

Implementation of 2018 Flood AAR Action Plan

Objective		Action	Remarks / Timing
1	Numerous individuals, agencies and departments are involved in responding to the spring freshet on an annual basis, yet no formal River Watch inter-agency program is in place	<p>The River Watch activities should be formalized into an official provincial Program that includes a dedicated budget, staffing support, and a formal education plan.</p> <p>The program should include a public education / outreach program that is implemented within schools and communities across the province.</p>	River Watch implemented as a formal program annually. (NBEMO, DELG, ECCC, NB Power). Annual River Watch briefing provided via media availability. DELG leads a multiagency planning meeting in advance of the Spring Freshet annually (and updates any protocols as needed) and hosts a post-River-Watch meeting to review any concerns or issues that require actioning before the next season
2	It was not evident that modifications to the Incident Command System (ICS) structure made by some of the involved operations centres allowed them to fully respond in accordance to ICS requirements	Additional ICS training should be provided at the regional and municipal levels to get staff trained to ICS 200 or ICS 300. Managers involved in emergency response should be trained to ICS 400.	Completed. Expanded ICS training regime implemented province-wide.
3	The floodplain maps used to support land-use planning along the river are outdated and are inadequate in supporting current building activities	Provincial support should be provided for enforcing the land use planning regulations and by-laws.	Land use planning has been identified as a pillar of Local Governance Reform and will undertake several changes to improve land use planning and promote more responsible and managed development in communities. All local governments have land use plans and are responsible to review and amend plans accordingly. All communities in NB will have a land use plan by 2028.
4	Flood maps are developed and used on a case-by-case basis by larger municipalities and limited coordination between responding agencies for sourcing and use often leads to duplication of effort	Flood mapping should be performed on a provincial level with flood maps shared on a central database, allowing access by individual communities.	DELG action completed with release of new and updated flood hazard mapping which is available online.
5	The interaction between municipalities, LSDs and REOCs is unclear and, at times, inconsistent	Municipalities that are often requested to support an LSD during emergency events should be provided the authority to enact the required agreements, policies, and processes needed to fully support the response and coordinate their own internal resources.	Service and Mutual Aid Agreements are a standard practice for Local Governments and Local Service Districts, and Service Agreements of Mutual Aid Agreements are signed as required. As part of Local Governance Reform, agreements may be reviewed, and additional agreements may be required or modifications to current agreements may be implemented as part of this process.

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6	The transition from response to recovery does not adequately support the coordination of immediate / early recovery activities	The existence of a recovery team should be communicated with the various responders to ensure this level of support is adequately known	Completed. Implemented by NBEMO Recovery Section in 2019
7	Staffing levels within the regional operations centres was, at times, managed ineffectively	Non-essential staff should not be required to maintain round the clock operations, despite a full EOC activation. In areas requiring lower levels of activation within their EOC, teleconferences could be used to support response operations.	REOC operational postures adjusted in 2019 to leverage virtual meetings as appropriate.
8	A misalignment in priorities for public information dissemination exists between the response agencies and technical support	ELG should provide NBEMO with training on the nuances of forecasting and the importance of certain data to support the emergency response decision making process. Forecasting results displayed on the River Watch Mobile site should include an expected time of the next update so members of the public can anticipate when additional information will be available, thus decreasing the number of requests to NBEMO.	Training of NBEMO staff completed. Every year updates are made to the River Watch mobile site and website in response to feedback from the public and partner agencies. Incorporation of a notice for when the next forecast will be issued will be considered with other updates for the 2023 season.
9	The scope of the roles and responsibilities of municipal resources within regional Incident Command Posts (ICP) was not always clear and / or consistent	Regional Incident Command Posts should be organized, coordinated and managed by regional (i.e., REOC) staff. Resources may be requested at the municipal and local levels to support, but ultimately the REOC should be in control of these Incident Command Centre. A formalized process should be implemented that outlines how municipalities will recover costs incurred while providing support to an LSD and / or the Region during emergencies.	Implemented in 2019. Upon activation in flood response, a dedicated Financial Manager is included in command staff to provide direction.
10	Varying levels of experience amongst the REMCs and vacant REMC positions within several regions, resulted in coordination issues with some of the affected municipalities	All 12 REMC positions should remain filled and replacements should be found as soon as possible when positions become vacant.	Actions completed.
11	Liaison Officers were not fully leveraged to support emergency operations and the exchange of information between responding organizations	For severe events, municipalities should send a Liaison Officer to the REOC once it is activated to assist in information exchange and coordination efforts. Conversely, if sufficient resources are available, the	Established in 2019 as REOC procedure.

