

A National Risk Assessment for Ireland



An Roinn Cosanta
Department of Defence

An Oifig um Pleanáil Éigeandála

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SECTION 1. Purpose

1.1. Why have a National Risk Assessment?

Hazard analysis and risk assessment are accepted internationally as essential steps in the process of identifying the challenges that may have to be addressed by society. Through analysis by experts across sectors and disciplines, the process of developing the national risk picture can:

- Contribute to creating a more comprehensive risk assessment and a shared understanding of the national-level /societal challenges to be addressed;
- Build on the significant inter-agency work that has already been completed at the local and regional levels under the provisions of the 2006 document “A Framework for Major Emergency Management”¹ (hereinafter referred to as “The Framework”);
- Help to compare various types of hazards from a national/societal perspective, allowing for all risks to be assessed based on the same pre-agreed likelihood /impact criteria;
- Provide an agreed basis for establishing priorities in emergency management which will facilitate cross-sector coordination and ensure an appropriate balance of measures to prevent and/or mitigate risks;
- Ensure compliance with European Union (EU) requirements² that Member States develop a national risk management strategy which will support an EU approach to the prevention and management of natural and man-made disasters.

¹ National Steering Group on Major Emergency Management; “A Framework for Major Emergency Management”, 2006, Available from: www.mem.ie

² Council Conclusions on a Community framework on disaster prevention within the EU, 2979th JUSTICE and HOME AFFAIRS Council meeting Brussels, 30 November 2009

SECTION 2. The National Context

2.1. The Population

Ireland's population has continued to grow strongly over recent years - the population was 4,588,252 in 2011 (up over 1 million since 1991). In 2011, the number of people living in urban areas (i.e. towns with a population of 1,500 or more) surpassed 2.8 million for the first time. Between 1996 and 2011 Ireland has shown an increase in its urban population of almost 0.75 million people.

People are also living longer. The number of people aged over 65 years has increased by 14.4% between 2006 and 2011. It is notable that 28% of people over 65 years of age live alone.

Ireland has a diverse population. In April 2011 there were 544,400 non-Irish nationals from 196 different countries living in here.³

2.2. Hazards and Vulnerabilities

Although Ireland has experienced a number of emergencies we have not suffered disasters of the severity and scale witnessed by other countries. Ireland's geographic position means it is less vulnerable to natural disasters such as earthquakes and on island volcanoes. In recent times there has been an increase in the number of floods and flash flood incidents. One period of intense rainfall that hit Dublin in October 2011 had tragic consequences, with the loss of two lives. While periods of prolonged severe cold weather are not usual for this country (roughly once every ten years) 2010 saw two periods of extreme cold that impacted significantly across all sectors of society.

Ireland, as a small peripheral energy market, which currently imports most of its gas requirement and all of its oil, is vulnerable to the energy implications of geo-political events or natural disasters. Events such as the Russia/Ukraine gas crisis of 2009, the Japanese nuclear crisis and the loss of Libyan oil supplies of 2011, have not directly affected Ireland in terms of availability of energy supplies. However, such external events do impact on Ireland, as on all economies, in the form of increases in global oil and gas prices (which also impact on electricity as gas is the key national generation fuel).

In common with all countries across the globe, Ireland is vulnerable to a range of Human/Animal Disease and Public Health emergencies. To that end, the Principal Response Agencies (An Garda Síochána, the

³ Source: This is Ireland. Highlights from Census 2011 - published by the Central Statistics Office

Health Service Executive and Local Authorities - fire and rescue service) carry out regular exercises across the majority of hazards identified within this document.

Major Industrial Accidents are always a concern – even in a country which has a relatively low level of industrialisation. Ireland has a total of 43 Upper Tier SEVESO and 50 Lower Tier SEVESO sites (2012)⁴. Although these numbers are low, many of the sites are located in either the greater Dublin area or close to Cork City – both large centres of population. A serious industrial accident could test the resources of the emergency services in both regions.

Serious transport accidents and disruption to transport networks are among the most commonly cited hazards for all regions of Ireland. A major transport accident could have such a significant impact that it requires a national response.

In 2010, ash from the eruption of Iceland's Eyjafjallajokull volcano led to the disruption of air traffic for an extended period across Europe. Such incidents can challenge all countries affected. In this country a National Coordination Group was established to help provide support to citizens stranded abroad and to provide up-to-date information to the public as the situation developed.

An Garda Síochána (Police Force) and the Defence Forces monitor the international security and terrorist threat. The security threat level is subject to on-going reassessment.

A well functioning ICT system is fundamental to the operation of all aspects of the State's economic and social systems. A national or international cyber incident has the ability to have a significant negative impact across many sectors of society. Ireland, in common with many other countries, is examining ways of making our ICT systems more robust.

Finally, it is important to remember that certain risks are present by virtue of our being an island nation. Ireland is dependent on sea and air transport for much of our fuel, food, medicines etc. This dependence could expose the country to a range of resource-based emergencies. Also, because of our reliance on sea trade, a major maritime accident which compromised our shipping/ports could have a significant economic impact.

⁴ Upper Tier and Lower Tier SEVESO sites are defined in: Article 3 of Directive 2012/18/EU of the European Parliament and of the Council of 4 July 2012

2.3. Mitigation

Identification and mitigation of hazards forms part of the normal operations of public and private organisations. The Framework defines mitigation as “any actions which are taken in advance of the occurrence of an emergency to reduce the probability of that event happening or that reduce the loss/damage that might otherwise have been caused if the event does happen”. Mitigation measures, proportionate to the identified risk level, and informed by feedback from emergency response reviews and debriefs are implemented as appropriate.

SECTION 3. Emergency Management in Ireland

3.1. National Structure and Oversight

The Government Task Force on Emergency Planning is the top-level body which coordinates and oversees the emergency management activities of all Government Departments and Public Authorities. This Taskforce, comprising those Ministers and/or Senior Officials of Government Departments and Public Authorities making a key contribution to the emergency management process, is chaired by the Minister for Defence.

The Office of Emergency Planning, within the Department of Defence, supports the work of the Government Task Force. In terms of managing emergency response, Ireland has adopted the “Lead Department” principle which means that the Government Department having responsibility for a particular area of public life (transport, energy, health etc) takes the lead when an emergency occurs in that area. In 2008, the Government agreed and published the “Strategic Emergency Planning Guidance”⁵ document which defines the Lead Department with respect to a range of major emergencies.

