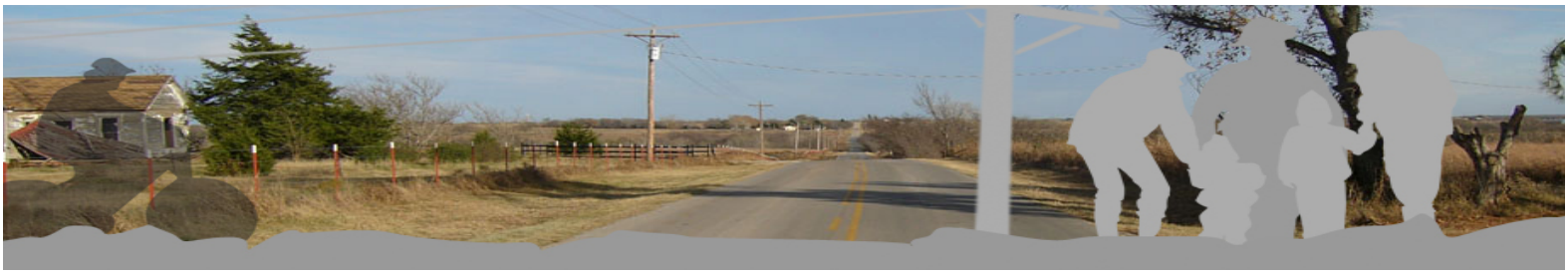

Hazard Risk Assessment

Overview and Instructions

What is a Hazard?

A hazard can best be described as:

A threat to humans and what they value: life, well-being, material goods, and environment.

There are many things which can be a threat – falling down a flight of stairs can certainly injure someone, as can being involved in a motor vehicle accident. However, here we are only concerned with those hazards which are likely to cause a major incident or disaster for the community. Common examples would be floods, forest fires, snow storms, H1N1, or a train derailment. *Appendix 1* includes a list of potential hazards which could lead to a community experiencing a disaster.

Types of Hazards

When people think about hazards they tend to think about the source, or cause of hazards. There are generally three different ways to think about hazards:

1. natural;
2. diseases, pest infestations and epidemics; and
3. human-induced hazards.

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Natural Hazards

An air crash is considered to be an accident involving one or more airplanes. While most airplane crashes occur on or near an airport, airplane crashes can occur anywhere.

Natural hazards are those that were normally thought of as “acts of God” (e.g., earthquakes and hurricanes). These hazards have their origin in the natural environment – they often occur as a result of weather (e.g., snowstorms) or as a result of something to do with the earth (e.g., landslides).

Diseases, Pest Infestations and Epidemics

Diseases, epidemics, and infestations are self-explanatory and may apply to people, animals, or plants. Often it is difficult to determine the cause or origin of diseases – for example, West Nile disease was in existence in the Middle East for a long time before humans brought the disease to North Vancouver by transporting birds or mosquitoes by boat or plane.

Human-Induced Hazards

Human-induced hazards are those that are caused either by doing things deliberately - acts of commission such as the building of bombs or through a failure to act - acts of omission such as not maintaining a plane or not building a structure with enough care.

Natural and Human-Induced Hazards

Some hazards can be both natural and human-induced. For example, a forest fire can be started by humans (e.g., careless campers) or by lightning.

Why is Understanding Hazards Important?

It is important to understand what hazards have the potential to threaten your community. Some communities choose not to identify and discuss what hazards exist – kind of like burying your head in the sand and hoping that if you don’t talk about them, they won’t occur. But a quick look at what has happened to rural, remote and coastal communities in Canada has shown that many hazards have had an impact on many communities.

In many cases the community was directly impacted – sometimes there were deaths, sometimes injuries, but often some financial loss. In some cases the community was evacuated, but in the end there was no damage – for example, the forest fire threatened the community but never actually reached the community. In other cases, the community was impacted even though the event originated a considerable ways away – for example, a power transformer might blow up and leave communities without power hundreds of kilometers away. In still other situations, no one in the community was directly affected but the community responded to rescue tourists and visitors – for example, when an airplane crashes or a boat capsizes nearby. The community rallies together to provide what support it can.

Many rural communities have been affected by one or more incidents or disasters. Identifying what hazards have happened in the past is one thing to consider. Understanding what has happened to other communities can assist communities in determining what hazards have the potential to happen to them.

So, if your community wants to do more than just simply react to hazardous events and disasters, if your community wants to look at ways in which to reduce the risk of disasters and to become more resilient, then the first step is to identify and understand what potential hazards exist. The second step is to note what hazards have previously had an impact in your community, and if so, when and where they took place.

Hazard Risk Assessment Instructions

There are 16 categories of hazards for you to assess (See table below). In an ideal world, you would assess all of these hazards but your planning team may decide to initially focus on a subset of hazards for this risk assessment, based either on those hazards that residents are most concerned about (e.g., based on past events) or recent events that have happened elsewhere which have prompted local concern (e.g. pandemic disease). If you decide not to assess all hazards faced by your community at this time, you will want to come back to the other hazards later. It is often the hazards you don't anticipate that can have a serious impact on your community.

