate why the regulation is needed, otherwise regulation with no transparency breeds mistrust. Water literacy and knowledge around how current water practices negatively affect ecosystems, their species', and eventually how it will affect us humans, were highlighted as areas in which academics need to do a better job at mobilizing and disseminating to the public.

Participants also brought attention to how perspectives and context affect how we view water and our behaviours around it. For example, Calgarians view water as a public resource that is cheap and unlimited, which informs their behaviours, i.e., using a lot of water to maintain a perfect lawn. In Victoria for comparison, water is both more expensive and there are limitations to the amount you can use and for what activities (water bans) which creates behavioural change, i.e., there are brown lawns around the city as people do not want to 'waste' water on their lawns. Participants discussed about how a shift in perspective through public education may facilitate policy changes that would lead to using less water, such as shifting Calgarians' perspectives closer to that of a Victorian, or investing in new infrastructure to transport and treat urban wastewater for other applications such as irrigation.

4. HARMONIZATION OF DATA

Participants identified the current water data landscape as being a massive barrier to proper water management practices and policies. Currently, data collected from different stakeholders remains separate and completely isolated from each other, creating models which feed off limited data. Stakeholders strongly emphasized the need for a new 'one-stop and transparent' water data platform. This one-stop platform would encompass all data collection regarding water, 'who's who' in water, what they are working on, and where they are looking at it. Participants emphasized that this type of 'one-stop' platform would enable for true integrated modelling, which would create more accurate and reliable predictions and forecasting to inform policy choices. They also stressed the benefits that placing social and economic data together with physical and quantitative data would have for creating a more holistic approach in data management and modeling. Lastly, participants spoke about how a unified one-stop data platform would create common data which in turn makes it easier to have common thoughts on what problems need to be addressed and solved. They emphasized that without integrated knowledge through data, it is difficult to understand and make decisions regarding competition and trade-offs.

PANEL 2: WATER AVAILABILITY IN QUESTION. PROTECTING OR USING WATER. INSIGHTS FROM ECONOMICS

Dr. Frederick Wrona, Professor, Department of Biological Sciences, University of Calgary, Svare Research Chair in Integrated Watershed

Water, food, energy, and human, animal, and environmental health, together form the 'One Health' nexus. This increasingly complex nexus exists at the core of sustainable development. The growing demands for access to safe and reliable water is occurring simultaneously with increasing uncertainties

regarding the quality and supply of water. New integrated water management approaches which consider ecosystem, social, and cultural needs are required to ensure sustainable management of water. Water allocation approaches may need to be revisited to address future user conflicts in the context of increasing uncertainty. Water policies are too fragmented. We need a 'One-Water' approach which enhances coordination, communication, and collaboration within and between water stakeholders and policy frameworks. Enhanced data and knowledge sharing, potentially through a new, open, dissemination platform, is needed to build public trust.

Dr. Kerry Black, P. Eng., Assistant Professor, Center for Environmental Engineering Research and Education (CEERE) and Department of Civil Engineering, University of Calgary

We need to figure out how to create and enact *effective* policy. The current way in which policy is created is "frightening". The policy making process is comprised of many different siloes, at the base level we have subject matter experts – the people who are most likely to know what should be done. However, by the time their message goes through the strategic policy level and later through the ministerial level, that message on what should be done has been distilled in many different ways so that we end up a completely different result from the original message. When we try to figure out what policies should we make, we need to first understand who's making them to begin with. Large sub-sets of people are missing from the policy creation process who ought to be there, first and foremost, Indigenous people. It is extremely difficult to make inclusive policies that will function for all when certain groups are excluded from the decision-making conversations. We must acknowledge that within Canadian history, decades of policies have been created which purposefully and systematically excluded Indigenous people from any decision-making conversations. We must rethink how we create policies – outside perspectives and collaboration will be key in creating effective, inclusive, and fair policy.