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	REOC could send a Liaison Officer to the affected EOCs of the affected municipalities.	
12 Information exchange between organizations was sometimes hindered, resulting in possible safety concerns for responders	<p>Privacy legislation should be reviewed and considered in terms of an emergency context. Supporting the emergency response and helping residents in danger should take priority and secure systems could be developed so information can be shared with first responder organizations (e.g., fire department, police).</p> <p>A system should be leveraged to allow residents to voluntarily provide information to first responders.</p>	Implemented.
13 Despite concerted efforts from the province (i.e., 72-hour preparedness public education), there is still disparity regarding the scope of responsibilities of homeowners, municipalities, regions and the Province in an emergency	<p>Consensus on what the level of responsibility is at each level (i.e., provincial, regional, municipal, homeowner) should be attained by the province in terms of flood prevention, mitigation, protection, and remediation for private residences.</p> <p>Messaging regarding these responsibilities should be developed and shared by the province and included as part of an overall public education program.</p>	<p>Responsibilities are described in Provincial, Area and Regional planning documentation. Municipal officials briefed on roles and responsibilities.</p> <p>Subject included in EOC course training packages.</p>
14 Very few resources were provided to support pet owners and evacuees transporting pets	Additional consideration should be placed on engaging organizations that can support pet evacuations (e.g., Canadian Disaster Animal Response Team (CDART)).	Implemented in 2019.
15 The process for information flow from critical infrastructure owners and operators to government representatives was not always clear or efficient	A policy should be developed that outlines how resources are distributed at a regional level between LSDs and municipalities. Priorities should be identified and considered when resources are required in numerous locations.	CI owners/operators and local government officials are consulted when formulating priorities and Incident Action Plans.
16 Processes and plans are not widely available to support the management of donated resources	Best practices should be assembled and documented in a formalized donated resources management plan	Task assigned to newly established NBEMO Logistics Manager.

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17 Communications Staff did not leverage the Joint Information Centre (JIC) to develop and deliver consistent messaging to the public	If the event does not warrant the activation of a JIC, other tools should be used to ensure the collection of relevant information from applicable departments and organizations. This could be performed through the use of a messaging template that is sent to relevant critical infrastructure partners, provincial departments, etc. who can provide input into the key messaging being released from the province.	NBEMO Communications Officer consolidates key messages for dissemination.
18 A lack of regular briefing cycles hampered the information exchange between the provincial, regional, and municipal responses	<p>Regular briefing cycles should be set between the REOCs and the municipalities that allow for the collection of information prior to the PEOC briefing. These scheduled briefings would then allow municipalities to coordinate their own briefing schedule and ensure information is available in a timely manner for briefing up through the chain of command.</p> <p>Virtual communications could be enhanced through the use of technology. The use of WebEx, Skype, or similar conferencing capabilities could be leveraged to allow for verbal exchange of information as well as real-time viewing of maps or other data during the call.</p>	NBEMO Chief of Operations established overall daily battle rhythm, cascaded to REOCs for their scheduling of briefing cycles. Virtual communications now well established.
19 Details on road closures and transportation routes affected by flooding were not presented to the public in an effective manner	<p>The existing 511 automated system could be updated and divided into zones to facilitate a user's interaction with the system and promote better access to pertinent information.</p> <p>The DTI website could be updated to promote ease of access to information and more clarity in information for the user.</p>	Actions completed by DTI.
20 Use of the Ops Account as a communications tool is ineffective in a response environment	Additional training and discipline in using the Ops Account should be provided to limit the amount of unnecessary information being sent. An email use protocol should be developed to support this training. Emails should be labeled based on their priority level. Labeling as Information, Request or Urgent within the subject header will help individuals identify and prioritize the information coming in. Additionally,	Implemented by Operations Staff and REMCs.

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	<p>labeling who the email pertains to (e.g., All, REOC 9, etc.) could also support the prioritization of information.</p> <p>The requirements and intent of the Ops Account should be evaluated. Depending on these requirements, new or additional tools should be considered. For example, tools that are designed for chats could be leveraged if that is the intent of the system or other information management systems could be leveraged if the intent is for overall situational awareness.</p> <p>Regardless of changes in the use of the Ops Account, planning for a dedicated Admin personnel should be considered for each REOC to support the sorting and prioritization of information, to allow the REMC to focus on decision making and operational requirements.</p>	<p>REMCs detail a dedicated Administrative person in their respective REOCs.</p>
<p>21</p> <p>Additional information could be shared with the public to maximize public confidence</p>	<p>The River Watch website should be revised to allow for a one-stop shop of all applicable flooding information. Additional public information should be provided as federal resources are being requested and highlight how they are helping. When the flood risk is elevated, if NBEMO is able to provide more current data than what is available through public information tools (e.g., federal websites), they should be seeking this information on a regular basis (e.g., hourly) and sharing this directly with the public via the River Watch website. Information available at a municipal level should also be linked via the River Watch website. Live web cam feeds should be made available for different areas along the river, accessible via links on the River Watch website.</p>	<p>NBEMO website expanded to include all relevant information. Additional details are made public through use of daily media briefings.</p>
<p>22</p> <p>Existing tools are not conducive to sharing real-time information (reports, maps, data, pictures, etc.) among responders and multiple levels of government</p>	<p>A Common Operating Picture should be deployed on a wide-scale to promote accessibility for all levels of government. This tool should be web-based and allow for easy access to information (e.g., maps, sitreps, resource request status, etc.) needed for emergency response and planning.</p>	<p>Common Operating Picture usage was introduced in 2019.</p>