Here are six steps to assist you to complete the Risk Assessment:

1. **Decide on which hazards you will start with:**

    - Each hazard has a number of factors attached that describe the hazard.
    - Make sure all the members of the team are clear as to the definitions of the hazards and the discussion information.
    - Additional information is in the *Hazard Risk Assessment Tool* for each hazard under Risk Assessment Resources and in the Provincial/Territorial Risk and Resilience Information Guides.

2. **Rate the factors for each hazard:**

    - Rate your community against each factor using the following scale:
        - Yes
        - No
        - Need More info
        - Not Applicable
    - Place a check in the "yes" box next to each factors you believe is "strong" in your community.
    - If you believe the factor is either not present or present only in a in a minor way, check "no".
    - There may be some factors you think do not apply to your community or need more information. In this case, check "not applicable", "needs more information" or cross that indicator out so that it does not count in your assessment of that dimension.
    - Before crossing anything off, be careful to consider whether it is something that you may not have in the community at this time but that would be important to develop in which you would not cross off that dimension.
    - If you are working in a group we suggest that you go through each factor and discuss your assessment before deciding which box to check.

3. **Highlight factors that are important to your community:**

    - If you feel that any factor is particularly important to your community, and you want to make sure to identify it as something you want to focus on in your plan, check the "important to my community" box.

4. **Rate your community's hazard risk level:**

    - When you have finished your assessment look at the number of boxes you have ticked. Pay particular attention to those that are marked with an asterisk – these indicators are considered to be more important in assessing whether or not the hazard is likely to occur.

- Once you have finished all of the factor boxes for a single hazard, review your checks and rate your community's hazard risk using the following scale:
    - High Risk
    - Low Risk
    - Need more info
    - Not applicable

  Be sure you use the "not applicable" rating only for those hazards that have absolutely no chance of taking place in your community – for example, a tsunami in Saskatchewan.
- In some cases, there may be hazards for which you need more information to be able to assess them. In this case you may want to check "more info" and see whether others in the community have information that could help you more fully assess this dimension.

5. Complete the Risk Assessment Profile Template:

- At this point, you can now determine if the hazard applies to the entire community or not. Note that for some hazards they will apply to the entire community, while in other cases they will only apply to one zone. For example, a windstorm will likely to apply to the entire community while a snow-melt flood may only apply to the zone in your community where there is a river.
- Then transfer your rating to the Risk Assessment Profile Template into the first column.
- If you believe that the hazard would apply equally to all of the community then you can leave it as an overall community rating. If you think it would apply to one or more zones then you should complete the assessment for each of the zones you have identified in your community.

Comprehensive Classification And Type of Hazards

Category	Hazard
Accidents	Airplane Crashes Marine Accidents Motor Vehicle Crashes Train Derailments
Astronomical	Asteroid, Comets, and Meteor Crashes Geomagnetic and Ionospheric Storms Space Object Crashes
Atmospheric	Blizzards Climate Change Extreme Cold Fog Frost Hailstorms Heat Waves Hurricanes Ice Fogs, Ice Storms, and Freezing Rain Lake-Effect Storms Lightening and Thunderstorms Microbursts Sea Storms and Sea Surges Seiche Snowstorms Tornadoes and Waterspouts Windstorms

Contamination	Air Pollution Soil Contamination Water Contamination
Dam Failure and Structural Collapse	Dam Failure Structural Collapse – Buildings Structural Collapse - Transportation
Diseases	Diseases - Animals - Air & Water Diseases - Animals - Human Transmitted Diseases - Animals - Animal Transmitted Diseases - Human - Air and Water Transmitted Diseases - Human - Animal Transmitted Diseases - Human - Human Transmitted Diseases - Human - Food Transmitted Diseases - Plants - Human Controlled Diseases - Plants – General Diseases - Plant and Pest Infestations
Earthquakes, Tsunamis & Volcanos	Earthquakes Tsunamis Volcano-Ash Falls, Projectiles and Lateral Blasts, Pyrochlastic Flows and Lava Flows
Fires	Brush, Bush and Grasss Fires Forest Fires or Wildfires Peat Bog Fires Urban/Structural Fires Wildland/Urban Interface Fires
Food Shortages	Food Shortages: For Communities that depend mostly on local food for sustenance For communities that depend mostly on food grown elsewhere for sustenance
Geological Hazards	Dust and Sand Storms Erosion, Accretion and Desertification Expansive Soils Landslides Land Subsidence and Sinkholes Submarine Slides
Hazardous Material Spills, Explosions and Oil Pilepine and Gas Leaks	Gas Explosions and Gas Leaks Mine Explosions Oil Pipeline Leaks Other Explosions Hazardous Material Spill - On Site Hazardous Material Spill - Air Transport Hazardous Material Spill - Marine Transport Hazardous Material Spill - Land Transport Hazardous Material Spill - Rail Transport
Hydrological Hazards	Avalanches - Natural and Human Caused Debris Avalanches, Debris Flows and Torrents Drought - Natural and Human Caused Flash Floods Ice Jam Floods Local Floods Rain Storm Floods Snow Melt Floods Glaciers Iceflows, Icebergs, Ice Islands and Sea Ice Lake Outbursts
Nuclear Failure	Nuclear Accidents
Power and Water	Power Outages

Outages	Water Outages
Riots	Riots
Terrorism	Terrorism – General Terrorism – Biological Terrorism – Chemical Terrorism - Cyber Terrorism Terrorism - Explosives and Bombs Terrorism - Nuclear