Title: *Too Much and Too Little Water: Regional RCE Strategizing for New Farming Livelihoods and Improved Water Management on the Canadian Prairies*

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Introduction

Saskatchewan has been called the "Bread Basket of the World" because of the amount of grain it produces for export. 44% of Canada's agricultural land is located in the southern half of this Canadian province. Originally covered with natural prairie the land has been transformed by intensive mechanized agriculture. Maximizing economic returns, farmers in recent years have further transformed the landscape converting prairie wetlands that act as a natural water storage into productive farm land. As a result, the land is less able to store excessive snowmelt or intensive rainfall. This is exacerbated by climate change scenarios for the region which predict wetter winters and more intensive weather events. At the same time dryer summers and longer growing seasons point to a need for better water management and opportunities for new forms of agricultural production.

This paper will examine a particular case in Saskatchewan: the Quill Lakes basin and a plan to drain water from this basin into Last Mountain Lake. This, in turn, is part of the Qu'Appelle River watershed that ultimately flows into the neighbouring province of Manitoba. To cope with a decreased ability of the land to store higher snowmelt and intensive rainfall in recent years—in part due to the clearing of wetlands—grain farmers have resorted to illegal drainage systems. These systems in turn have created flooding problems for landowners further downstream. The rising water levels downstream present a further challenge as the Quill Lakes is a closed basin and saline lake. The three lakes traditionally making up the Quill Lakes: Big Quill Lake, Mud Lake, and Little Quill Lake, have now overflowed, forming one large lake (Resource Management International 2017, p.1). While part of the cause of the flooding has been due to higher rainfall over the last decade, a 2016 study identified that 39% of the Quill Lakes' current average inflow was due to illegal drainage (KGS Group Consulting Engineers 2016, p. 77). This points to restoring of wetlands, prevention of illegal drainage, and potential use of surplus water upstream for new agricultural purposes as a potential sustainable solution.

However, this is not the current route being advanced. Instead a diversion of higher salt content water prior to its reaching the Quill Lakes is proposed. This water would be directed into a different watershed, the Qu'Appelle River Watershed. Rejected up until recently due to negative impacts for downstream users (Cowan 2017), this diversion into Last Mountain Lake has now become the preferred solution advanced by the *Quill Lakes Watershed Authority* (QLWA), a legal authority created to advance water diversion developments in the area. This proposed diversion creates potentially significant adverse impacts on downstream livelihoods and aquatic and animal life. It also fails to address the unsustainable developments at the root of the problem. In so doing, the conditions needed to create sustainability solutions upstream that are win-win are not likely to materialize. The paper explores the interventions that have been made by RCE Saskatchewan to ensure an environmental assessment of the proposed diversion takes place and that preferable sustainable agricultural solutions occur upstream in light of the opportunity costs with the proposed drainage.

The Sustainability Challenge

While the overall sustainability challenge has been described, the particular issues associated with the proposed diversion of water into the Qu'Appelle River Watershed needs to be elaborated upon. The

drainage proposal seeks to divert sufficient water to reduce the heigh of the Quill Lakes by 60 cm requiring, according to the QLWA proposal, amounts to 7,000,000 m^3/year (Resource Management Int., p. I). According to an earlier study, lowering the Lakes by this amount would require diverting over 27,000,000 m^3/year (KGS 2016, p. 87, Table 13, "Kutawagan Creek Diversion"). The water itself would be diverted into the north end of Last Mountain Lake. This is the location of the *Last Mountain Lake Migratory Bird Sanctuary* and the *Last Mountain Lake National Wildlife Area* (see Government of Canada 2018a, 2018b). Saskatchewan is a flight path for many bird species to the Arctic and this is the oldest migratory bird sanctuary in North America. The proposed diversion would require water first pass through two smaller lakes, Kutawagan Lake (4000-5000 Total Dissolved Solids (TDS)) and Pel Lake, each having a much higher salt content than Last Mountain Lake (1400-1800 TDS). The TDS in Last Mountain Lake is already high, suggesting the Lake needs more protection for its water quality, not less. Zooplankton, a major source of food for fish in the Lake, are especially sensitive to TDS; Perch and Northern Pike, two fish species in the Lake are also sensitive to higher salinity. Applying the precautionary principle and given uncertainty about the potential cumulative impacts of an influx of degraded water and the potential for salt water to concentrate in particular areas, would also urge strongly against diversion without extensive scientific study. These adverse ecological sustainability impacts when added to potential harmful livelihood impacts on existing use of the freshwater resources of Last Mountain Lake (e.g., for agriculture, fishing, recreation, and tourism) led the RCE to intervene at an early stage.

