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Data Sources for Informative Content Needs Supporting Rapid Risk Assessment of Acute Public Health Events (ICN-RRA)

An inventory of useful sources of information for RRA

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Foreword

This document tries to give a practical support to the work done by Dr. Jas Mantero ⁽¹⁾ on Identification for Informative Content Needs supporting Rapid Risk Assessment of Acute Public Health Events (ICN-RRA) (<https://ec.europa.eu/jrc/en/publication/identification-informative-content-needs-supporting-rapid-risk-assessment-acute-public-health-events>). It tries to offer the data sources where to find answers to the questions asked by health experts when they are making a rapid risk evaluation of acute public health event. The information obtained is divided on three main parts: The information related to agent and disease, the information about the potentially host of that disease and the information about the social and other contexts of this population threatened. These three main parts are divided on other parts to facilitate the classification of the information.

⁽¹⁾ Mantero, J., Doherty, B., Identification of Informative Content Needs supporting Rapid Risk Assessment of Acute Public Health Events (ICN-RRA), EUR 29049 EN, Publications Office of the European Union, Luxembourg, 2017, ISBN 978-92-79-77698-4, doi:10.2760/53486

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Abstract

Risk Assessment is considered a key part of the risk management cycle and can be defined as a process aiming to establish a level of risk for a population in relation to a specific event.

In public health, Risk Assessment implies an evaluation of a risk in terms of health for a human population exposed, or potentially exposed, to a threat. In case of outbreaks and other acute public health events, the process is commonly defined within the scientific community as a "Rapid Risk Assessment of Acute Public Health Events" (RRA).

RRA consists in an overall process of identification, analysis and evaluation of a risk for a defined human population in relation to an acute public health event. The process is performed by health organisations for health emergencies requiring immediate response and aims specifically to define possible actions to be promptly taken in order to control or mitigate the overall health risk for a population.

One of the key foundations of the RRA process is the systematic collection and documentation of reliable information about an event, the related cause, the population exposed and the specific context of occurrence. This document looks in detail at possible sources of the data previously identified in the technical report written by Dr. Jas Mantero on Identification for Informative Content Needs supporting Rapid Risk Assessment of Acute Public Health Events (ICN-RRA) (<https://ec.europa.eu/jrc/en/publication/identification-informative-content-needs-supporting-rapid-risk-assessment-acute-public-health-events>).

1 Introduction

Risk Assessment is considered a key part of the risk management cycle and can be defined as a process aiming to establish a level of risk for a population in relation to a specific event.

In public health, Risk Assessment implies an evaluation of a risk in terms of health for a human population exposed, or potentially exposed, to a threat. In case of outbreaks and other acute public health events, the process is commonly defined within the scientific community as a "Rapid Risk Assessment of Acute Public Health Events" (RRA).

RRA consists in an overall process of identification, analysis and evaluation of a risk for a defined human population in relation to an acute public health event. The process is performed by health organisations for health emergencies requiring immediate response and aims specifically to define possible actions to be promptly taken in order to control or mitigate the overall health risk for a population.

One of the key foundations of the RRA process is the systematic collection and documentation of reliable information about an event, the related cause, the population exposed and the specific context of occurrence.

At European Union (EU) level, the European Centre for Disease Prevention & Control (ECDC) is responsible for producing independent assessment of "risk to human health related to acute public health events associated with communicable diseases and outbreaks of unknown origin presenting EU relevance. Results of ECDC RRAs are made available to the European Commission and EU national health authorities through a secure restricted online platform (the Early Warning and Response System, EWRS); In addition to this activity, ECDC supports the health authorities of EU member states in developing their own risk assessment capacities at national level.

The other crucial public health international actor involved in RRA activities is the World Health Organisation (WHO). WHO performs this activity in the context of a multi-hazard approach and the risk is evaluated for events requiring immediate response potentially caused by any agent, i.e. biological, chemical, radio nuclear hazards and natural disasters. The WHO process is driven by the International Health Regulations (IHR, 2005) that require countries to develop their own internal RRA core capacities at national and at subnational level.

The European Commission Joint Research Centre (JRC) has a long experience in supporting health organisations on early detection and RRA activities. The ultimate initiative supported by JRC has been the finalization of a highly efficient system supporting epidemic intelligence in terms of threat detection, event monitoring and also a deeper level of risk assessment process, all in an adaptable way to the needs at national and international level of each organisation. The new system is called "Epidemic Intelligence from Open Sources" (EIOS) and represents an example of collaborations in RRA activities among health experts.

The EIOS system is based on the systematic detection of events through various sources, formal and informal. With the advent of communication technologies, the first news of outbreaks is originated in electronic media. More than 60% of reports of outbreaks come from informal sources, which need verification. The work done by the EIOS system consists of detecting these media events and evaluating them, to assess their veracity and risk. It focuses primarily on communicable diseases, but also identifies related conditions, such as food and water safety and chemical events.

When a significant acute public health event occurs, health organisations performing RRA activities need to be able to promptly and appropriately describe key characteristics related to: the possible cause and the specific health condition implicated, the affected population, the overall context of occurrence of the event. This multidisciplinary informative need is collectively referred as "Informative Content Needs supporting RRA" (INC-RRA).

2 Data Sources for ICN-RRA

2.1 Agent and Disease

For practical reasons, in our classification Agent and the related Disease are considered to be in the same domain of information and refer to the biological characteristics of the infectious microorganism potentially involved and to the basic description of the related health condition that may occur.

Table 1, Agent and Disease Components

AGENT AND DISEASE	AGENT AND DISEASE BACKGROUND
	EPIDEMIOLOGICAL PROFILE (WORLDWIDE)
	EPIDEMIOLOGICAL PROFILE (LOCAL)
	DISEASE EXPERTISE

2.1.1 Background

A basic description of the potential bio agent. It includes specific details on its nature, pathogenicity, virulence, transmission, circulating strains and available diagnostic possibilities. It includes also information about the clinical presentation of the related disease, information about available treatments and prognosis and about public health response, control measures and mitigation actions.

2.1.1.1.1 WHO

<http://www.who.int/mediacentre/factsheets/en/>

<http://www.who.int/emergencies/diseases/en/>

There are two pages of the WHO where we can find a list of diseases. If we select one individual disease, we can find a short description about it: agent, symptoms, diagnosis and treatment. The information is only available online, and it is qualitative information. The last updates depend on the particular disease.

2.1.1.1.2 ECDC

<https://ecdc.europa.eu/en/dengue-fever/facts/factsheet>

<https://ecdc.europa.eu/en/infectious-diseases-public-health>

These examples are very similar to the previous one. There is a list of infectious diseases. After choosing one of them, you can find a short description about the disease: agent, symptoms, diagnosis and treatment. You can find also different reports about epidemiological situation of the disease. The information is only available online, and it is qualitative information. The last updates depend on the particular disease.