In April, 2011 the Government Task Force on Emergency Planning approved the “Guidelines for Coordinating a National-Level Emergency/Crisis Response”⁶. This guidance document sets out the various steps involved in coordinating a national-level response for emergencies/crises. It sets out the triggers and activation procedures for convening a meeting of a National Coordination Group and the role of this Group. It clarifies the responsibilities of the lead government department and the roles and working relationships of all other departments/ agencies, which are required to contribute and undertake their roles in the context of the national emergency/ crisis management effort.

3.2. Local Response Arrangements

The Framework and its associated guidance documents set out the arrangements which facilitate a co-ordinated response to major emergencies by the Principal Response Agencies. The Framework adopts an all hazards approach to Emergency Management which advocates a systems approach based around a five-stage emergency management paradigm (see Figure 1). The implementation of the Framework is

⁵ Department of Defence, 2004, “Strategic Emergency Planning Guidance Document”, Available from: www.emergencyplanning.ie

⁶ Department of Defence, 2011, “Guidelines for Coordinating a National-Level Emergency/Crisis Response”, Available from: www.emergencyplanning.ie

overseen by a National Steering Group, chaired by the National Directorate for Fire and Emergency Management, in the Department of the Environment, Community and Local Government. The Framework sets out arrangements by which other services, such as the Defence Forces, voluntary emergency services, utilities, transport companies, industrial and other participants, and not least the communities affected, can support and work with the Principal Response Agencies in reacting to and managing major emergencies. In addition, protocols are in place setting out arrangements for the delivery of a multi-agency response to flood, radiological-nuclear, marine and rail emergencies.



Figure 1: Five-Stage Emergency Management Paradigm⁷

In conjunction with the relevant guidance documents, the Framework details how a structured hazard analysis and risk assessment must be completed initially by the Principal Response Agencies and then by regional, multi-agency teams in each of the eight designated MEM regions within the country. As well as setting out how the Principal Response Agencies work together, the Framework also identifies how these plans link with other National Plans (such as Public Health, Nuclear, Maritime and Animal Health) and with site or event specific local emergency plans (See Figure 2). The Framework represents a move away

⁷ National Steering Group on Major Emergency Management; “A Framework for Major Emergency Management”, 2006, Available from: www.mem.ie

from focusing on emergency plans and instead moves towards a comprehensive emergency management process.

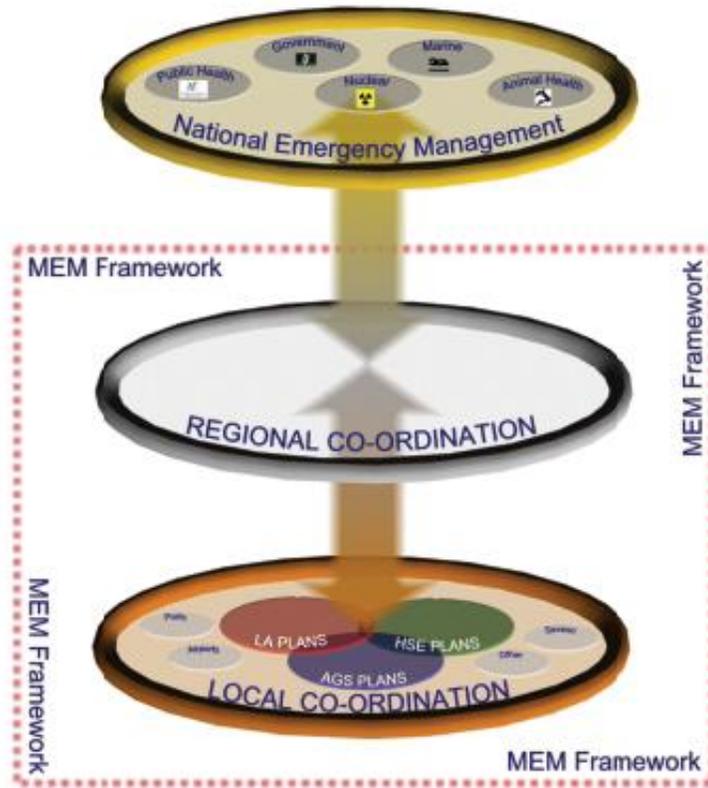


Figure 2: Linking Major Emergency Plans with National Plans and Other Plans⁸

⁸ National Steering Group on Major Emergency Management; “A Framework for Major Emergency Management”, 2006, Available from: www.mem.ie

SECTION 4. The Methodology

4.1. The Risk Assessment Methodology

Ireland's National Risk Assessment is based on the risk assessment methodology outlined in The Framework. This methodology, where appropriate, is supported by quantitative analysis where relevant data is available to support such analysis. The development of the National Risk Assessment was coordinated by the Office of Emergency Planning, with guidance from DCU Business School, and in conjunction with all of the relevant Government Departments and State Agencies. The National Risk Assessment is subject to the approval of the Government Task Force on Emergency Planning.

In completing this work, the following nationally agreed definitions were utilised:

Hazard: Any phenomenon with the potential to cause direct harm to members of the community, the environment or to the physical infrastructure, or being potentially damaging to the economic and social infrastructure.

Impact: The consequences of a hazardous event being realised, expressed in terms of a negative impact on human welfare, damage to the environment or the physical infrastructure or other subsequent consequences.

Risk: The combination of the likelihood of a hazardous event and its potential impact.

4.1.1. Hazard Identification

In accordance with "A Guide to Risk Assessment in Major Emergency Management"⁹ (2010) hazard analysis and risk assessments were completed at local and regional levels. Hazards identified in this process, as well as those identified at Departmental and Agency level, were assessed in this risk assessment process. In accordance with the Framework, the hazards were grouped into four categories:

- Natural
- Transportation
- Technological
- Civil

⁹ National Steering Group on Major Emergency Management; "A Guide to Risk Assessment in Major Emergency Management" (2010) Available from: www.mem.ie

4.1.2. Risk Assessment

The next stage involved consideration of the overall risks presented by the identified hazards. Focus groups, facilitated by DCU Business School, came together to undertake the risk assessment process. Membership of the focus groups comprised experts drawn from the relevant government departments and state agencies. Key to the process was:

- (1) An assessment of the likelihood (probability) of the hazard occurring.
- (2) An examination of the potential impact (severity of consequences to life and health, property and infrastructure, and the environment) of the hazards identified. Impact was assessed on the basis of reasonable worst case scenario.

The impact and likelihood criteria, outlined in Tables 4.2 and 4.3 below, were used as the basis for decision making with respect to the relative risk of each identified hazard. This classification system is based on “A Guide to Risk Assessment in Major Emergency Management” (2010). With regard to impact, the assessment criteria were scaled up in order to reflect emergencies requiring national (rather than regional) coordination.

