

## Global Water Futures 2021 Operations Team Meeting – Project Reporting Template

Instructions: All GWF projects are asked to provide a summary update on their activities and accomplishments in preparation for the upcoming Operations Team meeting. **Please submit these by email to [chris.debeer@usask.ca](mailto:chris.debeer@usask.ca) by no later than December 2.** These will be used to help guide discussions and breakout synthesis activities and will be made generally accessible on our website in advance of the meeting.

<b>Project Name:</b>	Agricultural Water Futures
<b>Our major accomplishments to date are:</b>	
<ul style="list-style-type: none"> <li>• Improvements in modelling capabilities for crop water use and productivity.</li> <li>• New approaches to better understand evapotranspiration and crop productivity</li> <li>• Improved understanding of importance of different methods of water use efficiency</li> <li>• Improved understanding of interactions between climate, landscape and management drivers on nutrient loss</li> <li>• Integration of water quality components into hydrological models</li> <li>• Integration of water quality components into hydro-economic models</li> <li>• Regional drivers of phosphorus loss and cross-regional comparisons (Prairies, Great Lakes)</li> <li>• Improved understanding of role of tile drainage on nutrient loss</li> <li>• Improved understanding of farmers' motivation and exploration of land use change incentives</li> <li>• Review of water quality trading schemes across North America</li> <li>• Accounted for economic impacts of climate change in the agricultural sector in the Great Lakes Region</li> <li>• Coupled spatial environmental-economic optimization model for BMP selection</li> <li>• Inclusion of human behaviours in hydrological models</li> <li>• Targeting BMPs in the landscape and across the Lake Erie watershed and Prairie region (screening and scoping-level) to improve water quality</li> <li>• Modelling BMP adoption and impacts in Lake Erie watershed</li> </ul>	
<b>Our current activities are:</b>	
<ul style="list-style-type: none"> <li>• Developing a Water Use Toolkit for crops in Canadian agriculture</li> <li>• Continuing to improve inclusion of crops and water quality in hydrological models</li> <li>• Exploring water use in vineyards in the Great Lakes region and the effects of climate variability</li> <li>• Exploring interactions between climate, landscape drivers and land management practices on water quality to improve the targeting of conservation practices within and across regions</li> <li>• Continued examination of producer behaviours and incorporation of economic choices and producer behaviours into decision-making</li> <li>• Continued and increased community engagement through development of extension materials, webinars and other outreach (KM) tools</li> </ul>	
<b>The main accomplishments expected by the end of the project are:</b>	
<ul style="list-style-type: none"> <li>• Improved understanding of regional differences in nutrient dynamics and the impacts of climate, landscape and management on water quality</li> <li>• Improved understanding of regional differences in crop water use and the impacts of climate, landscape and management on water use</li> </ul>	

- Inclusion of both crop water use and water quality and their driving factors into hydrological models
- Simulations of how future climates may impact crop water use and water quality in the Canadian agricultural sector
- Improved understanding of the costs of climate change to the Canadian agricultural sector
- Improved understanding of farmer behaviours and economic choices in the adoption of management practices and the inclusion of coupled human-natural systems (CHANS) into hydrological models
- Production of KM materials (videos, factsheets, toolkits)

**Here is a key visual from the project** (figure, photo, table, graph, etc.)