2.1.1.1.3 CDC

<https://www.cdc.gov/az/a.html>

This page is also very similar to the previous one, but it is orientated to the US diseases. The information is only available online, and it is qualitative information. The last update date depends on the disease.

2.1.1.1.4 Department of Health Australian Government

<http://www.health.gov.au/internet/main/publishing.nsf/Content/Factsheets-4>

It is the Department of Health of Australia web. It shows a few information about the disease, but it is not systematic, and the contents depend on the disease. There is general information and very limited specific data. The information is only available online, and it is qualitative information. The last update date depends on the disease.

2.1.1.1.5 Public Health Agency of Canada

<https://www.canada.ca/en/public-health/services/infectious-diseases.html>

It is general information, not targeted to health specialist. The information is only available online, and it is qualitative information. The last update date depends on the disease.

2.1.2 Epidemiological Profile (Worldwide)

This component refers to specific data on the disease occurrence, mainly in terms of morbidity and mortality, in order to have an overall picture of the epidemiological situation.

2.1.2.1.1 WHO

<http://apps.who.int/globalatlas/>

This is a WHO platform to analyse and compare standardized data and statistics for infectious diseases at country, regional, and global levels, but is not currently very useful. It is not updated regularly and refers only to a few diseases. Downloaded data in excel is available and it is quantitative information.

2.1.2.1.2 WHO

<http://www.who.int/ith/en/>

This is a WHO publication concerning the principal infectious diseases around the world: transmission, epidemiology and distribution. Information about vector borne diseases and their world distribution can be found also. The whole publication was updated in 2012 but a few sections have been updated more recently. Downloaded data in pdf is available, and it provides quantitative and qualitative information.

2.1.2.1.3 ECDC

<https://ecdc.europa.eu/en/annual-epidemiological-reports>

It is about different reports about epidemiological situation of the disease. There are qualitative and quantitative information. Downloaded data in pdf is available. Last updated on 2014 vs 2015, depending on the disease.

2.1.2.1.4 ECDC

<http://atlas.ecdc.europa.eu/public/index.aspx>

This is a webpage with data on the epidemiological profile of the diseases in EU countries. The information only covers EU members. There is qualitative and quantitative information. Data is available to download. Last updates depend on the disease.

2.1.2.1.5 Global health Data Exchange

<http://ghdx.healthdata.org/>

This is a data catalogue created and supported by IHME (The Institute for Health Metrics and Evaluation) an independent global health research centre at the University of Washington. It provides information on global health and demography by country and offers reports about different subjects related to country profiles.

2.1.2.1.6 Eurosurveillance

<http://www.eurosurveillance.org/>

This is a European journal on infectious disease surveillance, epidemiology, prevention and control. You can find reports about outbreaks and different epidemiological situations in the world. There are articles and reports but not for all diseases. The information is available online but also in downloaded pdf, and it is qualitative information. The last updates depend on the disease.

2.1.2.1.7 Relief Web

<https://reliefweb.int/>

Relief Web is an online source for reliable and timely humanitarian information on global crises and disasters. We can find reports about the current outbreaks and disasters over the world: Maps, reports and infographics. The information is available online but you can also download pdf versions of reports and maps. It is qualitative and quantitative information. The website is updated daily, but each report depends on the outbreak.

2.1.2.1.8 ProMED

<https://www.promedmail.org/>

ProMED is an Internet-based reporting system dedicated to rapid global dissemination of information on outbreaks of infectious diseases and acute exposures to toxins that affect human health. It only provides current alerts and includes grey sources too (not official info). Only online information is available. It is qualitative and quantitative information. The website is updated daily, but each report depends on the outbreak.

2.1.3 Epidemiological profile (Local)

This component is strongly related to that described in the previous section but refers to specific countries and areas of occurrence of an event, or neighbouring regions. Particular attention should be dedicated to the presence of in situ local surveillance systems and documentation from other health actors active at local level.

Finding this information will require ad-hoc contact with local NGOs or IHR points in place.

2.1.4 Disease Expertise

This component refers to a list of subject matter experts. It would promote collaboration among organizations on some of the most technical aspects of the event.

2.2 Host Assessment

This item refers to informative requirements related to the human population that may be exposed to the pathogen. More specifically, it refers to a large variety of factors intrinsic to the host and able to influence exposure, susceptibility and response to the causative agent. For practical reasons, the INC-RRA related to this component has been classified in three main informative domains, as summarised in the table below.

Table 2, Host information components

HOST	DEMOGRAPHICAL PROFILE	Population size		
		Population density		
		Birth and death rates		
		Age distribution		
		Sex ratio		
		Urban and rural composition		
		Internal movements (also external)		
		Other population movements		
	POPULATION HEALTH STATUS	Morbidity (main causes)		
		Mortality (main causes)		
		Life expectancy		
		Nutritional status		
		Reproductive health indicators: Maternal mortality, new born mortality...		
		Vaccine coverage	Measles	
			BCG	
			Hib	
			Polio	
			PCV	
			Rotav	
			HepB	
			DPT	
Japanese Encephalitis				
MenA				
Rub				
Tetan				
Yellow fever				
SOCIAL AND CULTURAL ASPECT	Trustworthiness of institutions; education; corruption			

2.2.1 Demographical profile

It is an important informative component to define a health risk for individuals potentially exposed to a disease. There are several types of data that may contribute. The following is a list of potential useful demographic data sets and can refer to real or estimated values.

2.2.1.1 Population size

2.2.1.1.1 The World Bank

<https://data.worldbank.org/indicator>

The website of the World Bank offers a list of indicators about population and its distribution. The information is available online, but also it is possible to download data in excel. It is quantitative information, last updated in 2017.

2.2.1.2 Population density

2.2.1.2.1 The World Bank

<https://data.worldbank.org/indicator>

The website of the World Bank offers a list of indicators about population and its distribution. The information is available online, but also it is possible to download data in excel. It is quantitative information, last updated in 2017.

2.2.1.2.2 GHSL

<http://ghsl.jrc.ec.europa.eu/>

The GHSL is an open and free tool for assessing the human presence on the planet. It produces new global spatial information, evidence-based analytics and knowledge describing the human presence on the planet and operates with an open and free data and methods access policy (open input, open method, open output).

It is supported by the Joint Research Centre (JRC) and the DG for Regional Development (DG REGIO) of the European Commission, together with the international partnership GEO Human Planet Initiative.

