**WMO Hazard/Risk Workshop 10-14 June 2013**

**Geneva**

**Response of the UK to pre-workshop Questionnaire**

1. **National Hazard Programme**
2. Does your country have a National Hazard Programme that focuses on natural and man-made hazards occurring in your country? If yes, please provide the following details about the programme:

*The UK’s Natural Hazards Partnership (NHP) provides information, research and analysis on natural hazards for the development of more effective policies, communications and services for civil contingencies, governments and the responder community across the UK. The focus is on natural hazards that disrupt the normal activities of UK communities or damage the UK’s environmental services. The Partnership comprises a consortium of public bodies, mainly government departments and agencies, trading funds and public sector research establishments.*

1. By what authority is the hazard programme established (e.g. government, legislation, and other legal instruments)?

*While the NHP has no legislative authority it is strongly supported by the Civil Contingencies Secretariat within the UK Cabinet Office.*

1. What are the goals of your country’s National Hazard Programme?

*The aims of the NHP are:*

* *to provide a timely, common and consistent source of advice to government and emergency responders for civil contingencies and disaster response.*
* *to deliver a forum for the exchange of knowledge, ideas, expertise, intelligence and best practice in matters relating to natural hazards.*
* *to provide a common and consistent source of advice to government and emergency responders for civil contingencies and disaster response and*
* *to provide an environment for the development of new supporting services.*
1. Please list the agencies that are involved in the programme by specifying whether there is :
	1. A lead agency and if so what is the agency and its mandate
	2. Other agencies and their roles and responsibilities

*The NHP consists of the following organisations:*

* [*Environment Agency*](http://www.environment-agency.gov.uk/)
* [*Flood Forecasting Centre*](http://www.ffc-environment-agency.metoffice.gov.uk/)
* [*Public Health England*](http://www.hpa.org.uk/)
* [*Health & Safety Laboratory*](http://www.hsl.gov.uk/)
* [*Met Office*](http://www.metoffice.gov.uk/)
* [*Natural Environment Research Council (NERC)*](http://www.nerc.ac.uk/)
* *NERC British Geological Survey*
* [*NERC Centre for Ecology and Hydrology*](http://www.ceh.ac.uk/)
* [*NERC National Centre for Atmospheric Science*](http://www.ncas.ac.uk/index.php/en/)
* [*NERC National Oceanography Centre*](http://noc.ac.uk/)
* [*Ordnance Survey*](http://www.ordnancesurvey.co.uk/oswebsite/)
* [*Scottish Environment Protection Agency*](http://www.sepa.org.uk/)
* [*UK Space Agency*](http://www.bis.gov.uk/ukspaceagency/)

*In addition, the following stakeholders are members of the NHP Steering Group:*

* [*Cabinet Office*](http://www.cabinetoffice.gov.uk/)
* [*Dept for the Environment, Food and Rural Affairs*](http://www.defra.gov.uk/) *(DEFRA)*
* [*Government Office for Science*](http://www.bis.gov.uk/go-science/)
* [*Scottish Government*](http://home.scotland.gov.uk/home)
* [*Welsh Government*](http://wales.gov.uk/?lang=en)
1. How is the National Hazard Programme coordinated institutionally, and operationally?

*The work of the NHP is guided by a Board and a Steering Group comprising strategic representatives of the partner organizations. The operational product (Daily Hazard Assessment) is produced by the Met Office’s Hazard Centre, a 24/7/365 facility within the Met Office’s Operations Centre in collaboration with partner agencies as required.*

1. What are the concrete products and services of your country’s National Hazard Programme (e.g., National Hazard Data Platform, analysis and advisories, etc.)? Who are the beneficiaries and how are they engaged in the product / service development process.

*Under the auspices of the NHP, the Met Office Hazard Centre produces a Daily Hazard Assessment providing an at a glance summary of a range of natural hazards that could affect the UK. The hazards assessed are:*

* *Weather*
* *Flooding*
* *Extreme Temperatures*
* *Lightning*
* *Hail*
* *Air Quality*
* *Aero Allergens*
* *Space Weather*
* *Volcanic Ash*
* *Landslide*

*In addition, other observed hazards are noted in the summary i.e. earthquakes, droughts, wildfires and expected or observed space objects re-entering the atmosphere.*

*As well as the Daily Hazard Assessment, the Natural Hazard Partnership has drawn together some pre-prepared scientific advice on natural hazards for use by government and responders in times of emergencies.*

1. Who are the direct and indirect beneficiaries of your country’s National Hazard Programme?

*Currently the products are still in a development phase and so distribution of them is directed largely at government departments and agencies within the partnership. However it is planned that they should be made available to all emergency response organizations in the near future.*

1. If your country has established a national hazard database, which hazards are included in this database? How have the standards for this database been developed?

