Bridging the Water Adaptation Gap (BWAG) - Pathways to Adaptation for Vulnerable Regions

Results from Canada's Objective Three Livelihoods Interviews

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April 14, 2025

EXECUTIVE SUMMARY

This report examines the intersection of climatic and non-climatic risks affecting agricultural producers in Saskatchewan, highlighting the economic and environmental tensions shaping their livelihoods. Drawing upon semi-structured interviews with 20 producers, the study explores the impacts of extreme weather events (e.g., drought and flooding), policy frameworks such as the provincial Agricultural Water Management Strategy, adaptation strategies, and social dynamics in southwest and southeast Saskatchewan.

Saskatchewan's agriculture is subject to extreme weather variability, including droughts, floods, hail, and fires. Droughts reduce crop yields and livestock productivity, while excessive precipitation leads to flooding and soil degradation. Weather unpredictability remains a major source of stress for producers.

Climate extremes interact with financial and policy factors to amplify risks. Participants reported mental health challenges linked to economic instability and climatic stressors. Larger corporate farms were seen to influence market dynamics, often to the detriment of small-scale producers. Some argued that wetland drainage and infrastructure projects impact water access, soil quality, and biodiversity, while others argued that drainage is a necessary response to the increasing risk of flood and excess precipitation.

Gender disparities persist in the agricultural sector, with women producers facing exclusion in decision-making spaces and industry discussions, despite playing crucial roles in farm management. Masculinity norms contribute to emotional suppression among male farmers, exacerbating mental health struggles and reducing help-seeking behaviors. Capitalist pressures encourage farm expansion and debt accumulation, forcing many producers into a cycle of productivism. The psychological need to accumulate land was described as "land greed".

Physical vulnerabilities include water scarcity, high sulfur levels in water sources, and the degradation of soil and pastures. Social vulnerabilities stem from tensions between environmental advocates and economic-driven producers, as well as conflicts over drainage

policies. Political and market uncertainties, including trade restrictions and taxation policies, further complicate financial stability.

Gender-based vulnerabilities are evident in the undervaluation of women's contributions, while queer and marginalized farmers face additional barriers in conventional agricultural spaces. The corporatization of farming may weaken community bonds, reducing cooperation among neighbors and increasing economic inequality for some.

Farmers employ a mix of traditional and technological adaptations to manage climatic risks. Some opt for regenerative agriculture, which they report has improved soil health and water retention. Others rely on mixed operations (grain and cattle) to balance income variability. Technological tools, such as soil moisture sensors and reverse osmosis systems for dugout water treatment, assist in risk management.

Informal support networks play a crucial role in helping producers navigate challenges. However, communal cooperation is declining due to the corporatization of farming and reduced interdependence among neighbors. Fire mitigation efforts, particularly in the southwest, rely heavily on local volunteer initiatives.

Provincial water management policies remain contentious. Many participants believe that the current system prioritizes drainage over conservation and lacks adequate enforcement. Concerns over the transparency and effectiveness of the complaints-based regulatory system are widespread. Calls for improved ecological compensation programs and policy support for sustainable practices are growing, including some support for ecological goods and services payments.

Technological solutions are increasingly being adopted to address water-related risks. Tools such as precision agriculture, crop intelligence systems, and soil moisture sensors help optimize resource use. However, barriers to access, such as high costs and the need for specialized knowledge, limit widespread adoption among smaller producers. There is a risk that increasing costs of production, due in part to technology and high-tech machinery, can increase producers' susceptibility to hazards that affect their income and ability to service debts.

Sustainability is conceptualized in three ways: environmental stewardship, economic viability, and long-term farm continuity. While some producers emphasize ecological preservation, others stress the need for economic sustainability to support future generations. The debate over drainage, water security, and land use remains central to discussions on sustainable agriculture in Saskatchewan.

The study highlights the complex interplay between climatic risks, economic pressures, and policy frameworks in shaping agricultural livelihoods. Key recommendations include:

- Enhancing policy transparency and enforcement mechanisms in provincial water management frameworks.
- Expanding support for regenerative agriculture and ecological goods and services payments.
- Strengthening culturally appropriate mental health and social support programs for rural producers.
- Improving access to adaptive technologies and financial resources for small and medium-sized farms.
- Providing tangible support for community-led water conservation and fire mitigation efforts.
- Addressing gender disparities by promoting equitable representation and recognition of women and marginalized groups in agriculture.
- Challenging harmful masculinity norms that deter emotional support and mental health care.
- Revising policies to mitigate capitalist-driven pressures that favor large-scale corporate farms at the expense of small and medium-sized producers.

By addressing these challenges, Saskatchewan's agricultural sector can work towards greater resilience in the face of climatic and economic uncertainties.

KEY INSIGHTS

- Farmers and ranchers in Saskatchewan face ongoing tension between economic imperatives and environmental sustainability.
- Market volatility, rising production costs, and unpredictable climatic conditions contribute to significant livelihood stress.
- Adaptation strategies are often driven by economic necessity, such as:
    - Wetland drainage
    - Large-scale infrastructure development
- These strategies have environmental and social consequences.
- Drainage has led to conflicts within communities and between neighbours.
- Mental health concerns are prominent, worsened by:
    - Financial pressures
    - Social conflicts
    - Isolation
- Gender roles, masculinity, and capitalist pressures further shape agricultural practices and social dynamics.
- Producers' adaptive responses exist on a spectrum:
    - Some embrace economies of scale and drainage
    - Others question and challenge the capitalist system