4.1.3. Risk Matrix

Building on the five by five matrix specified under the Framework, the outcome from the risk assessment process detailed above was plotted. The output from this exercise was four individual hazard classification risk matrices and a consolidated overall national risk matrix.

4.1.4. Using the Risk Assessment Matrix

While being an intrinsically useful exercise in itself, the outcome of the risk assessment process provides a sound basis for effective emergency management – particularly with regard to determining appropriate mitigation measures and/or developing emergency plans.

4.1.5. Rationale

This approach represents good practice in hazard analysis and risk assessment as it is based on expert judgement and interpretation of appropriate data, where available. Utilisation of the hazard analysis data from Regional Steering Groups combined with the multi-agency/department perspectives brought balance to the process and their combined expert judgement provides assurance in relation to the validity of the overall risk matrix.

4.2. Classification of Likelihood

Ranking	Classification	Likelihood
1	Extremely Unlikely	May occur only in exceptional circumstances; Once every 500 or more years.
2	Very Unlikely	Is not expected to occur; and/or no recorded incidents or anecdotal evidence; and/or very few incidents in associated organisations, facilities or communicates; and / or little opportunity, reason or means to occur; May occur once every 100-500 years.
3	Unlikely	May occur at some time; and /or few, infrequent, random recorded incidents or little anecdotal evidence; some incidents in associated or comparable organisations worldwide; some opportunity, reason or means to occur; may occur once per 10-100 years.
4	Likely	Likely to or may occur; regular recorded incidents and strong anecdotal evidence and will probably occur once per 1-10 years.
5	Very Likely	Very likely to occur; high level of recorded incidents and/or strong anecdotal evidence. Will probably occur more than once a year.

4.3. Classification of Impact

Ranking	Classification	Impact	Description
1	Very low impact	Life, Health, Welfare	Limited number of people affected; 0-4 fatalities and limited number of minor injuries requiring first aid treatment.
		Environment	Simple, localised contamination.
		Infrastructure	<4M Euros.
		Social	Localised disruption to community services or infrastructure (<48 hours).
2	Low impact	Life, Health, Welfare	4-8 fatalities; considerable number of people affected; serious injuries with hospitalisation and medical treatment required. Localised displacement of a considerable number of people for 2-8 days. Personal support satisfied through local arrangements.
		Environment	Simple, regional contamination, effects of short duration.
		Infrastructure	4-24M Euros.
		Social	Community functioning with considerable inconvenience.
3	Moderate impact	Life, Health, Welfare	Significant number of people in affected area impacted with multiple fatalities (8-20), multiple serious or extensive injuries (20), significant hospitalisation. Large number of people displaced for 2-8 days or possibly beyond; up to 4000 evacuated. Regional resources required for personal support.
		Environment	Heavy contamination localised effects or extended duration.
		Infrastructure	24-80M Euros.
		Social	Community only partially functioning, some services available.

4	High impact	Life, Health, Welfare Environment Infrastructure Social	20 to 50 fatalities, up to 100 serious injuries, up to 16000 evacuated. Heavy contamination, widespread effects or extended duration. 80-200M Euros Community functioning poorly, minimal services available.
5	Very high Impact	Life, Health, Welfare Environment Infrastructure Social	Large numbers of people impacted with significant numbers of fatalities (>50), significant injuries in the hundreds, more than 16000 evacuated. Very heavy contamination, widespread effects of extended duration. >200M Euros. Serious damage to infrastructure causing significant disruption to, or loss of, key services for prolonged period. Community unable to function without significant support.

* Note: Infrastructure costs alone will not normally warrant a rating of “very high impact”.

SECTION 1. National Risk Register

The matrix for each category of hazard (natural, transportation, technological and civil), accompanied by a summary of the rationale underpinning each individual hazard, is presented below.