2.2.1.3 Birth and death rates

2.2.1.3.1 The World Bank

<https://data.worldbank.org/indicator>

The website of the World Bank offers a list of indicators about population and its distribution. The information is available online, but also it is possible to download data in excel. It is quantitative information, last updated in 2017.

2.2.1.4 Age distribution

2.2.1.4.1 The World Bank

<https://data.worldbank.org/indicator>

The website of the World Bank offers a list of indicators about population and its distribution. The information is available online, but also it is possible to download data in excel. It is quantitative information, last updated in 2017.

2.2.1.5 Gender ratio

2.2.1.5.1 The World Bank

<https://data.worldbank.org/indicator>

The website of the World Bank offers a list of indicators about population and its distribution. The information is available online, but also it is possible to download data in excel. It is quantitative information, last updated in 2017.

2.2.1.6 Urban and rural composition

2.2.1.6.1 The World Bank

<https://data.worldbank.org/indicator>

The website of the World Bank offers a list of indicators about population and its distribution. The information is available online, but also it is possible to download data in excel. It is quantitative information, las updated in 2017.

2.2.1.7 Population movements

2.2.1.7.1 UNHCR

<http://www.unhcr.org/>

The website of the United Nations refugee agency offers quantitative and qualitative information in real time for ongoing crisis in API/json format, daily updated.

2.2.1.7.2 IOM: report 2018: chapter 2

<https://publications.iom.int/books/world-migration-report-2018-chapter-2-migration-and-migrants-global-overview>

The global migration report 2018 is an International Organization for Migration publication. Chapter 2 provides an overview of global data and trends on international migrants and international migration. It offers qualitative and quantitative information global and by country. It is available on Pdf format and updated in 2018.

2.2.1.7.3 IOM: Global migration flow

<https://www.iom.int/world-migration>

It is a webpage from the International Organization for Migration that offers an interactive map to show information about people movements by country. It is quantitative information only available online. It has been updated in 2015.

2.2.1.7.4 Displacement Tracking Matrix

<http://www.unhcr.org/>

This is a system to track and monitor the displacement and mobility of a population from the International Organization for Migration. It also offers information about intra-national movements, but only for a few countries. It is quantitative information only available online and updated daily.

2.2.1.7.5 Internal Displacement Monitoring Center

<http://www.internal-displacement.org/database>

This is a website that provides credible data on internal displacement worldwide. It offers quantitative and qualitative data about the quantity and the kind of displacement. It is updated twice a year, and it is available online and in Excel.

2.2.1.7.6 International conflict research

<https://growup.ethz.ch/>

The International Conflict Research (ICR) group at the department of Humanities, Social and Political Sciences in the Center for Comparative and International Studies (ETH Zurich) conducts research on international and domestic conflict around the world. It provides qualitative and also a some limited quantitative information. The data are

available in Pdf and online format (for download, registration needed). The last updated was in 2013.

2.2.1.7.7 Minority at risk

http://www.mar.umd.edu/mar_data.asp

“Minority at Risk” is a Maryland University research project that monitors and analyses the status and conflicts of politically-active communal groups in all countries. It provides qualitative information about minorities. Data are available online, but some information it also in pdf.

Another important aspect to consider in terms of demography requirements for RRA purposes is the need for information at local level in areas with limited availability of data. In this case it may be necessary to rely on alternative sources such as surveys implemented by NGOs active locally.

2.2.2 Population Health Status

A population health status can be generically expressed as the description of the health outcomes of a defined group of individuals and includes, ideally, the distribution of such outcomes within the population observed. In terms of RRA, this information is relevant as it contributes in the definition of the level of vulnerability and susceptibility to an acute disease of individuals potentially exposed to a pathogen.

A set of generic indicators defining the health baseline should be identified and be based on data describing key information.

2.2.2.1 Morbidity (main causes of disease)

2.2.2.1.1 WHO

<http://www.who.int/gho/countries/phl.pdf?ua=1>

The WHO country health profile is a summary of the main health indicators of individual countries. It offers qualitative and quantitative information in pdf. The last update was in 2015.

2.2.2.1.2 World Health Statistics 2017

http://www.who.int/gho/publications/world_health_statistics/2017/en/

The WHO’s annual compilation of health statistics for its 194 Member States compiles data on 21 health-related Sustainable Development Goals (SDG) targets, with 35 indicators. It is available in Pdf format.

2.2.2.1.3 Health at a glance 2017

<http://www.oecd.org/health/health-systems/health-at-a-glance-19991312.htm>

This is an OECD publication about data and trend on health indicators outcomes across the 35 OECD member states. It covers only OECD members and is available on pdf.

2.2.2.2 Mortality (main causes of deaths including population rates)

2.2.2.2.1 WHO

http://www.who.int/healthinfo/global_burden_disease/estimates/en/index1.html

This is a WHO work that collects information about mortality causes and numbers, globally and by country. It is available in excel format and it was updated on 2015.

2.2.2.2.2 State of health in the EU project

https://ec.europa.eu/health/state/country_profiles_en

Is it a report from the European Commission, which talks about the health systems and the health of the population of each European Union member state. It is available on pdf and was updated in 2017.

2.2.2.2.3 WHO Mortality database

http://www.who.int/healthinfo/mortality_data/en/

This is a database on mortality causes but only for a few countries reporting data. It is available in excel format, and it was updated on 2016.

2.2.2.2.4 Global Health Data Exchange: IHME

<http://www.healthdata.org/results/country-profiles>

This is a data catalogue created and supported by IHME (The Institute for Health Metrics and Evaluation) an independent global health research center at the University of Washington. It provides information on global health and demography. The information is available online and it was updated in 2016.

2.2.2.2.5 World Health Statistics 2017

http://www.who.int/gho/publications/world_health_statistics/2017/en/

It is WHO's annual compilation of health statistics for its 194 Member States, it compiles data on 21 health-related Sustainable Development Goals (SDG) targets, with 35 indicators. It is available as a pdf.

2.2.2.2.6 Health at a glance 2017

<http://www.oecd.org/health/health-systems/health-at-a-glance-19991312.htm>

This is an OECD publication about data and trends in health indicators outcomes across the 35 OECD member states. It is available in pdf format.

2.2.2.3 Life expectancy

2.2.2.3.1 The World Bank

<https://data.worldbank.org/indicator>

The website of the World Bank offers a list of indicators about population and its distribution. The information is available online, but also it is possible to download data in excel. It is quantitative information, last updated in 2017.

2.2.2.3.2 World Health Statistic 2017

http://www.who.int/gho/publications/world_health_statistics/2017/en/

This refers to the WHO's annual compilation of health statistics for its 194 Member States. It compiles data on 21 health-related Sustainable Development Goals (SDG) targets, with 35 indicators. It is available in Pdf format.