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23	Public alerting tools are applied on a case-by-case basis by municipalities and limited coordination between responding agencies for sourcing and use leads to duplication of efforts	A common public alerting system should be sourced and purchased at a provincial level. Municipalities should then be able to opt-in and purchase access to this system as required. This system should be linked across the involved municipalities to ensure information can be tracked and accessible by the province as required.	Province uses National Public Alerting system. Some municipalities have opted to purchase Sentinel system within their jurisdictions.
24	Monitoring of public communications was sometimes lacking in its effectiveness for control and identification of misinformation	Digital volunteer groups should be leveraged for the identification and managing of misinformation on social media. Existing digital volunteer groups within North America to support emergency responses should be considered in identifying how to coordinate a digital volunteer within the provincial emergency response.	ECO conducts social media monitoring and reports themes; issues clarification messaging.
25	Municipalities did not receive adequate direction and guidance from the REOCs to support their response	Regular briefing cycles should be set between the REOCs and the municipalities that allow for the collection of information prior to the PEOC briefing. These scheduled briefings would then allow municipalities to coordinate their own briefing schedule and ensure information is available in a timely manner for briefing up through the chain of command.	NBEMO Chief of Operations established overall daily battle rhythm, cascaded to REOCs for their scheduling of briefing cycles. Virtual communications now well established.
26	Public education is required to develop understanding amongst the public as to the complexities involved in the development of flood forecasts	<p>On the River Watch Mobile website, guidance should be provided for cases where the information appears to be blank. In cases where the information is not available due to ice coverage or other factors, this should be listed to minimize the public perception of missing data.</p> <p>Guidance should be provided on the River Watch Mobile site to assist the public in understanding the forecasting numbers. Warnings and clear labels should be provided for the four (4) and five (5) day forecasts if their values are less reliable than the one (1) to three (3) day values. Additionally, clarity should be provided that these values are forecasts, similar to the weather forecasts on which they are based.</p>	<p>Actioned by DELG. Completed.</p> <p>DELG is partnering with the Intact Centre for Climate Adaptation to develop and implement a New Brunswick flood education and awareness program to provide local governments and individuals with the tools necessary to better understand and plan for the risks associated with flooding.</p>
27	Public communications regarding the potential long-term health effects of the flooding were inadequate	Additional messaging should be provided to the public in terms of the long-term health impacts following a flood, especially as it relates to mental health. Tips on coping with stress, helplines and locations of support groups should be provided in government communications.	Messaging is now incorporated into web-sites as well as specific Public Health messaging. DELG is undertaking a study regarding the mental health impacts of flooding with UNB's IRDT in 2022-23.

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<p>Leveraging methods of communication with the public beyond web-based methods and social media is important to raise public awareness</p>	<p>REMCs should engage the local community social media leaders and create links and relationships so that information can be shared directly. This would promote accuracy in the information being shared through community associations and networks.</p> <p>Flyers containing flood information should be printed and displayed at local venues such as building stores, coffee shops, and gas stations. Some municipalities have leveraged the distribution of flyers in the past to share information with the public prior to the spring freshet season. These flyers could include key messaging for preparedness, safety tips, and priority phone numbers.</p> <p>A telephone hotline number should be engaged that plays current standard messaging about the current flood situation on a loop, similar to the information available on the front page of the River Watch website. This messaging should include the time of the last update and the timing of the next expected update.</p> <p>A radio channel should be designated during the spring freshet season to allow residents access to up to date information. This could be done economically through coordination with journalism and broadcasting students or through the involvement of volunteers.</p> <p>In addition to the daily press conferences, short videos (i.e., 3 minutes or less) should be produced by NBEMO that are aimed for public consumption and contain key information about the evolving situation. Social media platforms (e.g., Facebook Live, Twitter, Instagram) could be used to share these videos in near real-time.</p> <p>The River Watch website should have a designated application (app) that users can download for easy accessibility on their phones.</p>	<p>The communication of specific local or regional emergencies must be addressed through the local government Emergency Management Coordinator and the Regional Emergency Management Coordinator.</p> <p>The use of Communication tools related to the public safety information must align with a local government or regional emergency management communications plan and is the direct responsibility of the local governments or the regional emergency management coordinator with support from rural district managers (<i>formerly local service managers</i>) when required.</p> <p>During emergencies, rural district managers can also work with NBEMO to develop and distribute communications materials that are tailored to their regions. This could include flyers, mailouts, and signage concerning flood preparation and availability / location of sandbags, post-flood advertisements concerning special garbage and flood waste collections, and placement of waste bins for spoiled food following a power outage.</p> <p>River Watch App complete.</p>