*Work is beginning on the feasibility of establishing a hazard database. It is intended that the hazards listed above should all be included in such a database.*

1. For disasters caused by hydrometeorological and climate hazards in your country, does your country conduct a post disaster review and associated documentation? If yes, does the documentation include the historical data and information that characterized the hazard(s) that triggered the disaster? Where is this documentation archived and does the National Hazard Programme utilize the data and information or have access to it?

*Following any hydrometeorological event/disaster, reviews of the incident and the response to it are conducted at local and/or national level as appropriate to the scale of the event. Currently there no national repository for these debriefs but, if appropriate, reports would be made available to the Natural Hazards Partnership.*

1. **Hazard Definition, Detection and Monitoring**
2. For each hazard listed in Table 1, please either fill in the Table or develop a document that provides information requested in each column.
3. For each hazard, please specify what is the observing network (in situ, satellite) that is used to collect the various parameters
4. Please describe your country’s hazard monitoring capacities by specifying the Tools for hazard monitoring (e.g., software, visualization tools, etc.)

*The following summary is presented in place of Table 1*

***Strong Winds, Heavy snow, Freezing rain, Dense fog, Hailstorm, Thunderstorm or lightning, Tornado (rotational high winds)***

*The Met Office is the agency responsible for collecting data for these hazards. Data are collected through the normal meteorological observing network (including radar and satellite imagery). Warnings for Wind, Snow, Rain, Ice and Fog are issued through the National Severe Weather Warning Service (NSWWS). Since March 2011, NSWWS warnings have been risk based rather than threshold based. They are issued after an assessment of the likelihood and the potential impacts of the weather. (see* [*http://www.metoffice.gov.uk/guide/weather/warnings*](http://www.metoffice.gov.uk/guide/weather/warnings)*).*

***Drought, Flash and river floods, River flooding, Storm surge, Coastal flooding***

*Environmental agencies in each of the UK countries have devolved responsibility for flooding risks - Environment Agency (EA) in England, Scottish Environmental Protection Agency (SEPA) in Scotland, Natural Resources Wales (NRW) in Wales, DARDNI Rivers Agency (NIRA) in Northern Ireland. These agencies observe and maintain records of river levels in their areas of responsibility. Some work has been done in recent years to try to record information on vulnerable spots re-surface water flooding. Flood maps are available in relation to the risks of river and coastal flooding with warnings issued by the appropriate agencies for vulnerable areas.*

*The Flood Forecasting Centre (a partnership between the EA and the Met Office) and the Scottish Flood Forecasting Service (a partnership between SEPA and the Met Office) assess the strategic overall flood risk in England & Wales and Scotland respectively.*

*The UK Coastal Monitoring and Forecasting (UKCMF) is a partnership of public bodies (including the environmental agencies, the Met Office and the National Oceanographic Centre) who work together to provide a comprehensive coastal flood forecasting service, including storm surges.*

***Heat wave: period of abnormally high temperatures***

***Cold wave: period of abnormally low temperatures***

*The Met Office collects temperature data through the normal meteorological observing network. Regional thresholds are set by the Health Authorities in England and Wales for the purposes activating Health Service Heatwave and Cold Weather plans (England only) during summer and winter respectively.*

***Landslide or mudslide***

*The British Geological Survey are the definitive source of landslide information in the UK. Landslides are shown on its geological maps and it maintains the National Landslide Database which has over 15 000 records of landslides in Great Britain. Information is gathered from surveys and reports or as part of the Survey’s responsive work in Great Britain (see also* [*http://www.bgs.ac.uk/science/landUseAndDevelopment/landslides/home.html*](http://www.bgs.ac.uk/science/landUseAndDevelopment/landslides/home.html)*)*

***Marine hazards (storm, sea ice, icebergs, etc.)***

*The Maritime and Coastguard Agency are responsible for marine safety in UK waters. Weather forecasts and gale warnings for shipping are provided by the Met Office on behalf of the Maritime and Coastguard Agency.*

***Airborne hazardous substances (i.e., nuclear, biological, chemical, etc.)***

*The environmental and Health & Safety agencies have regulatory functions regarding the control of hazard substances and, with Fire & Rescue Services, hold records of incidents in which such substances are released into the atmosphere.*

***Waterborne hazards (i.e., nuclear, biological, chemical, oil spills, etc.)***

*The environmental and Health & Safety agencies have regulatory functions regarding the control of hazard substances and hold records of incidents in which such substances are released into watercourses*