2.2.2.3.3 Health at a glance 2017

<http://www.oecd.org/health/health-systems/health-at-a-glance-19991312.htm>

It is an OECD publication on data and trends in health indicators outcomes across the 35 OECD member states. It is available in pdf format.

2.2.2.4 Nutritional status (using international case definitions)

2.2.2.4.1 WHO/UNICEF/The World Bank

<http://www.who.int/nutgrowthdb/estimates/en/>

This is a work carried out jointly by WHO, Unicef and the World Bank, which tries to estimate the malnutrition and its different states of prevalence in the world. The information is available online, in Pdf and in excel format. It is updated on 2017.

2.2.2.4.2 WHO: Nutrition Landscape Information System: Country profile

<http://apps.who.int/nutrition/landscape/report.aspx>

It is a WHO webpage that offers information about the nutrition state of a country. It is available online and the last update depends on the country.

2.2.2.5 Reproductive health indicators (e.g. maternal mortality)

2.2.2.5.1 The World Bank

<https://data.worldbank.org/indicator>

The website of the World Bank offers a list of indicators about population and its distribution. The information is available online, but also it is possible to download data in excel. It is quantitative information, last updated in 2017.

2.2.2.5.2 WHO Global Health Observatory

<http://www.who.int/gho/countries/afg.pdf?ua=1>

This is a WHO summary of the main health indicators of a country. It is available on Pdf, and updated on 2015.

2.2.2.6 Vaccine coverage for different Vaccine Preventable Diseases (VPDs)

2.2.2.6.1 WHO: For DTP and Measles

http://www.who.int/immunization/monitoring_surveillance/data/en/

This is a WHO webpage that offers the officially reported country data estimates of coverage as a time series. It is available in Excel format, and updated in 2017.

http://www.who.int/immunization/monitoring_surveillance/data/subnational/en/

This is a WHO webpage that offers similar information to the previous one but also includes subnational coverage data. It is available on Excel format, and updated in 2017.

2.2.2.6.2 Other

http://www.who.int/immunization/monitoring_surveillance/data/en/

This is a WHO webpage that offers the officially reported country data estimates of coverage as a time series. It is available in Excel format, and updated in 2017.

2.2.3 Social and cultural aspects

There are, however, other aspects related to the population and to individual profiles that could have an impact on the use of the available health services by a community within a country, such as education, cultural beliefs and past experience in relation to a disease. All these can be generically referred as health seeking behaviours and may be particularly relevant in specific circumstances (e.g. rural remote populations) when seeking to provide a better definition of the health risk related to an acute public health event.

Another interesting aspect in terms of the impact of socio-cultural factors on health is how health conditions are perceived in a population in general and individually, regardless of the scientific evidence. The relevance of social-cultural and anthropological factors in terms of RRA is highly depended on the place of occurrence of an event. It may have a specific impact in the case of remote and isolated cultures that do not reflect common patterns described in most of countries.

The documentation available on this topic may be limited as this is information based on qualitative ad-hoc studies and surveys not routinely collected.

2.3 Context

The fact that this component has a potential impact on population health is governed by the principle of “determinants of health” that expresses how health status is influenced by complex interactions between individual factors (e.g. genetic and behavioural) and external aspects not always under the direct control of individuals. It refers to all the “external factors” that may affect either the agent capacity to infect or the host opportunity of exposure.

Table 3, Context data components

CONTEXT	HUMAN HEALTH CARE SYSTEM	Health system model
		Health facilities (availability, capacity, maintenance, access...)
		Health staff (presence and capacities)
		Curative measures
		Drugs program
		Vaccination program
		Health prevention and promotion activities
		Public health response capacities
		Diagnosis capacities
		Vertical health programs
		Specific national health policies
		Health data organization
		Infectious disease surveillance capacities
		Event based surveillance capacities
		Response measures in place
		Assistance to specific target group
		Other health actors
		Welfare system and social safety net
	ANIMAL HEALTH SECTOR	
	MEDICAL ENTOMOLOGY	
	GEOPHYSICAL PROFILE	Territorial characteristics and land use
		Water sources
		Quality of air and environmental issues
		Natural risks
	CLIMATE INFORMATION	
	INFRASTRUCTURE	
	ECONOMY	
	SOCIOPOLITICAL INFORMATION AND OTHERS	

2.3.1 Human Health Care System

This topic can be defined as the system of resources that is responsible within a community for the delivery of services aiming to improve, maintain or restore the health of individuals.

The health care system has a crucial role in the context of an acute public health event as it has a direct role in the health outcomes of the affected population. Here is list of topics that may be relevant to analyse for RRA purposes, ideally at national and subnational level.

It should also be considered that there are other relevant initiatives aiming to collect accurate information through participative based approaches in real time about health facilities, such as contact details, validation of facility locations and more general health care related data. This information, despite not commonly being validated and relying mainly on community initiatives, may represent a relevant complementary source of information in situation where details about health facilities are limited or not up to date (e.g. HealthSites).

2.3.1.1 Health system model

2.3.1.1.1 State of health in the EU project

https://ec.europa.eu/health/state/country_profiles_en

This is a report from the European Commission, which talks about the health systems and health of the population of each European Union member state. It is available in pdf format and it was updated in 2017.

2.3.1.2 Health facilities availability, capacity, maintenance and access:

2.3.1.2.1 The Global Healthsites Mapping Project

<https://healthsites.io>

This is a project carried out by different collaborating partners that results an online map of every health facility in the world. It is available through an API returning data in GeoJSON, KML and CSV format.

2.3.1.2.2 WHO Universal Health Coverage Data Portal

<http://apps.who.int/gho/cabinet/uhc.jsp>

It is a WHO webpage that offers information about health coverage and services. The data is available online and in excel format. Updated in 2015.

2.3.1.2.3 State of health in the EU project

https://ec.europa.eu/health/state/country_profiles_en

This is a report from the European Commission, which talks about the health systems and health of the population of each European Union member state. It is available in pdf format and it was updated in 2017.

2.3.1.2.4 EUROSTAT

<http://ec.europa.eu/eurostat/data/database>

This is the website of statistics and data from the European Commission and provides data only from EU member states. The information is also available in excel format.

2.3.1.3 Health staff:

2.3.1.3.1 State of health in the EU project

https://ec.europa.eu/health/state/country_profiles_en

This is a report from the European Commission, which talks about the health systems and health of the population of each European Union member state. It is available in pdf format and it was updated in 2017.

2.3.1.3.2 Global Health Observatory of Data

http://www.who.int/gho/health_workforce/physicians_density/en/

This is a WHO section about health data. It offers information about physician density in tables, graphs and maps. It is also available to download in excel format. The last update depends on the country.