Dr. Corinne Schuster-Wallace, Associate Director, Global Water Futures, Associate Professor, Department of Geography and Planning, University of Saskatchewan

Before we can even tackle policy creation and institutions, we require enabling environments. We need the centralization of both physical and social data sets. This will enable us to understand who's vulnerable, where they are vulnerable, and why they are vulnerable. While there are massive challenges to consolidating social and physical data, we have to find a way to do it. Policies and institutions need to look outwards beyond their knowledge siloes, policies and programs need to be created from an integrated planning perspective. Furthermore, we have fundamental capacity gaps that must be addressed for example, food and water literacy. "If we don't know where our water comes from or where it goes, if we don't know where our food comes from, then we're not going to respect the policies and programs that are put in place to protect those." Lastly, we are too scared to admit when something has gone wrong, or a mistake has been made. We must be able to admit when something is not working and be able to move forward and learn from the mistake, to be able to do better next time.

ROUNDTABLE DISCUSSION 2: WHICH POLICIES AND INVESTMENTS ARE REQUIRED TO ENSURE WEALTH GENERATION IN AGRI-FOOD THROUGH OPTIMIZED WATER MANAGEMENT?

1. CONSTRAINTS TO EFFECTIVE DECISION MAKING AND POLICY CREATION

Dr. Wrona's panel presentation on water sustainability and security highlighted key barriers in the creation of effective water policy that were further discussed amongst participants:

I. Low public trust in data due to lack of access and transparency;
II. Lack of collaborative, multi-perspective discussions in decision-making;
III. Limited policy relevant, actionable recommendations forwarded by the science/academic community;
IV. Policy changes are slow to respond to rapidly changing socio-economic and environmental conditions.

Sectoral-based water management has not kept up with supply/demand and environmental complexities. Decision trees regarding when mitigation needs to be applied are designed from solely one perspective, usually with western bias. Sustainable water management considered from different user perspectives may allow us to address issues that are not identified by scientific methods of data collection. Additional issues, problems and solutions may be accounted for if local, Indigenous, and place-based knowledge were allowed to inform our mitigation strategies. Participants emphasized that different water management strategies focus on very specific issues that do not easily integrate into a holistic framework. The current water policy framework is far too segregated.

2. EXPANDING THE DEFINITION OF 'WEALTH' IN 'WATER WEALTH'

Different definitions of 'wealth' were presented by Dr. Schuster-Wallace within the context of 'water wealth' and were further discussed by participants. How is water valued and what does 'wealth' mean? Participants underlined the need to expand our definition of 'wealth' beyond that of pure financials. Other aspects of 'wealth' must be considered for enacting sustainable and successful water policy for both today and the future. These other aspects of 'wealth' include, but are not limited to:

- Physical health;
- Mental and spiritual health;
- Time;
- Social relationships and harmony;
- Purpose;
- Happiness;
- Peace and security.

3. HARMONIZATION OF REGULATORY FRAMEWORK

Participants underscored problems within the current regulatory framework, primarily that policies are created and exist within siloes, and that they do not function coherently together. Stakeholders agreed that Canada needs centralized, all-encompassing decision-making regarding water. Policies and their larger frameworks need to be created from a holistic approach, one that ensures policies function together and make sense to achieve policy goals within a larger context. This includes looking at policies that involve water in all industries, such as within the energy and mining sectors. Also highlighted was the need to harmonize policies across jurisdictional boundaries, and to be able to learn from each other as different jurisdictions may have varying areas of expertise. Participants spoke about the potential of the up-and-coming Canada Water Agency to fulfill a role in advising policy creation from a holistic perspective.