5.1. Natural Hazards

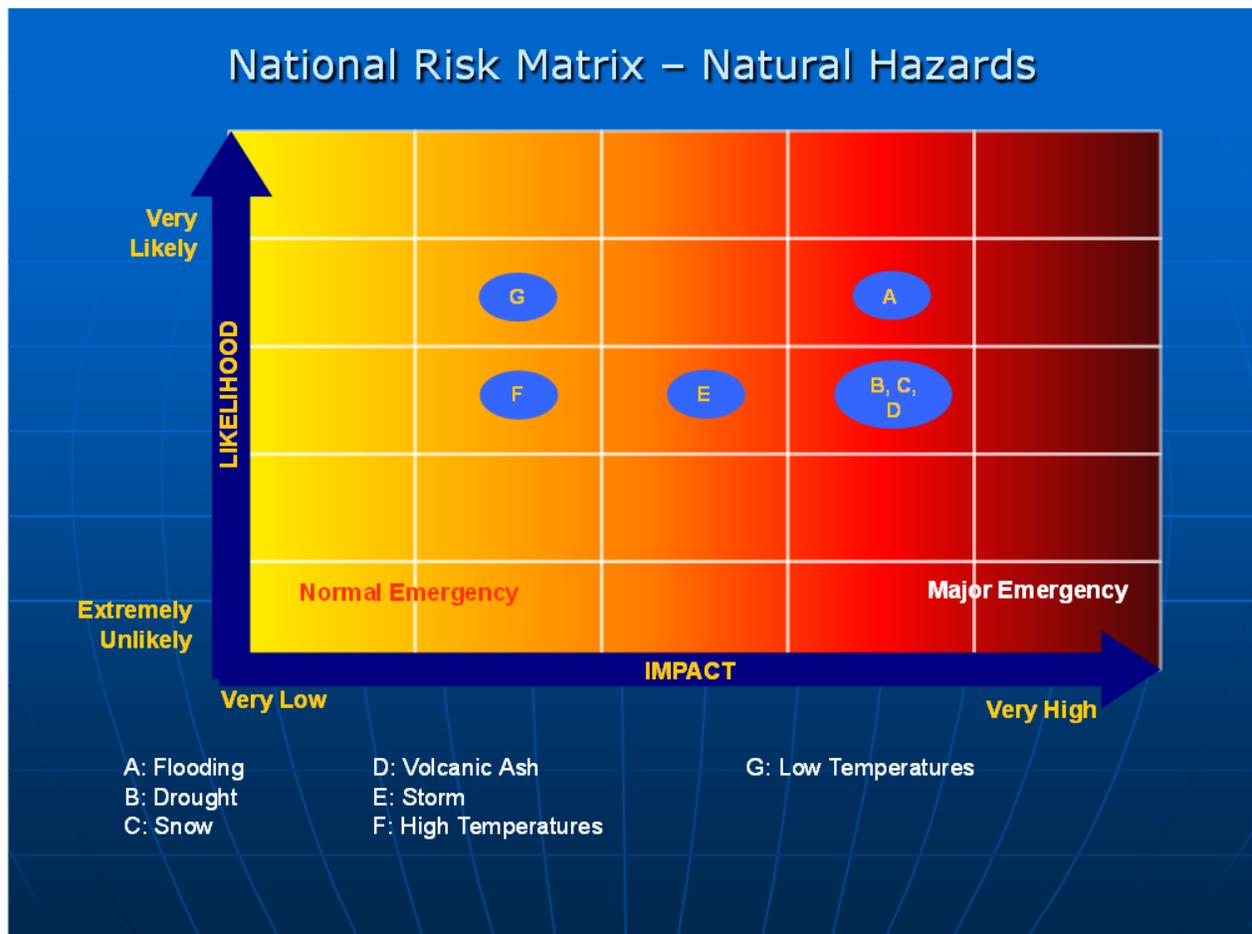


Figure 3: Natural Risk Matrix

5.1.1. Severe cold/heavy snow

The dominant influence on Ireland's climate is the Atlantic Ocean. Consequently, Ireland does not usually suffer from the extremes of temperature experienced by many other countries at similar latitude. However, Ireland has seen periods of severe cold weather during recent winters – most recently in early and late 2010. Comparable winters (over recent decades) were the extensive snow of January 1982, the winter of 1978/79, the very cold winter of 1962/63, and the late (February/March) cold spell of 1947.

Such severe winters occur roughly once every ten years, so the percentage chance of any winter being severe is approximately 10%

The response to the second period of severe cold weather that hit in late 2010 saw a marked improvement from earlier that year in terms of both the State's response and community resilience. Key roads were kept open, public transport continued to operate and food, fuel and power continued to be provided. There was also a significantly better self-help approach by communities and individuals and more awareness amongst the public of the need to help vulnerable friends and neighbours. In general, there is not a significant residual impact from a snow event, but the day-to-day impact on the individual (e.g. heating/travel) and on the State (e.g. transport disruption) can be significant. A "Winter-Ready" information campaign was launched by the Government in November, 2011 which provided practical advice and guidance to the public.

Since 2010, a number of measures have been taken to improve resilience in the event of extreme cold weather/heavy snow, including an improvement in salt supply, management and storage; improved arrangements by local authorities; an increased allocation of resources and improved snow clearing arrangements at airports. Met Éireann operates a weather-warning system and it liaises with Local Authorities and other response Agencies when severe weather is forecast.

5.1.2. Flooding

Atlantic depressions passing over Ireland can result in periods of unsettled weather. Extended periods of heavy rainfall can result in fluvial flooding. We have seen extensive flooding occurring in different parts of the country approximately once every decade. However, we have had a number of significant floods in recent years. The rainfall that occurred in October/November 2009 resulted in severe and prolonged flooding in many river catchment areas. Houses, businesses and institutional premises were damaged with resulting displacement of people, disruption and loss. On 24 October 2011, significant pluvial flooding occurred in the greater Dublin area. This resulted in damage to property, disruption of travel and, tragically, the death of two people in Dublin City and County Wicklow.

There are a number of measures being undertaken to prevent/mitigate the effects of flooding. The Office of Public Works has an on-going engagement with the Principal Response Agencies to ensure adequate information sharing on flood risk data especially the information emerging from the Catchment Flood Risk, Assessment & Management Programme. In recent years significant flood relief projects have been undertaken in previously affected areas. The Office of Public Works has made proposals in regard to a national flood forecasting and warning system and these are currently being examined.

The rainfall that occurred in late October/early November 2009, when totalled over a period of 25-30 days, was the highest on record at many weather stations throughout the country. The flooding that hit

Dublin and its environs on 24 October 2011 saw Casement Aerodrome record the greatest daily rainfall total for the month of October, since records began there in 1954. Met Éireann plays an important role in providing weather warnings. It is currently introducing an improved weather warning system which involves re-casting of national weather warnings to ensure alignment with the European meteorological warning system “Meteoalarm”.

5.1.3. High temperatures/drought

Periods of prolonged high temperatures (30 degrees Celsius +) are rare in this country - perhaps every 40 years or so. Prolonged high temperatures can impact on the elderly and/or people with an underlying medical condition. Extended spells of dry weather can cause difficulties particularly in areas where the supply of drinking water is, in normal conditions, approaching full capacity. Drought can have a big impact on the agriculture sector and can increase the risk of forest fires. Some climate change studies suggest that drought may become more common in the future.

5.1.4. Volcanic Ash

European air traffic was disrupted during April and May 2010 by an ash plume caused by the violent and sustained eruption of the Eyjafjallajökull volcano in Iceland. The ash plume rose to over 30,000 feet and was blown south and eastwards. For periods, European flight paths and the northern flight paths to the USA were closed to commercial traffic. Widespread disruption was caused and the situation impacted on flights into and out of Irish airports during this period.

The Department of Transport and the Office of Emergency Planning immediately convened a meeting of the Government Task Force on Emergency Planning and the National Emergency Coordination Centre was activated. This group met throughout April and May 2010 to deal with the situation. The Department of Foreign Affairs Crisis Response Centre was activated during the period and together with its local Consular services abroad dealt with thousands of enquiries from the public stranded abroad. Ferry companies and bus companies played a major role in assisting people returning home.

The eruption of Eyjafjallajökull has demonstrated that, given certain meteorological conditions, volcanic eruptions in the North Atlantic region can have an impact on Ireland. The Irish Aviation Authority monitors the situation and maintains contact with the Volcanic Ash Advisory Centre, Met Éireann, the Department of Transport, airlines, airports and European air traffic service providers.

5.1.5. Storm

Storms are defined as events producing winds of mean speed above 65 km/h (40mph approx) and gust speeds in excess of 110 km/h (68mph approx). Such events are experienced in the west and northwest of Ireland typically two or three times each year, but their impact there is usually very low. Storms of moderate impact occur with either higher wind speeds or the experience of wind speeds as above in more populated regions, where vulnerability is enhanced. Storms of moderate impact are typically experienced over Ireland once every two or three decades. Storms can usually be forecast with good accuracy three or four days ahead, allowing some mitigating actions to be taken, but damage to infrastructure (buildings, power lines) and disruption to transport (air, marine and surface) is usually unavoidable. Storms of moderate impact have a typical duration (in terms of their impact on any one location) of circa 12 hours.

Met Éireann maintains a 24-hr weather watch at its Central Analysis and Forecast Office in Dublin and will usually provide advance notice of severe storms several days ahead, as well as issuing formal weather warnings as appropriate.