2.3.1.3.3 World Health Statistics 2017

http://www.who.int/gho/publications/world_health_statistics/2017/en/

The WHO's annual compilation of health statistics for its 194 Member States compiles data on 21 health-related Sustainable Development Goals (SDG) targets, with 35 indicators. It is available in Pdf format.

2.3.1.4 Curative measures in place:

2.3.1.4.1 World Health Statistics 2017

http://www.who.int/gho/publications/world_health_statistics/2017/en/

The WHO's annual compilation of health statistics for its 194 Member States compiles data on 21 health-related Sustainable Development Goals (SDG) targets, with 35 indicators. It is available in Pdf format.

2.3.1.4.2 Global atlas of medical devices 2017

http://www.who.int/medical_devices/publications/global_atlas_meddev2017/en/

This is a WHO publication about the medical devices in all countries. It is also available in pdf format. It was last updated in 2017.

2.3.1.5 Drugs program

2.3.1.5.1 WHO

<http://www.who.int/gho/mdg/medicines/en/>

This WHO webpage provides information on the availability of generic medicine by country, and also the price of these medicines. It was last updated in 2015. It is also available in pdf format.

2.3.1.6 Vaccination program

This information has been very difficult to find. It will probably require ad-hoc research in the local ministry of health or in local NGOs or WHO sites when an outbreak occurs.

2.3.1.7 Health Prevention and Health Promotion activities

This information has been very difficult to find. It will probably require ad-hoc research in the local ministry of health or in local NGOs or WHO sites when an outbreak occurs.

2.3.1.8 Public Health response capacities

2.3.1.8.1 IHR Monitoring Framework

<http://www.who.int/gho/ihr/en/>

The IHR monitoring process, involved assessing, through a self-assessment questionnaire sent to States Parties, the implementation status of 13 core capacities in the areas of zoonotic diseases, surveillance, response, coordination, laboratory, risk communication, legislation policy, and Food safety. It is available online, but it is possible to download maps and graphs. It was last updated in 2016.

2.3.1.9 Diagnostic capacities:

2.3.1.9.1 IHR Monitoring Framework

<http://www.who.int/gho/ihr/en/>

The IHR monitoring process, involved assessing, through a self-assessment questionnaire sent to States Parties, the implementation status of 13 core capacities in the areas of zoonotic diseases, surveillance, response, coordination, laboratory, risk communication, legislation policy, and Food safety. It is available online, but it is possible to download maps and graphs. It was last updated in 2016.

2.3.1.10 Vertical health programmes

2.3.1.10.1 WHO: GHO: Maternal and reproductive health:

http://www.who.int/gho/maternal_health/en/

This is a WHO webpage that offers information about maternal health, family planning and access to skilled care. It is available online and it is possible to download maps and graphs. The last update date depends on the specific data type.

2.3.1.11 Specific national health policies

2.3.1.11.1 IHR Monitoring Framework

<http://www.who.int/gho/ihr/en/>

The IHR monitoring process, involved assessing, through a self-assessment questionnaire sent to States Parties, the implementation status of 13 core capacities in the areas of zoonotic diseases, surveillance, response, coordination, laboratory, risk communication, legislation policy, and Food safety. It is available online, but it is possible to download maps and graphs. It was updated on 2016.

2.3.1.12 State of health in the EU project

https://ec.europa.eu/health/state/country_profiles_en

This is a report from the European Commission, which talks about the health systems and health of the population of each European Union member state. It is available in pdf format and it was updated in 2017.

2.3.1.13 Health data organization and flow, notification system

This information has been very difficult to find. It will probably require ad-hoc research in the local ministry of health or in local NGOs or WHO sites when an outbreak occurs.

2.3.1.14 Infectious disease surveillance capacities:

2.3.1.14.1 IHR Monitoring Framework

<http://www.who.int/gho/ihr/en/>

The IHR monitoring process, involved assessing, through a self-assessment questionnaire sent to States Parties, the implementation status of 13 core capacities in the areas of zoonotic diseases, surveillance, response, coordination, laboratory, risk communication, legislation policy, and Food safety. It is available online, but it is possible to download maps and graphs. It was updated on 2016.

2.3.1.15 Event based surveillance capacities

This information has been very difficult to find. It will probably require ad-hoc research in the local ministry of health or in local NGOs or WHO sites when an outbreak occurs.

2.3.1.16 Response measures in place

This information has been very difficult to find. It will probably require ad-hoc research in the local ministry of health or in local NGOs or WHO sites when an outbreak occurs.

2.3.1.17 Assistance to specific target group (e.g. IDPs, victims of violence)

This information has been very difficult to find. It will probably require ad-hoc research in the local ministry of health or in local NGOs or WHO sites when an outbreak occurs.

2.3.1.18 Other health actors

This information has been very difficult to find. It will probably require ad-hoc research in the local ministry of health or in local NGOs or WHO sites when an outbreak occurs.

2.3.1.19 Welfare system and social safety net

This information has been very difficult to find. It will probably require ad-hoc research in the local ministry of health or in local NGOs or WHO sites when an outbreak occurs.

2.3.2 Animal Health Sector

Information collected on animal health for RRA purposes should primarily cover details on the generic animal health profile and focus on the epidemiology of zoonoses of particular risk for humans; it should include data on endemic diseases and historical summaries of recently occurred outbreaks.

2.3.2.1.1 OIE: World Organization Animal Health

<http://www.oie.int/>

This is the website of World Organization of Animal health, and it offers information about animal diseases, antibiotic resistance, food safety and biological risks. It is available online and the information is updated daily.

2.3.2.1.2 Animal Disease Notification System

https://ec.europa.eu/food/animals/animal-diseases/not-system_en

This is a European Commission notification system designed to register and document the evolution of the situation of important infectious animal diseases. It provides data only for EU member states. The information is available online and it is updated daily.

2.3.3 Medical Entomology

2.3.3.1 Sources

Medical entomology deals with the study of arthropods of medical importance, meaning insects and other invertebrates able to cause diseases in humans, either directly, or as vectors of pathogens. The importance of medical entomology in terms of acute public health events is related to the role of some vectors, such as mosquitoes, ticks and flies in the transmission of specific infectious diseases.

For the purpose of a RRA, the most important information to collect in terms of medical entomology is the local presence (population, density) of vector species able to transmit VBDs to humans. Entomological surveillance activities consist in the systematic monitoring of such data and can help to predict outbreaks, understand the risk of

propagation of VBDs within a population, and to evaluate the impact of vector control measures implemented.

2.3.3.1.1 ECDC: Surveillance and disease data for disease vectors

<https://ecdc.europa.eu/en/disease-vectors/surveillance-and-disease-data>

It is an ECDC section that studies disease vectors, but only for the EU member states. The information is available online but it is possible to download folders. It is updated daily.

