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Overview of the Canadian National Nuclear Forensics Capability Project

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Ensuring the safety and security of Canadians requires a capability to respond to all credible threats. Canada's current capability to respond to radiological and nuclear (RN) threats is focused on detection, prevention, interception and mitigation, as well as enabling the necessary resources for subsequent investigation, interdiction and prosecution.

The absence of a coordinated national nuclear forensics (NF) capability has been identified as a gap in Canada's current capacity to respond to RN threats. An NF capability would enhance the investigation of a RN threat and assist in the attribution of RN material that has been acquired with the intent to be used, or that has been used, in a RN security event.

NF is the comprehensive scientific analysis of RN materials, or evidence contaminated with RN materials, that contributes to the broader investigation of a RN security event. In practice, NF is an iterative process that exploits regulatory and material inventory tracking identifiers, as well as inherent isotopic, chemical and physical signatures, in order to provide insights into the life cycle history and origins of RN materials, as well as to potentially link these materials to people, places and events.

In order to address the current gap in Canada's RN threat response capability, Defence Research and Development Canada's Centre for Security Science (DRDC-CSS) initiated the Canadian National Nuclear Forensics Capability Project (CNNFCP). The CNNFCP is a whole of Government initiative that is funded through the Canadian Safety and Security Programme (CSSP) and which involves eleven federal departments. The objective of the project is to enhance Canada's RN threat response capability through the development of a coordinated and comprehensive national NF capability that includes:

1. a national dedicated laboratory network for comprehensive NF analysis, including the capability to perform traditional forensics analysis on evidence contaminated with RN material; and
2. a National Nuclear Forensics Library (NNFL) cataloguing characteristics and signatures of all RN material holdings under regulatory control.

This paper will provide an overview of the process the Government of Canada undertook to identify the gaps in its current capacity to respond to RN threats as they relate to NF, as well as that used to define the objectives and scope of the CNNFCP, including those of the two work streams listed above.

Country and/or Institution

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