5.2 Transportation Hazards

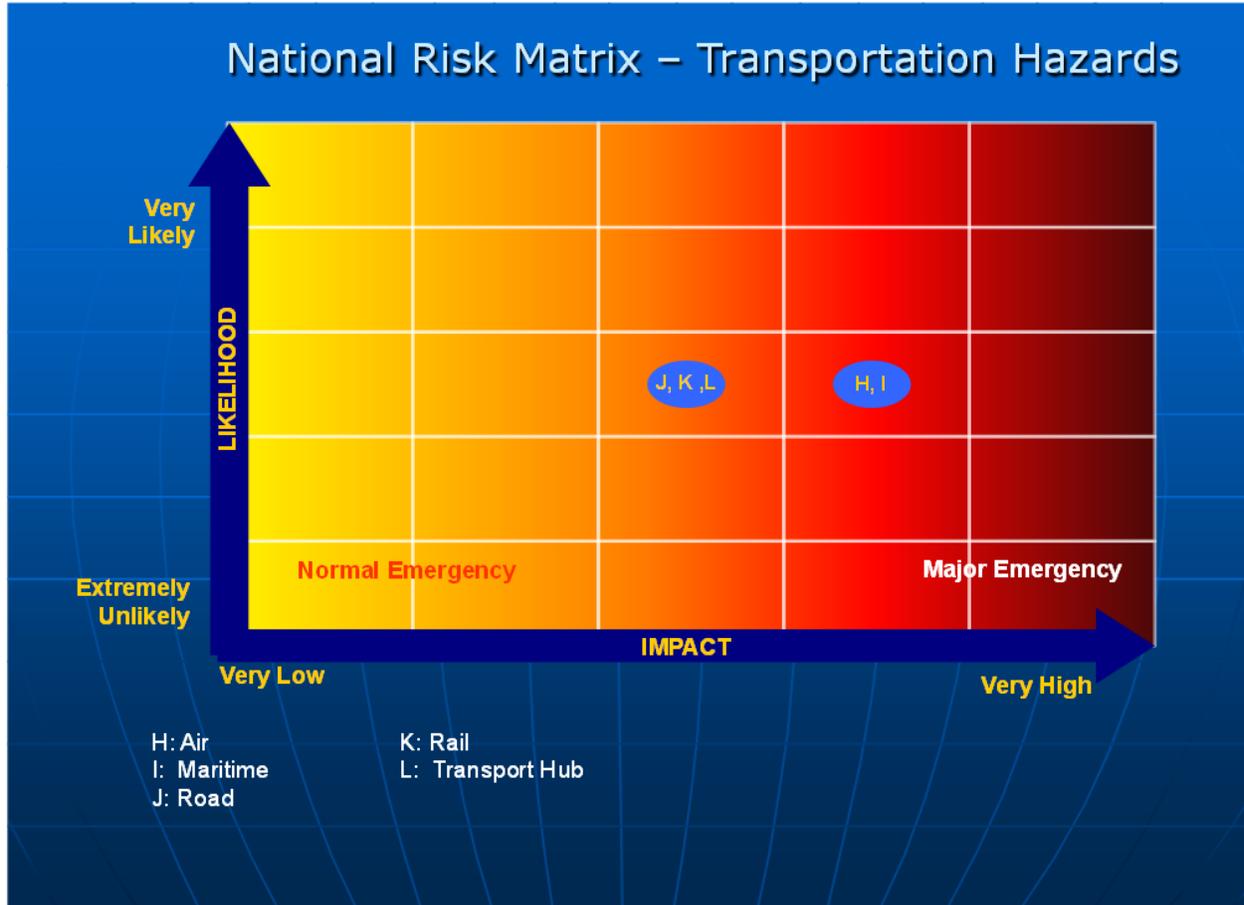


Figure 4: Transportation Risk Matrix

5.2.1 Land, Air and Transport Hub Hazards

Transport accidents that impact at a national level are rare. However, there have been road, rail and air accidents which have resulted in significant loss of life and serious injury - the Buttevant Rail Crash that occurred in 1980 and the Air India crash which happened off the Coast of Kerry in 1985. This latter emergency represented a new international dimension for those working in the emergency services, and indeed for the government. Dealing with mass fatalities was another area of emergency management which had not been experienced by those working in the region.

A regional major emergency was declared on 10th February 2011, when a Manx2 Flight with two crew and ten passengers crashed on landing at Cork Airport. Six persons survived the crash but tragically six people on-board the aircraft lost their lives.

The Principal Response Agencies coordinate their preparedness in the eight MEM regions and carry out regular exercises to test the response and coordination arrangements for responding to transport related emergencies. Pre-planning, training and exercising are invaluable to all Agencies in preparing for a major transport and other emergencies. Regulatory measures are in place to mitigate and minimize risks.

5.2.2 Maritime Hazards

As an island nation, the sea is an important resource to Ireland. The Irish maritime area comprises an exclusive territory of approximately 350,000 square miles, which has strategic economic, social and environmental value. We live in a society which simply could not function if it were not for shipping. Global trade and travel have consequences and maritime accidents at sea may be viewed as inevitable. A maritime rescue scenario involving a ferry or cruise vessel off our coast, a shipping transportation accident, or a vessel at sea coming ashore in an uncontrolled manner during severe weather, are all potential hazards. The majority of maritime incidents will lead to oil spills or other toxic pollutant releases. To date Ireland has been fortunate suffering only relatively minor spills such as from a Russian aircraft carrier, Admiral Kuznetsov, which spilled approximately 500 tonnes off the south west coast in 2009. A major accident causing pollution could have devastating consequences for aquaculture and the coastal leisure and tourism sector. The Irish Coast Guard has responsibility for maritime search and rescue and marine pollution preparedness and response.