2.3.3.1.2 WHO: International Travel and Health

<http://www.who.int/ith/en/>

This is a WHO publication about the principal infectious diseases around the world: transmission, epidemiology, distribution etc. Information about vector borne diseases and their world distribution can also be found. The whole publication was updated in 2012. But a few sections have been updated more recently. Downloaded data in pdf is available, and it is quantitative and qualitative information.

2.3.3.1.3 CDC: Division of vector-borne disease

<https://www.cdc.gov/ncezid/dvbd/about.html>

This is a section of the CDC website that studies disease vectors, but it is USA oriented. The information is available online but it is possible to download folders. It is updated daily.

2.3.4 Geophysical Profile

The geophysical description of a context of occurrence of an acute public health event may not seem particularly relevant in terms of RRA. However, in some situations, basic information about geographical, geological and other related aspects may be useful, particularly at local level. It would be important to know about available water sources and related safe water access in case of a severe water-borne disease, such as cholera, in a rural context. It may also help to gather information more related to the population habits that may have an impact on the spread of a disease, for example housing characteristics.

A description of the physical context could include details on several key aspects including the following.

2.3.4.1 Territorial characteristics and land use:

Map: A good source for this data would be a map that allows assessing the geophysical profile of the country or area with a simple glance.

2.3.4.1.1 CIA World Factbook: Guide to the country comparison

<https://www.cia.gov/library/publications/resources/the-world-factbook/index.html>

This is a CIA publication. It provides information about the economy, geography, communications, transportation, and others issues for 267 world entities. It is online but it is also possible to download folders. It is updated each year.

2.3.4.1.2 World Bank open data

<https://data.worldbank.org/>

The website of the World Bank offers a list of indicators about population and its distribution. The information is available online, but it is also possible to download data in excel. It is quantitative information, last updated in 2017.

2.3.4.2 Water sources:

2.3.4.2.1 CIA World Factbook: Guide to the country comparison

<https://www.cia.gov/library/publications/resources/the-world-factbook/index.html>

This is a CIA publication. It provides information about the economy, geography, communications, transportation, and others issues for 267 world entities. It is online but it is also possible to download folders. It is updated each year.

2.3.4.2.2 World Bank open data

<https://data.worldbank.org/>

The website of the World Bank offers a list of indicators about population and its distribution. The information is available online, but also it is possible to download data in excel. It is quantitative information, last updated in 2017.

2.3.4.3 Quality of air and environmental issues

2.3.4.3.1 World Bank database

<https://datacatalog.worldbank.org/dataset/country-profiles>

The website of the World Bank offers a list of indicators about population and its distribution. The information is available online, but also it is possible to download data in excel. It is quantitative information, last updated in 2017.

2.3.4.3.2 WHO

<http://apps.who.int/gho/data/view.main.AMBIENTCITY2016?lang=en>

This is a WHO webpage that allows the user to visualise and download information on air particle concentration per country in different years (PM 2.5 and PM 10). It is also available in excel format. The last update was in 2014 for almost all of the data, but it nevertheless depends on the country.

2.3.4.3.3 Air pollution in World (World Air Quality Index project)

<http://aqicn.org/here/>

This is the website of The World Air Quality Index. It is a social enterprise project whose mission is to promote Air Pollution awareness and provide unified air quality information for the whole world. The project is providing transparent Air Quality information for more than 70 countries, covering more than 9000 stations in 600 major cities. The information is available online and is updated daily.

2.3.4.3.4 European Environmental Agency

<http://www.eea.europa.eu/themes/air/air-quality-index/index>

This is the website of the European Environmental Agency. It displays up-to-the-minute data for the whole of Europe; users can gain new insights into the air quality of individual countries, regions and cities. The information is only about EU member states. It is available online and updated daily.

2.3.4.4 Natural risks

2.3.4.4.1 Inform

<http://www.inform-index.org/INFORM-2017-Results-and-data>

INFORM is a global project that offers open-source risk assessment information for humanitarian crises and disasters. It uses different quantitative indicators to calculate the

risk of each country to suffer different hazards. It is available online or on Excel format. The information was updated in 2018.

2.3.4.4.2 Global disaster alerts and coordination system (GDACS)

<http://www.gdacs.org/default.aspx>

GDACS is a cooperation framework between the United Nations, the European Commission and disaster managers worldwide to improve alerts, information exchange and coordination in the first phase after major sudden-onset disasters. Data is available online and can be downloaded in pdf format. It is updated daily.

2.3.4.4.3 CIA World Factbook: Guide to the country comparison

<https://www.cia.gov/library/publications/resources/the-world-factbook/index.html>

This is a CIA publication. It provides information about the economy, geography, communications, transportation, and others issues for 267 world entities. It is online but it is also possible to download folders. It is updated each year.

2.3.4.4.4 Thinkhazards

<http://thinkhazard.org/en/>

This is a website that offers qualitative information about the risk of different disasters in a subnational area. It is supported by the global facility for disaster reduction and recovery. The information is available online and it is updated daily.

2.3.5 Climate Information

Climate meteorological information refers to all data describing a geographical region in terms of weather-related aspects and includes data on climatic seasonal variability, temperature and precipitation profile, risk of drought and other weather-related emergencies such as storm and flooding.

Climate factors indirectly affect some of the most important determinants of health such as air, water, food, and shelter, thereby influencing the occurrence and spread of infectious diseases.

2.3.5.1.1 World Meteorological Organisation (Country profile database)

<https://www.wmo.int/cpdb/>

It is a portal where you can access the world meteorological information about WMO member states. It focuses on climate information. Information is available online. It is updated daily.

2.3.6 Infrastructure

“Infrastructure” is a generic term used to describe the fundamental physical facilities and systems serving a defined area and providing commodities essential to allow societal living conditions, including a functioning economy. It is typically used to describe transportation structures as roads, bridges, tunnels and inland waterways but may refer to any other technical installation such as water supply, sewers, electrical grids and telecommunication services.

2.3.6.1.1 World Bank open data

<https://data.worldbank.org/>

The website of the World Bank offers a list of indicators about population and its distribution. The information is available online, but also it is possible to download data in excel. It is quantitative information, last updated in 2017.

2.3.6.1.2 Inform

<http://www.inform-index.org/INFORM-2017-Results-and-data>

INFORM is a global project that offers open-source risk assessment information for humanitarian crises and disasters. It uses different quantitative indicators to calculate the risk of each country to suffer different hazards. It is available online or on Excel format. The information was updated in 2018.