***Hydrometeorological hazards to aviation (i.e., turbulence, icing)****The Met Office provides services to the aviation authorities with information/forecasts for aviation hazards.*

***Avalanche****The SportScotland Avalanche Information Service (SAIS) record avalanches in the Scottish mountains. A summary of the number of avalanches logged and their triggers is noted in the SAIS Annual Report.*

***Forest or wild land fire****Fire & Rescue Service hold records of incidences of forest or wild land fire. Work is being done by a group of agencies on trying to identify periods of risk for wild fire.*

***Other Hazards:***

***Space Weather****Space Weather has been identified as an Environmental hazard on the UK Risk Register. Work is being done by a number of UK agencies in collaboration with NOAA to monitor conditions on the sun and to try to predict incidences of Space Weather which might affect the UK.*

***Volcanic Ash****In recent years volcanic eruptions in Iceland have presented a significant risk to normal life in the UK, particularly affecting aviation. Considerable work is being done by various UK agencies and appropriate agencies around the world to improve the monitoring, measurement and forecasting of volcanic ash dispersion. The Met Office acts as a Volcanic Ash Advisory Centre (VAAC) for ICAO (International Civil Aviation Organisation) with responsibility for eruptions in Iceland.*

*The following hazards do not generally affect the UK.****Tropical cyclone
Smoke, Dust or Haze
Sand and dust storms
Desert locust swarm
Tsunami
Rapid melting of glaciers
Icebergs***

1. **Hazard Observation Data Archival and Management**

*Work is ongoing with the objective of bringing together, from a variety of sources, impact observations into a single impact database. This work is in its very early stages of development. Existing sources include:*

*National Meteorological Archive
Flood records of EA, SEPA and NRW in England, Scotland and Wales respectively*

*BGS National Landslide Database*

*Fire and Rescue Services national call-out register*

*Ambulance services call-out registers*

1. Please describe your country’s hazard observation data archival processes by listing the:
2. Agency(ies) responsible for maintaining the observation archives
3. Types of observation parameters archived, including the:
	1. How data quality is assured and by what standard.
	2. Archival frequency
	3. Metadata information (please provide a sample),
	4. Please provide a sample output of the database
4. Please describe your country’s hazard data management processes by specifying the:
5. Data policies and service delivery models:
	1. Including, if the data is freely accessible to the public? If not, what data is available and if there is a fee for access? Is the fee for “cost recovery” or for profit?
6. Data archival standards
7. Timeframe(s) of reliable historical data archived
8. Quality control mechanisms
9. Data restoration and reconstruction efforts (digitization). Does your country have historical data that needs to be digitized? Please specify the timeframe and scope.
10. **Hazard Analysis and Mapping**

*Work is being undertaken by the agencies involved in the NHP to look at specific hazard impacts. Work also includes the development of a Hazard Impact Model (HIM) which it is hoped will act as a framework for modeling impacts from all appropriate hazards. Currently work is ongoing to study the impact of wind (particularly on high-sided vehicles), the impacts of surface water flooding and of landslides. There are plans to increase the scope of this work, particularly with regard to weather hazards. All of this work is at a very early stage of development.*

1. If your country has a National Hazard Programme, does it:
2. Perform statistical analysis to identify the characteristics of natural hazards (e.g. intensity, frequency and probability) that affect your country? If yes, please:
	* + 1. Describe the types of analysis that are conducted and for which hazards
			2. What tools do you utilize to develop these statistics?
			3. Are these analysis’s accessible to the government agencies that are responsible for disaster risk management
			4. Are these analysis’s accessible by the general public?
			5. Please attach some samples of these statistics.
3. Develop hazard maps to identify the geographical areas and communities that could be affected by natural hazards? If yes,:
4. Describe the types of mapping that are conducted and for which hazards.
5. What tools do you utilize to develop the hazard maps (e.g. GIS platform)?
6. Are these hazard maps accessible to the government agencies that are responsible for disaster risk management?
7. Are these hazard maps accessible to the general public?
8. Please attach some samples of these maps.
9. Develop integrated hazard maps to assess the interaction of multiple natural hazards? If yes,
10. Please indicate the types of hazards are addressed by these maps (e.g. interaction of river flooding from heavy rains and storm surge flooding from a tropical cyclone).
11. Please attach samples.
12. Develop hazard forecasts (e.g. drought, heat wave, tropical cyclones)
13. Return period calculations for specific hazards
14. Climate change effects on intensity, severity, exposure patterns of specific hazards