Follow up from the April 9 Appearance before the Senate Committee on Agriculture and Forestry

Q1. Question from Senator Oh

Senator Oh: Does Canada have its own weather satellites and surveillance on weather?

Mr. Jenkinson: We certainly have satellites that we use. I don't know if I can speak to that question precisely.

Ms. Siewe: I will give you a broader response, and we can maybe send you a more specific response in writing later.

Our monitoring capacity includes radar, weather, radio, satellites and then we also have hydrometry that measures the water levels. We have all of those monitoring infrastructure across the country.

Senator Oh: Thank you.

A1.

ECCC's Meteorological Service of Canada (MSC) operates a wide array of meteorological and hydrometric networks to monitor and collect weather, water, climate data from the ground, in the atmosphere, and above from satellites. This includes 32 weather radars, which are brand new under the recently completed Canadian Weather Radar Replacement Project, infrastructure for weather stations and upper air balloon launches, marine buoys collecting off-shore weather information, a lightning detection network, and a cost-shared network of water quantity stations managed with Provinces and Territories, across the country.

Satellites provide important data to strengthen weather and climate monitoring in Canada, especially in the North where in situ observations can be challenging. Currently, ECCC operates 8 satellite receiving stations that receive and process data from geostationary and polar-orbiting weather satellites operated by foreign partners, namely the National Oceanic and Atmospheric Administration (NOAA) and National Aeronautics and Space Administration (NASA) from the U.S., and the European Organization for the Exploitation of Meteorological Satellites (EUMETSAT).

The geostationary and polar-orbiting meteorological satellite data is used for national, regional, short-range warning, and "now-casting", as well as for global, long-term forecasting, and environmental monitoring. To ensure continued access to critical satellite data from new polar-orbiting satellites, ECCC will install new satellite data-receiving infrastructure in Alberta, Newfoundland and Labrador, the Northwest Territories, and Nunavut by the end of 2025-26.

Although ECCC relies heavily on international meteorological satellite data, Canada does own and operate the polar-orbiting RADARSAT Constellation Mission (RCM). RCM is the third generation of RADARSAT satellites and provides critical data for operational near-real time monitoring of sea ice and marine winds which supports weather forecasting and climate models.

To address spatial and temporal gaps in weather satellite data in the Arctic, ECCC, in collaboration with the Canadian Space Agency (CSA) and U.S. and European collaborators (NASA, NOAA, and EUMETSAT), is advancing a novel satellite mission concept known as the Arctic Observing Mission (AOM). The AOM would use a highly elliptical orbit (HEO) to generate data at unprecedented frequency and quality to monitor weather, greenhouse gases (GHGs), air quality and space weather to understand the changing environment at mid to high latitudes (from 45° to 90° N).

In relation to flooding, ECCC is participating in the Surface Water and Ocean Topography (SWOT) satellite mission through partnerships with the Canadian Space Agency, and both government and academic research partners. Launched in 2023, the SWOT satellite is an international scientific collaboration with a focus on both ocean and freshwater monitoring using novel radar technology. If brought to operational use, the satellite technology being tested through SWOT has the potential to significantly expand capacity for terrestrial water monitoring around the world, including in Canada, where the size, remoteness, and rugged terrain of our country, makes achieving a comprehensive monitoring network complex and cost prohibitive.

Q2. Question from Senator Burey

Senator Burey: I'm still trying to get my head around how far along you are. Do you have targets like we need 10% of communities to adopt this program, within such a time?

Mr. Jenkinson: I apologize, senator; I don't have those numbers with me to share with you today. But those are available and we can share them, certainly.

In B.C., for example, we currently have 13 projects in 19 locations within the province itself. We have 245 flood-mapping-related projects in 310 locations across Canada. I don't know what that represents in terms of overall coverage and in terms of protecting Canadian communities, but those details would be available from the flood hazard mapping identification teams.

A2.

The target of the Flood Hazard Identification and Mapping Program (FHIMP) is to provide flood hazard information coverage for over 60% of Canadians in high-risk areas. The Sumas area specifically is part of a current flood mapping project for the Fraser/Coquihalla Flood Mapping Study Area under FHIMP.

The federal government (NRCAN, PS, and ECCC), in partnership with the Provinces and Territories, are on track to achieve the goal of producing flood hazard information coverage for over 60% of Canadians in high-risk areas by the end of the FHIMP project in 2028.

So far, the Government has signed 21 agreements with Provinces and Territories. These agreements support a mixture of more than 245 flood mapping related projects in more than 310 locations across Canada. The number of projects and locations is continually increasing as the FHIMP program advances.

Q3. Question from Senator Simons

Senator Simons: I want to come back to a point I raised on my first go-round. When we did our initial study, we heard quite shocking testimony about the state of the dikes and about the fact that the maintenance of those dikes had been downloaded to municipalities that simply didn't have the resources to repair and maintain them.

When you are at your tables and having these discussions, and you have all the parties at the table, what are you hearing from the municipalities, from the province and state and from the federal government about who is responsible for what? To pick up where Senator McBean left off, you can have all the meetings and talks that you like, but if, at the end of the day, the person whose job it is to fix the dams and the dikes doesn't have the money to do so, we can't make good on any of our international commitments.

Ms. Siewe: I don't know if Wayne has a more specific response to that, but I've made note of that question. I'll find out exactly where that responsibility resides and the extent to which it's part of the discussions at the table, at the TFI, and we will provide you with a written response, if that's all right.

A3.

In Canada, water resource management is a shared responsibility between the provinces, municipalities, and the federal government. Federal responsibilities include the management of water on federal lands, boundary and transboundary water, navigation, and fisheries. This includes monitoring water quantity and flow across Canada, which is managed in a collaborative and cost-shared fashion with the provinces and territories through the National Hydrometric Program led by ECCC as the federal partner. The data and information made available by the National Hydrometric Program supports decision-making and local and regional governments and emergency management organizations in preparing for a full range of water levels in all planning, design, response and permitting actions.

The provinces and territories have the primary responsibility for water management and protection, including provincial flood mitigation and warning systems, while municipalities and local agencies typically provide drinking water and wastewater services and manage infrastructure assets such as dikes. The *Canada Water Act* also allows the federal government to set up agreements with provinces and territories in areas of mutual interest.

According to a 2022 Flood Strategy Intention paper (available on the province of British Columbia website) British Columbia has over 100 orphaned dikes which are not currently being inspected or maintained which serve to protect more than $1.9B in building values. The dikes are generally owned by local municipalities and diking authorities in British Columbia. The Province of British Columbia, through the BC Flood Strategy, aims to facilitate the transfer of orphaned dike assets to responsible owners and develop clear regulations under the *Dike Maintenance Act* to ensure resilient, innovative flood protection infrastructure.