5.3. Technological Hazards

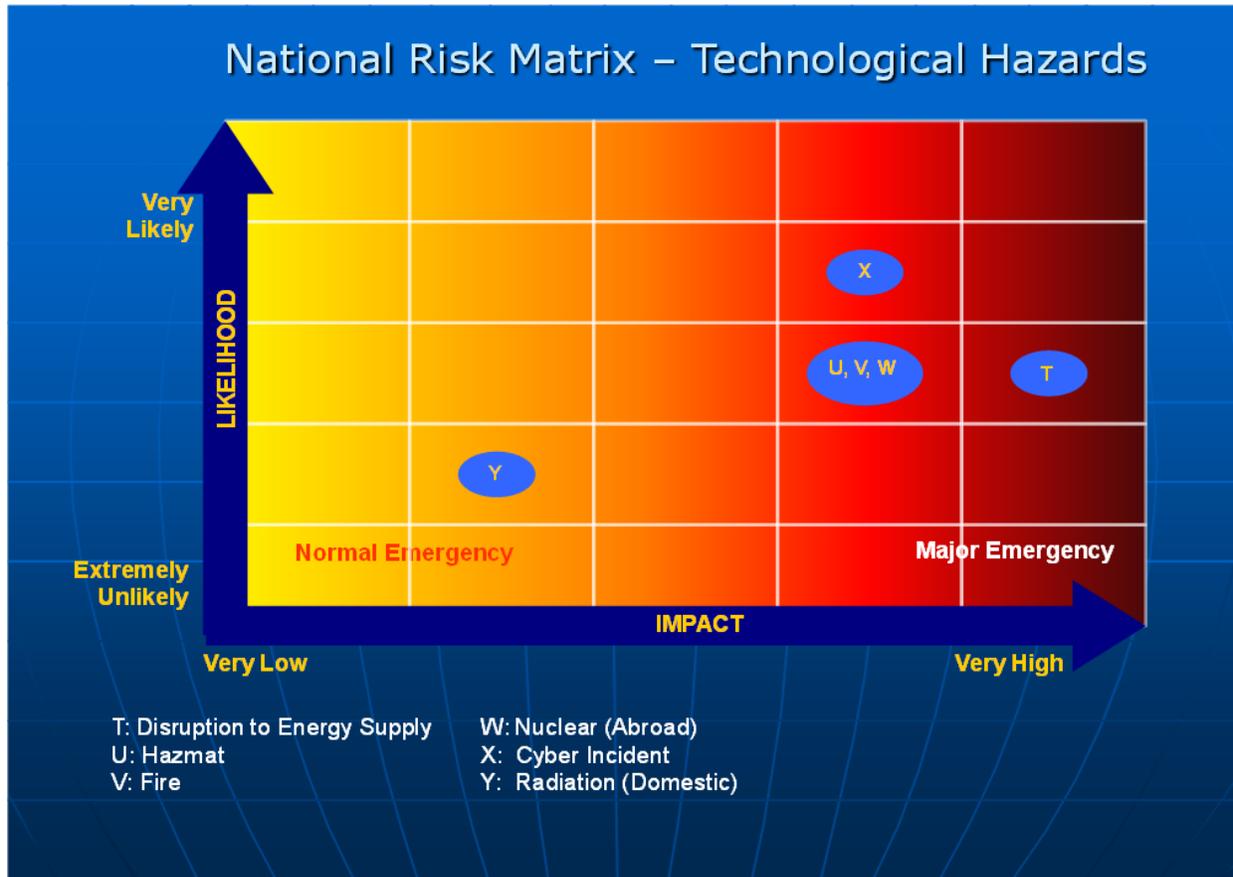


Figure 5: Technological Risk Matrix

5.3.1 Industrial Incident/Hazmat

Major Industrial Accidents are always a concern – even in a country which has a relatively low level of industrialization. Ireland has a total of 43 Upper Tier SEVESO sites and 50 Lower Tier SEVESO sites (2012). Although these numbers are low, there tends to be a concentration of risk in that many of the sites are located in either the greater Dublin area or close to Cork city – both large centres of population. A serious industrial accident would test the resources of the emergency services in both regions. The explosion and resulting fire that occurred at the Whiddy Oil terminal in January 1979 remains Ireland’s most deadly maritime/industrial disaster, with the loss of fifty lives.

5.3.2 Fire

Fire is a hazard that impacts directly on people in terms of their immediate safety or it can cause widespread damage to property or the environment. The fire that occurred in the Stardust ballroom on 14

February, 1981 remains one the most tragic events of our recent history. Following the tragedy a new legislative framework was put in place under the Fire Services Acts 1981 and 2003.

In June, 2009, a National Directorate for Fire and Emergency Management was established in the Department of Environment, Community and Local Government. This Directorate provides guidance, policy and protocols on the coordination of fire and rescue services and the effective management of fire-related emergencies.

5.3.3 Nuclear Incident (abroad)

The Radiological Protection Institute of Ireland plays a central role in monitoring exposure to radiation and by regulating and licensing users of radiological material. The Institute's work ensures that Irish people and the environment are adequately protected from the harmful effects of radiation. An accident or terrorist attack at a nuclear installation abroad has the potential to cause widespread low level radioactive contamination of the environment in Ireland, potentially leading to an increased long term risk of cancer in the population. The level of increase in risk to the individual is dependent on the degree of radiation exposure. Given Ireland's distance from any nuclear facilities, the risks of radiation exposure following a nuclear incident are mainly posed by the consumption of contaminated foodstuffs and to a lesser extent by people being directly exposed while outdoors during the passage of the radioactive plume overhead. No immediate health effects would occur as a result of radiation the low level doses received. The introduction of appropriate food controls and agricultural measures could substantially reduce the radiation exposure of people following a nuclear incident.

Disruption of the economy would be the greatest impact through loss of markets for agricultural produce, loss of tourism earnings and possible lost working days in industry. A National Emergency Plan for Nuclear Accidents (NEPNA) and specific supporting sub-plans for the key Departments and Agencies involved in the NEPNA are in place. The Department of the Environment, Community & Local Government (DECLG) has the lead responsibility for coordinating the response especially in the early crisis phase of the emergency. The most recent incident occurred in March 2011 at the Fukushima-Daiichi nuclear power plant caused by the severe earthquake and subsequent tsunami off the coast of Japan. In line with EU regulations to limit possible risks to food safety, Ireland introduced controls on imports of food and feed originating in or consigned from Japan. All imports tested were found to comply with EU limits.

5.3.4 Radiation Incident (Domestic)

An accident leading to breach of radioactive source's containment could result in radiation exposure of people in the immediate vicinity and/or a spill leading to contamination of the surrounding area with a

danger of radiation exposure of persons in the vicinity or emergency services workers. The use storage disposal and transport of radioactive sources within or in/out of Ireland is licensed by the Radiological Protection Institute of Ireland. There are a number of safeguards/mitigation measures in place. In the case of certain categories of licensees, intervention plans are required under the licensing system. These are prepared by the licensees and submitted to the RPII and the relevant Local Authority. Other safeguards are in place including measures around packaging and labelling and the appointment of a radiation protection advisor and/or dangerous goods safety advisor, as appropriate.