2.3.6.1.3 WHO-UNICEF JMP

<https://washdata.org/data>

This is the website of the WHO/UNICEF Joint Monitoring Programme for Water Supply, Sanitation and Hygiene (JMP) that reports country, regional and global estimates of progress on drinking water, sanitation and hygiene (WASH) since 1990. The information is available online and also in excel format and it was updated in 2015.

2.3.6.1.4 The Malaria Atlas Project

https://map.ox.ac.uk/accessibility_to_cities_news/

This project characterizes travel time from one point in the world to the nearest city. It is a University of Oxford project in collaboration with researchers at Google, the Joint Research Centre of the European Union, and the University of Twente (Netherlands). It was last updated in 2015.

2.3.7 Economy

The economic profile of a defined region can form part of the definition of a community profile. If a population is exposed to an acute public health event, the level of the economy may influence the characterization of the overall risk.

2.3.7.1.1 World Bank open data

<https://data.worldbank.org/>

The website of the World Bank offers a list of indicators on population and its distribution. The information is available online, but it is also possible to download data in excel format. It is quantitative information, last updated in 2017.

2.3.7.1.2 EUROSTAT

<http://ec.europa.eu/eurostat/data/database>

This is the website of statistics and data from the European Commission and provides data only from EU member states. The information is also available in excel format.

2.3.7.1.3 Inform

<http://www.inform-index.org/INFORM-2017-Results-and-data>

INFORM is a global project that offers open-source risk assessment information for humanitarian crises and disasters. It uses different quantitative indicators to calculate the risk of each country to suffer different hazards. It is available online or on Excel format. The information was updated on 2018.

2.3.8 Socio-political information and others.

When assessing the risk associated with an acute public health event, the socio-political stability of the region is a key concern: if the internal stability and security of a country is compromised, so is its ability to respond in an effective and timely manner. For this reason a regular collection of information on security, government effectiveness and the legal system of a country may be helpful in the final definition of a RRA.

2.3.8.1.1 CIA World Factbook: Guide to the country comparison

<https://www.cia.gov/library/publications/resources/the-world-factbook/index.html>

This is a CIA publication. It provides information about the economy, geography, communications, transportation, and others issues for 267 world entities. It is online but it is also possible to download folders. It is updated each year.

2.3.8.1.2 International Crisis Group

<https://www.crisisgroup.org/crisiswatch>

ICG is an independent organisation working to prevent wars and shape policies that will build a more peaceful world. It shares reports and data on conflicts over the world. The information is available online and updated daily.

2.3.8.1.3 Relief web

<https://reliefweb.int/>

Relief web is an online source for reliable and timely humanitarian information on global crises and disasters. We can find reports about the current outbreaks and disasters over the world: Maps, report and infographics. The information is available online but can also be downloaded in pdf reports and maps. It is qualitative and quantitative information. The website is updated daily, but each report depends on the specific outbreak.

2.3.8.1.4 Global peace index

<http://visionofhumanity.org/indexes/global-peace-index/>

This is a publication of the Institute of economics and peace which talks about the measurement of peace in the world. It is available in pdf format and it was last updated in 2017.

2.3.8.1.5 Conflict barometer

<https://hiik.de/conflict-barometer/?lang=en>

This is an annual report of the Heidelberg Institute for international conflict research that offers global information on conflicts. It is available in pdf format.

3 Table of Sources

Table 4, Source Information

SUBCATEGORY	URL	SOURCES	ROUTE	FOR MAT	DATE	RELIABILITY	DATA ACCESS	QUALITATIVE VS QUANTITATIVE (specific)	QUALITATIVE VS QUANTITATIVE (general)
Health system model	https://ec.europa.eu/health/state/country_profiles_en	State of health in the EU project	OCDE: Topics: Health: Health policies and data: Country health profile 2017	Pdf	2017	Very Good	Easy	Both	Both
Health facilities (availability, capacity, maintenance, access...)	https://healthsites.io	The Global Healthsites Mapping Project		API/ GeOJSON/KML/CSV		Good	Easy	Quantitative	Both
	http://apps.who.int/gho/cabinet/uhc.jsp	WHO UNIVERSAL HEALTH COVERAGE DATA PORTAL	WHO: Data: Universal Health Coverage Data Portal.	Online, downloaded and excel	2015	Very Good	Easy	Both	
	https://ec.europa.eu/health/state/country_profiles_en	State of health in the EU project	OCDE: Topics: Health: Health policies and data: Country health profile	Pdf	2017	Very Good	Easy	Both	

		2017							
	http://ec.europa.eu/eurostat/data/database	EUROSTAT	EUROSTAT Database: Population and social conditions, health	Excel	Last updated 2016	Very good	Easy	Quantitative	
Health staff (presence and capacities)	https://ec.europa.eu/health/state/country_profiles_en	State of health in the EU project	OCDE: Topics: Health: Health policies and data: Country health profile 2017	Pdf	2017	Very Good	Easy	Quantitative	Both
	http://www.who.int/gho/health_workforce/physicians_density/en/	Global Health Observatory of Data	WHO: Data: Global Health Observatory of Data: Density of physicians	Excel	Depend on the country	Very Good	Easy	Quantitative	
	http://www.who.int/gho/publications/world_health_statistics/2017/en/	World Health Statistics 2017	WHO: Data: GHO Publications: Reports: World Health Statistics 2017	Pdf	2012	Very good	Easy	Quantitative	

Curative measures	http://www.who.int/gho/publications/world_health_statistics/2017/en/	World Health Statistic 2017	WHO: Data: GHO Publications: Reports: World Health Statistics 2017	Pdf	2017	Very good	Easy	Quantitative	Qualitative
	http://www.who.int/medical_devices/publications/global_atlas_meddev2017/en/	Global atlas of medical devices 2017	WHO: Topics: Medical devices: Global atlas of medical devices 2017	pdf	2017	Very Good	Easy	Both	
Drugs program	http://www.who.int/gho/mdg/medicines/en/	WHO	WHO: Data: Global Health Observatory Data: Essential Medicines	Pdf, graphs	Last updated 2015	Very Good	Easy	Quantitative	Qualitative
Vaccination program		Difficult, maybe at the local ministry							Qualitative
Health prevention and promotion activities		Difficult, maybe at the local ministry							Qualitative
Public health response capacities	http://www.who.int/gho/ihr/en/	IHR Monitoring Framework	WHO: Data: Global health Observatory Data: International Health	Online, maps and graphs	2016	Very good	Easy	Both	Qualitative

