



## CONCEPT NOTE

<b>PROGRAMME</b>	<b>Swan Lake Citizen Science Lab</b>  <b>Swan Lake Drone Monitoring, Mapping and Documentary Filming</b>
<b>PURPOSE</b>	The purpose of this concept note is to provide conceptual detail information about the proposed program.
<b>Program Proponents</b>	CIFAL York, One Water, Friends of Swan Lake Park
<b>About CIFAL York</b>	CIFAL York is a UNITAR affiliated international training center, serving as a hub for knowledge exchange and capacity building among government officials, private sector, academia, and civil society. CIFAL York was established in 2020 by <b>York University</b> as part of the global collaborative network of CIFAL training centers, in partnership with the <b>United Nations Institute for Training and Research (UNITAR)</b> and <b>York Region</b> . CIFAL York provides a range of training and research opportunities in key focus areas in alignment with the UN Sustainable Development Goals. CIFAL York permanent office is located in York Markham campus.
<b>About One Water</b>	One Water is a research centre at York University. One WATER aims to enhance our capacity to address the diverse aspects of the ongoing water sustainability crises, attract and train future leaders in the field, educate the public, innovate with industrial partners, and attract external competitive funding and endowments. One WATER engages in interdisciplinary world-class research on sourcing, Artificial Intelligence, Technologies, Education & Sustainability, Resource Recovery & Reuse as well as their environmental, educational, and societal implications.

<p><b>About The Friends of Swan Lake Park (“FOSLP”)</b></p>	<p>The Friends of Swan Lake Park (“FOSLP”), founded in 2019, is a group of Markham citizens committed to saving Swan Lake and Swan Lake Park through environmental best practices.</p> <p>The vision of the Friends of Swan Lake Park is to foster a sustainable level of biodiversity and public enjoyment of Swan Lake and Swan Lake Park, to facilitate public education opportunities and to encourage cooperation between the community, city leaders and staff.</p>
<p><b>BACKGROUND AND INTRODUCTION</b></p>	<p>Swan Lake Park, located in Markham, Ontario, is a vital natural resource that supports a rich diversity of flora and fauna, serving as a crucial wetland ecosystem. Over recent years, the lake and its surrounding wetlands have faced increasing threats and challenges from urbanization, pollution, and climate change. Recognizing the importance of protecting this valuable ecosystem, the proposed <b>Swan Lake Park Citizen Science Lab</b> program aims to empower the local community through <i>citizen science, ecosystem monitoring, and filming</i> to raise awareness utilizing drone and AI technologies for comprehensive environmental monitoring, mapping, and filming. By integrating these elements, the program seeks to foster a deeper connection between residents and their natural surroundings, encouraging sustainable practices and informed conservation efforts to ensure the longevity and health of Swan Lake Park.</p> <p>The use of drone technology for monitoring, mapping, and filming will help with community-based research, public education, and youth training on water levels, water quality, ecological changes, and addresses the need for innovative solutions in climate adaptation and resilience. Filming raises awareness and educates the public on the importance of wetland conservation, supporting efforts to halt biodiversity loss and sustain terrestrial ecosystems.</p>

<b>OBJECTIVES</b>	<ol style="list-style-type: none"> <li>1. Swan Lake Citizen Science and Community Engagement Lab: Empower the local community to participate in environmentally friendly activities and scientific drone-based data collection and AI-Based data analytics through creation of a Citizen Science &amp; Community Engagement Lab Initiatives.</li> <li>2. Co-monitoring the Lake: Utilize drone and AI technologies to monitor water levels, ecological changes, and water quality in Swan Lake, providing valuable continuous data to inform conservation efforts.</li> <li>3. Co-creating Documentary Films: Create documentary films to raise awareness about the ecological importance of Swan Lake Park, the threats it faces, and the efforts to preserve and restore its wetlands.</li> </ol>	
<b>INTERNAL PARTNERS</b>	One Water (York University)	
<b>EXTERNAL PARTNERS</b>	Friends of Swan Lake Park	
<b>STAKEHOLDERS</b>	City of Markham Markham Residents	
<b>LOCATION</b>	Swan Lake Park, Markham	
<b>PROJECT SCHEDULE</b>	Drone Mapping, Filming	Bi-Weekly/Monthly
	Community Engagement Workshops	Quarterly
	Documentary Films	Two documentaries every 6 months
	Community Screening	Annually
<b>ROLES AND RESPONSIBILITIES</b>	CIFAL York & One Water	Drone Mapping, Monitoring, and Filming

	One Water	Data Analytics
	Friends of Swan Lake Park	Facilitating Citizens'/Residents Engagement  Advising the Research Team and Providing Feedback
	City of Markham (main stakeholder)	Permission for drone mapping (using under 25KG - RPAS) by certified drone pilots under York University Research Insurance coverage.  Permission for community volunteers to participate in drone mapping.  Permission to take water samples.  Permission for public disclosure of information and images.
<b>BUDGET, SPONSORSHIPS &amp; FUNDING/COST SHARED</b>	No direct costs are associated for the proposed program initial stages (Drone Mapping & Filming). We will use our internal resources (equipment, funds, students) to conduct these activities. However, the project will benefit from funding, and sponsorship. We will apply for appropriate funding to make the program more sustainable and expandable to other settings.	
<b>INPUT</b>	<ul style="list-style-type: none"> <li>• Drone Footage: High-definition aerial shots to capture the vastness and beauty of Swan Lake and its wetlands.</li> <li>• Interviews: On-location interviews with experts, community members, and conservationists.</li> <li>• Workshops and Community Events: Filming of citizen science workshops and community engagement activities.</li> </ul>	

	<ul style="list-style-type: none"> <li>• Graphics and Infographics: To explain complex ecological processes, chemicals transport, citizen science data, and drone monitoring results.</li> </ul>
<b>PROGRAMME DIRECTORS</b>	<p>Ali Asgary, PhD, CIFAL York (director) &amp; One Water (member)</p> <p>Satinder Kaur Brar, PhD, Director of One Water, York University</p> <p>Fred Peters, Founder and Volunteer at Friends of Swan Lake Park</p>
<b>SUPPORT STAFF</b>	CIFAL York, One Water, Friends of Swan Lake Park
<b>OUTPUTS/WAY FORWARD</b>	<ul style="list-style-type: none"> <li>• Time series drone monitoring data (orthomosaic maps, images, films, water level, ecological profile). The data will be available to the city.</li> <li>• Peer reviewed research articles.</li> <li>• Swan Lake Story Maps and Dashboard.</li> <li>• Community Engagement Events through community centres, public events.</li> <li>• Documentary films: Distribute through streaming services, social media, and environmental organization websites including COP conferences.</li> <li>• Educational and Training Outreach: For Schools, communities through libraries and Universities</li> </ul>
<b>OUTCOME</b>	<ul style="list-style-type: none"> <li>• Increased public awareness and understanding of the importance of Swan Lake and the role of citizen science.</li> <li>• Greater community engagement in environmental conservation/protection and data collection activities.</li> <li>• Improved data collection on water levels and contaminants, aiding in effective conservation planning.</li> </ul>
<b>INCLUSIVITY</b>	Partners and researchers will make sure that in all aspects of this program from planning to outcomes inclusivity is followed to the highest level possible. This includes inclusion in the planning process,

	implementation of the mini-course, promotion of the mini-course, selection of any potential guest speakers, and making sure equal access to all interested target participants.
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