RCE Saskatchewan Engagement

On June 15, 2017, Aura Lee MacPherson, Chairperson of the *Calling Lakes Ecomuseum*, a flagship project of RCE Saskatchewan, sent a letter to the then provincial Minister of the Environment, the Honourable Scott Moe, requesting leadership of the Government of Saskatchewawn to look for win-win solutions in relation to the Quill Lakes and Qu'Appelle River Watersheds (Calling Lakes Ecomuseum 2017). The letter cited the need for "inclusive and accountable institution building" at the local and regional level, employing the SDGs, in particular SDG 2 (sustainable agriculture), 6 (sustainable water management, 9 (resilient infrastructure), 12 (sustainable consumption and production), 14 and 15 (sustaining aquatic and terrestrial ecosystems), and 16 (peace, justice, and strong institutions). The letter also pointed to social divisions, exclusion, and misinformation that was occurring at the local level. On July 26, 2017, Minister Scott Moe replied rejecting the request and instead endorsed a drainage solution through the provision of technical support of Saskatchewan's Water Security Agency (an Agency for which the Minister is Responsible) for the QLWA, the proponent of the drainage proposal (Water Security Agency 2017). In the letter the Minister also expressed skepticism about the role man-made factors were having on the Quill Lakes (ibid), despite the findings of the earlier KGS study and the Province's commitment to close illegal upstream drainage structures a year earlier (Saskatchewan Environment 2016)—something to date it has not done. RCE Saskatchewan had then thought it would submit further scholarly and local expertise through the anticipated provincial Environmental Assessment process. On September 8, 2017, however, it was learned that the Provincial Government was not going to undertake an Environmental Assessment of the 25 km drainage ditch, having deemed it not a "development" for the purposes of the Province's *Environmental Assessment Act* (Saskatchewan Environment 2017). The lack of Environmental Assessment would make possible the start of the development project later that fall in the absence of other interventions. The Government of Saskatchewan's ruling was especially problematic as it claimed the project did not "substantially utilize any provincial resource" despite the surface water involved being a provincial resource; it also claimed the project had not caused "widespread public concern" despite the documented objections to the project to date, nor would it have "a significant impact on the environment" despite potential impacts of the water transfer noted above that had not been adequately

studied. The economic value of the water being degraded through the diversion was also not calculated despite the southern part of the Saskatchewan having experienced an extreme drought from July 1 to September 15 with a total of only 12.9 mm rain (!) received in Regina, the provincial capital, during this entire growing season. The lack of public support for the diversion was expressed in downstream opposition of those living in the Qu'Appelle River Watershed and affected indigenous First Nations communities who had not been consulted, despite legal obligations on the part of the Province to do so. On November 2, Pasqua First Nations formally threatened the Province with a judicial review if a provincial Environmental Assessment was not undertaken (Quenneville 2017a).

On October 26, 2017, RCE Saskatchewan held its RCE Facilitation Group meeting that brings together the RCE's working groups, flagship projects, and partners. Informed by the Calling Lakes Ecomuseum's report of the provincial decision, the RCE committed itself to mobilize to help attain an Environmental Assessment and to increase public awareness of the situation. RCE Saskatchewan had recently attended the *6th RCE of the America's Conference* in Vancouver, where RCE Kawartha (in Ontario, Canada) had reported on the value of its sacred "Water Walks" led by First Nations elders in promoting public understanding and appreciation of its water. This idea was communicated at the RCE Facilitation Group Meeting and the Calling Lakes Ecomuseum worked collaboratively with local First Nations groups to hold a 5 Pipe ceremony for the water. This ceremony held at the Treaty 4 Governance Centre in Fort Qu'Appelle included both First Nations and non-First Nations peoples including representation of multiple faith groups. Elders from each of 5 language groups offered prayers and spoke of the spiritual dimensions of the water relating how traditional drinkable water on the prairies had been degraded during their own lifetimes. The ceremony was reported by multiple news outlets and served as basis for mobilizing subsequent strategic actions on behalf of the water in the Qu'Appelle River system (see, for example, Martin 2017).