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29	Resourcing within the ELG Hydrology department is insufficient to support the forecasting requirements of the spring freshet season	Additional resources should be hired, and time should be dedicated to training to ensure multiple trained personnel are able to meet the forecasting requirements for spring freshet with back-up support.	DELG actions completed.
30	Available data accessed by the ELG Hydrology department is insufficient to support the emergency operations requirements during the freshet season	Equipment modifications that are required for twice daily forecasts should be identified and equipment should be updated accordingly to meet this need.	DELG actions completed.
31	Additional emergency management personnel are required at the provincial and regional level to support emergency planning and response	<p>A dedicated logistics personnel should be hired to support the emergency response and preparedness activities required for procurement, agreements, and sourcing.</p> <p>A training and exercise coordinator should be hired to provide a consistent training and exercise program across all the regions.</p> <p>A dedicated planning position should be implemented to work with REMCs across the Province and to improve the emergency plans at a local level.</p> <p>Through the hiring of additional REMCs to support each region, REMCs should continue to work with smaller communities on improving and updating their plans as well as identifying other available resources including volunteers, lodging, food, etc.</p>	<p>NBEMO Logistics Manager established.</p> <p>Training & Exercise Coordinator established and NBEMO.</p> <p>Planning Coordinator established t NBEMO.</p> <p>REMCs established in all Regions.</p>
32	Training and experience are required to allow REMCs to fully support other regions within various functional roles	A deployment plan should be created for the REMCs. It should describe the path in which REMCs will be chosen to deploy to assist in affected areas. It will list the primary back-up REMC and a secondary individual in cases where the region of the first individual is affected or they are otherwise occupied. A plan of this nature will allow REMCs to plan and develop required relationships and train for this deployment.	Area plans established to designate primary and back-up REMCs for each Region.
33	Modifications to infrastructure are required to mitigate the impact of flooding to areas that are known to be prone to flooding	A flood audit program should be developed where homeowners can have a member of the government check their home and provide recommendations to mitigate and reduce flood impact prior to a flooding situation. These recommendations could include large projects such as	NBEMO has provided extensive documentation on the Branch website with flood-proofing advice and guidance for homeowners, as well as mitigation suggestions.

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	<p>raising the home, medium projects such as moving the electrical panel or small projects such as picking up items from the basement floor.</p> <p>Roadways which have the potential to be impacted by flooding on an ongoing basis should be built up permanently to reduce the need for temporary fixes and minimize the impact of the flooding to infrastructure going forward. Some municipalities have already embraced the idea of permanent build ups rather than temporary ones to sustain response operations.</p>	<p>DTI is finalizing a Long-Term Mitigation Plan that identifies provincial transportation infrastructure that may be vulnerable to flooding based upon updated flood mapping. This information coupled with DTI's Long Term Capital Planning process can be used to help prioritize investments in provincial transportation infrastructure.</p> <p>DELG has been sharing technical information with DTI to assist them in assessing risk to infrastructure.</p>
34	<p>Additional public education is required on River Watch, the government's involvement and available supporting resources</p>	<p>Each year, communities that will be potentially affected by the spring freshet should hold flood preparation meetings. These should be coordinated between the REMC and local community groups. These meetings should allow an opportunity for first responders (including NBEMO) to talk about flood preparedness. It will aim to increase personal preparedness, increase public confidence in the response and allow community members to share best practices amongst themselves as well.</p> <p>Flood preparatory meetings held annually by Area Managers/REMCs with partner responders.</p> <p>DELG has developed educational videos and a new "Flooding in New Brunswick" website to assist the public in understanding flooding in NB, how the River Watch Program works, how to use the new flood hazard mapping to plan and prepare to protect themselves and their properties, etc.</p>
35	<p>Lessons identified from previous flood responses have not been fully leveraged or acted upon to improve future operations</p>	<p>While progress was made to address lessons identified immediately after the spring freshet 2018 flooding, a detailed review of all event AARs, including this report should be undertaken to develop an improvement plan for the Province.</p> <p>Actioned by NBEMO.</p> <p>DELG leads a multiagency planning meeting in advance of the Spring Freshet annually (and updates any protocols as needed) and hosts a post-River Watch meeting to review any concerns or issues that require actioning before the next season.</p>