5.3.5 Cyber Incident

Worldwide day-to-day activities in government, health, transport, manufacturing, finance, power generation, education and a myriad of other commercial and social interactions are underpinned by national and commercial information and communications technology (ICT) infrastructure. At individual national and transnational levels, significant dependency on ICT exists. Consequently, the protection of cyber space has become a primary issue for most countries.

The Department of Communications, Energy and National Resources (DCENR) regulate much of the State's telecommunications infrastructure and it is the Lead Department for this area. Cyber threats are becoming increasingly more sophisticated and potentially damaging and require a well-planned and coordinated response from the State.

5.3.6 Disruption to Gas/Electricity Supply/Oil

The economy and all consumers depend on secure, reliable and safe supplies of electricity, gas and oil. As all economic activity is dependent on an energy supply, a major disruption to our supplies of electricity, gas or oil would have a very high effect on Ireland's economy. Therefore, it is a key priority that risks to the security of these supplies are identified and their impacts understood as fully as possible. The Department of Communications Energy and Natural Resources is taking this work forward in a number of ways including, implementing EU requirements regarding the assessment and management of risks to energy security, working with the ESRI to quantify the costs to the economy of a major energy disruption and working with key players to link energy emergency plans with The Framework.

Ireland, as a small peripheral energy market, which currently imports most of its gas requirement and all of its oil and is reliant on gas to generate over 60% of its electricity is vulnerable to the energy implications of geo-political events or natural disasters. Events such as the Russia/Ukraine gas crisis of 2009, and the Japanese tragedy and the loss of Libyan oil supplies of 2011, have not directly affected Ireland in terms of availability of energy supplies. However, such external events do impact on Ireland, as

on all economies, in the form of increases in global oil and gas prices (which also impacts on electricity prices).

With 80% of EU demand for oil, and 60% of EU demand for gas, now being met by imports from outside the Union, energy security has moved to the top of the EU agenda in recent years. Given Ireland's position as a peripheral European energy market, it is of crucial importance for us that the EU has a strong and coordinated policy on energy security that allows it to take a strong and united position with third country energy suppliers, thereby helping to safeguard energy supplies for all Member States, in particular those, such as Ireland, with smaller energy markets.

The Commission for Energy Regulation has responsibility for monitoring and ensuring security of electricity and gas supplies in Ireland. Government, Regulatory Authorities and industry continue to work towards diversifying secure energy supplies and enhancing emergency planning and response arrangements.

The Department of Communications Energy and Natural Resources holds overall responsibility for maintenance of our national oil reserves. Its role includes maintaining and updating contingency plans, liaising with other departments and with the National Oil Reserve Agency (NORA) as well as with the oil industry. Out of a total reserve supply of 90 days, NORA currently holds approx 2/3rds of this on the island of Ireland and is developing storage facilities with a view to increasing the in-country component.

5.4 Civil Hazards

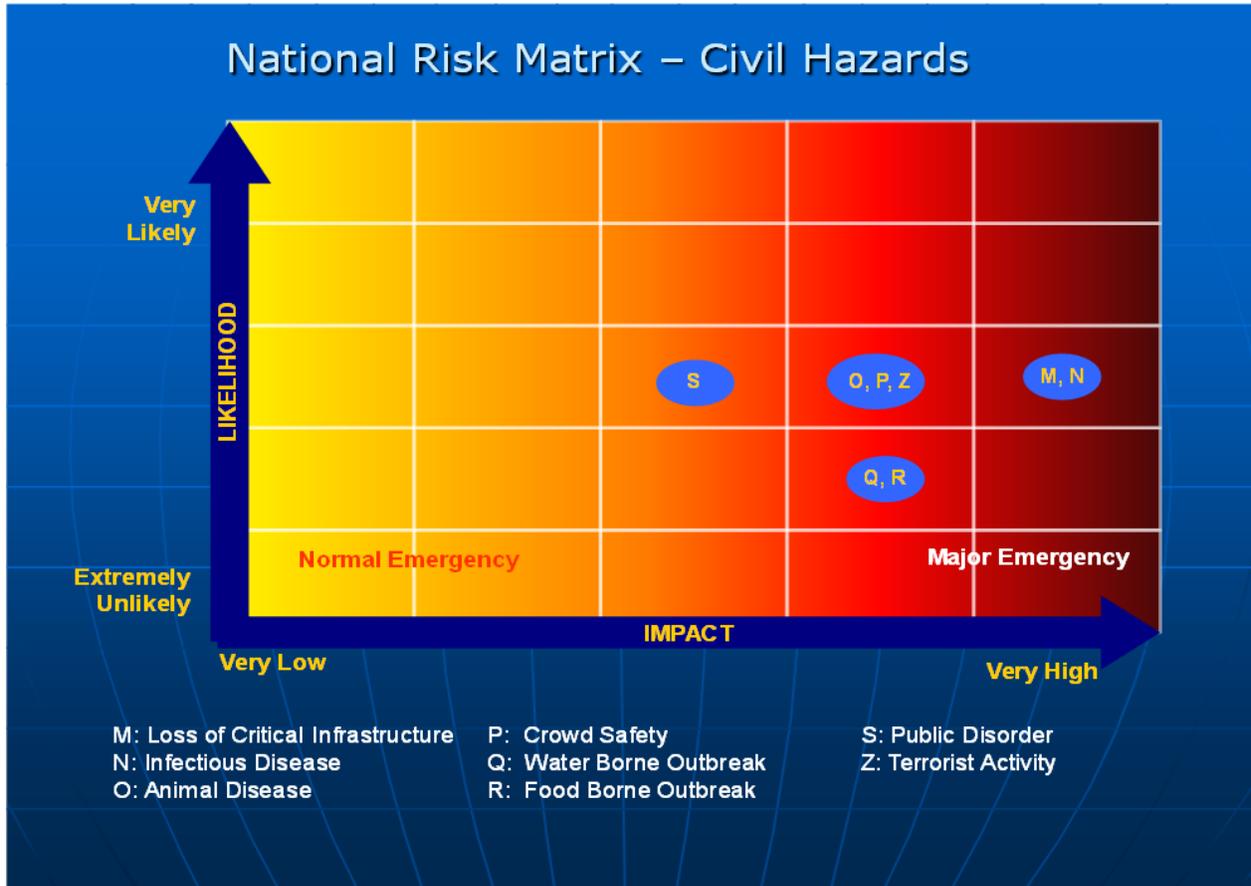


Figure 6: Civil Risk Matrix

5.4.1. Infectious disease including pandemic

Influenza pandemics have occurred over the centuries across the globe. In April 2009 a public health alert was issued by the World Health Organisation indicating that human cases of pandemic influenza (H1N1) 2009 virus infection had been identified in the US and in Mexico. Following that alert, the Department of Health and Children and the Health Services Executive activated the national plan for pandemic influenza. The National Public Health Emergency Team, which manages the health system response to a public health emergency and the Inter-Departmental Committee on Public Health Emergencies, coordinated the inter-sectoral response. The Department of Health and the HSE maintained close contact with the European Centre for Disease Control and with public health officials in other European Member States and with the World Health Organisation.