In light of the Government of Saskatchewan's rejection of an environmental assessment and given the urgency to respond to the pending development aimed to begin at the end of November, RCE Saskatchewan worked to develop a formal request of the Government of Canada for a federal Environmental Impact Assessment. This documentation engaged the existing literature, academic and local expertise within the region, and knowledge of federal environmental and fisheries legislation that might trigger an assessment. This led to a formal request being sent by the RCE to the Government of Canada's Minister of Environment and Climate Change on November 19, 2017 (RCE Saskatchewan 2017a). Notified that the Federal Ministry of the Environment had simultaneously sought input of the RCE's local partners that same week and had made the *Common Ground Drainage Diversion Project Proposal* publicly available (something that had not yet occurred to that point), the RCE then conducted specific analysis of the proposal, providing a further response to the *Federal Request for Input* on November 24 (RCE Saskatchewan 2017b).

ESD Innovations and Sustainability Transformations Observed

The RCE Saskatchewan interventions to date have sought to create an openness to holistic questioning, a larger range of solutions, and the inclusion of a broad range of stakeholders. This has occurred by problematizing the official processes to date. The proposed drainage solution has not considered the broad range of sustainable development questions needed to identify optimal solutions. The particular drainage solution seems to be advanced on the basis of narrow political and economic interests, a willingness to impose externalities on others, and an unwillingness to enforce existing illegal drainage. By internalizing costs, this enforcement would likely lead landowners to consider alternate options of

storage and use of water on their lands. These constraints mights also, in turn, promote an openness to new kinds of agricultural production differing from traditional dryland cereal agriculture (e.g., use of irrigation for fruit and vegetable production). The RCE has also helped promote open governing processes versus a privatization of water management that excludes key stakeholders and public oversight of water monitoring and enforcement responsibilities.

The RCE's interventions have also relied on mobilizing its expertise strategically. This is done based on the RCE's increasing awareness of the existing governance structures and the structural rules of government approval as they apply to water management. Early on the RCE identified the need for the development of a new institutional structures able to look at the full opportunity costs of various options judged against the sustainable development goals. Following the Government of Saskatchewan's rejection of such a regional structure, the Calling Lakes Ecomuseum on October 10, 2017, contacted a higher education organization with water expertise, a prominent environmental NGO, and an umbrella organization of rural governmental authorities to host a roundtable on water management on the Saskatchewan prairies, particularly in light of climate change. In addition the RCE and its partner organizations have succeeded in a very short time to mobilize traditional newspaper, radio and television coverage, social media, and legislative petitions to increase public pressure for a formal environmental assessment (see, for example, McNally 2018). At the same time, leadership races in both of the Province's main political parties have also provided a rare educational opportunity to engage political leaders on water management as an important sustainability issue (see Quenneville 2017b).

Concluding Reflections

While it is not known whether the Government of Canada will require a federal Environmental Impact Assessment, the process to date has shown the need not only for reform of existing governmental processes, but, as importantly, the creation of new regional sustainable development structures able to incorporate the SDGs in solving specific sustainability issues. These new regional sustainable livelihood structures should preferably be formed prior to local groups becoming polarized. They need to be at a large enough territorial scale to include the range of shared interests and resources needed to pilot new livelihood strategies (in this case likely related to agriculture). Win-win solutions should be possible through a sustainable rural livelihoods approach that focuses on the potential use of surplus water for: (1) new forms of grain, vegetable, and fruit production, (2) new energy through biomass, (3) new materials through new plant fibres, (4) valued added processing/manufacturing, (5) and ecosystem services tied to wetland restoration. If successful, a collaborative regional roundtable model could then be scaled up or applied to other rural sustainability issues in Saskatchewan.

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