4. POLICY TIME HORIZON AND PLANNING FOR THE FUTURE

Stakeholders highlighted the need to extend policy time horizons. Participants focused on the necessity for long-term policy planning beyond the lifecycle of a single politician or their political party. Simultaneously, they emphasized the need for policies and their larger frameworks to be adaptive and responsive to new data. Participants also brought attention to the need of water policy planning for a future of water scarcity. They highlighted the need for shared values and trust for pre-emptive policy creation (policies for a water scarce environment before we enter scarcity). Furthermore, participants spoke to the need of policy tools to aid innovation adoption.

5. WATER STAKEHOLDERS AND COLLABORATION

Participants at the event strongly emphasized the need for collaboration between all the various water stakeholders. Models and policies need to be created in collaboration with the people implied and affected by said policy. Stakeholders identified the need for investment in two-way communication structures between policy makers and relevant water stakeholders. Furthermore, they emphasized the idea of a convener for all stakeholders, or investment in government going to stakeholders instead of expecting them to come to the policymakers. This was deemed important because in the current policy-consulting practices, stakeholders such as Indigenous groups (among others) may be invited to the table, however, may not actually have the means to get themselves to the table (ex. financial constraints). Participants underscored the value of empowerment in policy creation, people need to be encouraged and involved to affect and enact change. Resilience is built from engagement and multi-perspective policy development which also creates collective buy-in. Further, generally, one participant highlighted that money for stakeholder engagement is usually the first thing that gets cut in proposals. Participants also strongly emphasized the need for policy feedbacks loops to inform policy adaptation. Policies should have feedback mechanisms built into them which would enable for stakeholders to review the effectiveness of policy as well as suggest amendments or possible changes for policymakers to adjust policy to be more successful.

POLICY IMPLICATIONS AND NEXT STEPS

1. INFORMATION MANAGEMENT FOR PREDICTIONS AND FORECASTING

A 'one-stop' transparent water data platform which can be accessed and used by all water stakeholders. Needs to be open and allow for data sharing. Water data collection must also be harmonized in terms of quantity, quality, and geographical extent. Harmonized data collection coupled with a singular open storage platform would enable for far more accurate and reliable modeling and forecasting. Benefits delivered with higher quality forecasting include optimized farm planning, data informed seed choice decisions, and a clearer picture of when mitigating strategies for ecosystems and environment may be needed. Furthermore, harmonized data would facilitate long-term impact assessment for water projects, similar to how the forestry industry publishes plans for 80 years into the future.

2. INDICATORS AND FEEDBACK

Policies must be co-developed and co-produced with a multi-stakeholder approach. In policy creation, rationale of how and why a policy was developed is important for buy-in and trust. Indicators and feedback loops need to be included within policy to enable for adaptive policy learning which benefits all involved and allows for adjustment in policy to better reach the impact goal. The use of indicators for diverse stakeholders means that the effects of the policy for different, specific uses, will get captured and can inform adaptation in policy through a collaborative approach that benefits all. The goal of regulation needs to be to protect stakeholders by limiting uncertainty and risk for adopting innovation while simultaneously safeguarding our ecosystems and environment.

3. INVESTMENTS IN INFRASTRUCTURE AND LONG-TERM HOLISTIC POLICY

We need investment in updating our water infrastructure to ameliorate both water capture and data capture. Further, there needs to be investment in de-risking innovative technology adaptation for small farms and individual stakeholders. Simultaneously, there must be a shift in the way we view policy creation. Policies must be designed to outlast the short-term political goals of the members in power at any given time. Coupled with this, policies must be created from a holistic perspective, rather than in isolation. Policy makers and involved stakeholders must look at the 'bigger picture' and consider the entirety of the water-policy framework. Policies need to function together to create a cohesive policy environment which simultaneously enables success for stakeholders while achieving political goals.

CLOSING REMARKS

The Simpson Centre would like to formally thank all participants for their time, engagement, and contributions at the "Water Wealth in Agriculture" event. Furthermore, we would like to extend thanks and appreciation to our co-hosts at the Global Institute for Water Security and the University of Saskatchewan. The work and dedication of all parties involved enabled the event to be a well received success.

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