Nationally, during the period of the alert, children and young adults were the worst affected groups with 80% of cases being persons under 35 years of age. Vaccination was a key strategy used to mitigate the

effects of the pandemic. In excess of 1,000 cases of confirmed pandemic influenza were hospitalised and 100 admitted to Intensive Care Units. Sadly, there were 27 deaths in this country.

It is impossible to predict the likelihood and impact of future influenza pandemics. However, historical evidence shows us that pandemics will occur and that they have the potential to cause death and illness on a significant scale and to disrupt normal social and economic activity. In recent years there has also been anxiety internationally over a range of other infectious diseases such as SARS.

5.4.2. Terrorist Activity

Acts of terrorism include a wide variety of activities including, but not limited to, bombings, shootings, kidnapping and malign CBRN. An Garda Síochána and the Defence Forces provide the Government with an assessment of the current security threat.

The risk of a malign CBRN incident in this country is deemed to be low. However, wider availability of technical information/materials has resulted in an increased capability of terrorist/criminal groups worldwide. The Department of Justice and Equality is the Lead Department and An Garda Síochána is the Lead Agency in responding to a malign CBRN incident.¹⁰

5.4.3. Loss of Critical Infrastructure

At national level critical infrastructure includes airports (including Air Traffic Control), ports, power and communications networks, transport networks, water supply etc. It is the responsibility of each Department to manage its risks and to ensure that the Agencies or Bodies that fall within its remit have robust risk management systems in place. It is notable that much of our critical infrastructure is now managed by commercial and semi-state bodies.

The inter-dependence of our essential services means that the “domino effect” of a disruption to one piece of critical infrastructure can be significant in terms of the functioning of other key services.

Events such as severe weather can put critical infrastructure such as electricity supply under strain. The severe cold weather that occurred in 2010 impacted on domestic, social and commercial life. A Severe Weather Coordination Group involving Government Departments, Specialist Agencies, the Principal Response Agencies as well as the public transport providers was convened and worked throughout that severe cold period to deal with cross-cutting issues at the national level. This “Whole of Government” approach is essential to ensure that the critical infrastructure that underpins daily life is maintained.

¹⁰ Department of Defence, 2004, “Strategic Emergency Planning Guidance Document”, Available from: www.emergencyplanning.ie

5.4.4. Foodborne Outbreaks

There are extensive measures in place to monitor and prevent contamination from food products. The Food Safety Authority of Ireland (FSAI) is the national body with responsibility for enforcing food safety law in Ireland. Its purpose is to protect public health and consumer interests in the area of food safety. The Authority's principal function is to take all reasonable steps to ensure that food consumed, distributed, marketed or produced in Ireland meets the highest standards of food safety and hygiene.

The agencies and departments involved in food safety have experience in prompt coordinated response to significant alerts as evidenced in the recall of pork in December 2008. All involved moved quickly to identify the source and extent of the contamination and effective action was taken. It is noted that such incidents are extremely rare. The FSAI is also the Irish central contact point for the EU Rapid Alert System for Food and Feed (RASFF) which provides authorities with an effective tool to exchange information about measures taken in response to serious risks detected in food or animal feed.

5.4.5. Waterborne Outbreaks

This is an area that is being managed under the aegis of the Department of the Environment, Community and Local Government. The quality of our water supply is constantly monitored in association with the health services.

5.4.6. Animal Diseases

Transmissible diseases that have the potential for very serious and rapid spread, irrespective of national borders, that are of serious socio-economic or public health consequence and that are of major importance in the international trade of animals and animal products are subject to European legislative control measures. Such diseases include foot and mouth disease, avian influenza, Newcastle disease, classical swine fever and bluetongue. The control measures that must be implemented for most diseases include slaughter of infected herds/flocks, disposal of the carcasses, cleaning and disinfection of the premises, tracing of animals, products, people and vehicles to stop the spread of disease, and the introduction of movement control zones. For some diseases (in particular vector-borne diseases such as bluetongue) the most appropriate response is to introduce vaccination, if suitable vaccines are available. Contingency plans exist for the management of outbreaks of the most significant of the diseases listed above.

Outbreaks of some diseases (e.g. foot and mouth disease) can have a major impact on trade in animals and animal products. The extent of this impact will depend on the nature of the disease, the timing, location, extent and duration of the outbreak, and the trading situation at the time.

Other industries such as tourism may also be affected. Some diseases may have a direct impact on human health (e.g. avian influenza) or may be a source of major public concern.

The last outbreak of foot and mouth disease occurred in Co. Louth in 2001. There were major costs to the farming industry due to restriction on livestock movements, export bans to some non-EU markets, export bans on animals and products from Co. Louth, loss of stock due to culling and higher prices for livestock. However, as a result of concurrent outbreaks in the UK, France and the Netherlands, these losses were mitigated by increased exports to other EU Member States. There was also an impact on the tourism sector due to a decline in overseas visitors and changes in domestic tourism patterns.

5.4.7. Crowd Safety Incident

Crowd safety at major events such as sporting occasions or concerts requires a coordinated approach from all stakeholders. The event organizer, the venue management, An Garda Síochána, the Local Authorities, the Health Services Executive and other Agencies all have a role to play. There are regulations in place in respect of fire safety and Local Authority approval/licensing is required for certain types of events. Crowd safety is currently being reviewed at an inter-agency level to address further inter-agency coordination arrangements for mitigation and response.

5.4.8. Public Disorder

It is a function of An Garda Síochána to preserve peace and public order. An Garda Síochána actively works with other agencies to ensure that order is maintained and preserved. When public disorder occurs An Garda Síochána uses the principle of graduated response, meaning that only such force as is necessary to deal effectively with the disorder is utilized.

SECTION 6. NATIONAL RISK MATRIX



Figure 7: National Risk Matrix

6.1. Current Assessment.

The data from the four individual hazard risk matrices has been consolidated into the National Risk Matrix above. This National Risk Matrix represents the current assessment of relative risk for the key hazards in Ireland. This assessment is based on expert judgement and the interpretation of appropriate data, where available. This matrix should be used to guide mitigation, planning and preparedness activities at national and regional levels. The matrix will be reviewed annually and in response to a change in the risk environment.

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