			Regulations Monitoring Framework						
Diagnosis capacities	http://www.who.int/gho/ihr/en/	IHR Monitoring Framework	WHO: Data: Global health Observatory Data: International Health Regulations Monitoring Framework	Online, maps and graphs	2016	Very good	Easy	Both	Qualitative
Vertical health programs	http://www.who.int/gho/maternal_health/en/	WHO:GHO: Maternal and reproductive health	WHO: Data: Global health observatory data: Maternal health	Online, maps and graphs	Depends on the item	Very Good	Easy	Both	Qualitative
Specific national health policies	http://www.who.int/gho/ihr/en/	IHR Monitoring Framework	WHO: Data: Global health Observatory Data: International Health Regulations Monitoring Framework	Online, maps and graphs	2016	Very good	Easy	Both	Qualitative
	https://ec.europa.eu/health/state/country_profiles_en	State of health in the EU project	OCDE: Topics: Health: Health	Pdf	2017	Very Good	Easy	Qualitative	

			policies and data: Country health profile 2017						
Health data organization		Difficult, maybe at the local minister							Qualitative
Infectious disease surveillance capacities	http://www.who.int/gho/ihr/en/	IHR Monitoring Framework	WHO: Data: Global health Observatory Data: International Health Regulations Monitoring Framework	Online, maps and graphs	2016	Very good	Easy	Both	Qualitative
Event based surveillance capacities		Difficult, maybe at the local minister							Qualitative
Response measures in place		Difficult, maybe at the local minister							Qualitative
Assistance to specific target group	https://ec.europa.eu/health/state/country_profiles_en	State of health in the EU project???	OCDE: Topics: Health: Health policies and data: Country health profile 2017	Pdf	2017	Very Good	Easy	Both	Qualitative

Other health actors	https://ec.europa.eu/health/state/country_profiles_en	State of health in the EU project???	OCDE: Topics: Health: Health policies and data: Country health profile 2017	Pdf	2017	Very Good	Easy	Both	Qualitative
Welfare system and social safety net									Qualitative
	http://www.oie.int/	OIE: World Organization Animal Health		Online	Daily updated	Very good	Easy	Qualitative	Qualitative
	https://ec.europa.eu/food/animals/animal-diseases/notification-system_en	Animal Disease Notification System		Online	Daily updated	Very Good	Easy	Qualitative	
	https://ecdc.europa.eu/en/disease-vectors/surveillance-and-disease-data	ECDC: Surveillance and disease data for disease vectors	ECDC: Infectious disease and public health: Disease vectors: view maps	Online and downloaded folders	Daily updated	Very good	Easy	Qualitative	Qualitative
	http://www.who.int/ith/en/	WHO: International Travel and Health	WHO: Publications: International travel and health	pdf	Last updated January 2018	Very good	Easy	Qualitative	

	https://www.cdc.gov/nceid/dvbd/about.html	CDC: Division of vector-borne disease		Online and downloaded folders	Daily updated	Very Good	Easy	Qualitative	
Territorial characteristics and land use	-	Map (Google earth???)							
	https://www.cia.gov/library/publications/resources/the-world-factbook/index.html	CIA World Factbook: Guide to the country comparison	CIA: Library: The world factbook	Online and downloaded folders	Last update 2018 (each year)	Very Good	Easy	Both	Qualitative
	https://data.worldbank.org/	World Bank open data	The world bank: What we do: Data	Excel	Last updated 2016	Very Good	Easy	Quantitative	
Water sources	https://www.cia.gov/library/publications/resources/the-world-factbook/index.html	CIA World Factbook: Guide to the country comparison	CIA: Library: The world factbook	Online and downloaded folders	Last update 2018 (each year)	Very Good	Easy	Both	Qualitative
	https://data.worldbank.org/	World Bank open data	The world bank: What we do: Data	Excel	Last updated 2016	Very Good	Easy	Quantitative	

Quality of air and environmental issues	https://datacatalog.worldbank.org/dataset/country-profiles	World Bank database (development indicators)		Excel	Last updated 2017 (each quarterly)	Very Good	Easy	Quantitative	Qualitative
	WHO: http://apps.who.int/gho/data/view.main.AMBIENTCITY2016?lang=en	WHO	WHO: Data: Public health and environment: Data repository: Ambient air pollution	Excel	2014 (but depend the country)	Very Good	Not so easy	Quantitative	
	http://aqicn.org/here/	Air pollution in World (World Air Quality Index project)	Air pollution in the world	Online	Daily updated	Good	Easy	Quantitative	
	http://www.eea.europa.eu/themes/air/air-quality-index/index	European Environmental Agency	European Environmental Agency: Topics: Air Pollution: Air quality index	Online	Daily updated	Very good	Easy	Qualitative	
Natural risks	https://www.cia.gov/library/publications/resources/the-world-factbook/index	CIA World Factbook: Guide to the country comparriso	CIA: Library: The world factbook	Online and downloaded	Last update 2018 (each	Very Good	Easy	Both	Qualitative

	html	n		fould ers	year)				
	http://www.inform-index.org/INFORM-2017-Results-and-data	Inform	Inform: Result and data: Inform 2017	Excel	2018	Very good	Easy	Quantitative	
	http://www.gdacs.org/default.aspx	Global disaster alerts and coordinatio n system (GDACS)		Onlin e and pdf	Upda ted	Very Good	Easy	Qualitative	
	http://thinkhazard.org/en/	Thinkhazar ds		Onlin e	Upda ted	Good	Easy	Qualitative	
	https://www.wmo.int/cpdb/	World Meteorolo gical Organisatio n (Country profile database)	World Meteorologic al Organisation (Country profile database)	Onlin e	Daily upda ted	Very Good	Easy	Quantitative	Qualitative
	https://data.worldbank.org/	World Bank open data	The world bank: What we do: Data	Excel	Last upda ted 2016	Very Good	Easy	Quantitative	Quantitative
	http://www.inform-index.org/INFORM-2017-Results-and-data	Inform	Inform: Result and data: Inform 2017	Excel	2018	Very good		Quantitative	

	https://washdata.org/data	WHO-UNICEF JMP	WHO-UNICEF JMP: Data	Excel	2015	Very Good	Easy	Quantitative	
	https://map.ox.ac.uk/accessibility-to-cities-nets/	The Malaria Atlas Project			2015	Good	Easy		
	https://data.worldbank.org/	World Bank open data	The world bank: What we do: Data	Excel	Last updated 2016	Very Good	Easy	Quantitative	Quantitative
	http://ec.europa.eu/eurostat/data/database	EUROSTAT	EUROSTAT Database: Population and social conditions, health	Excel	Last updated 2016	Very good	Easy	Quantitative	
	http://www.inform-index.org/INFORM-2017-Results-and-data	Inform	Inform: Result and data: Inform 2017	Excel	2018	Very good		Quantitative	
	https://www.cia.gov/library/publications/resources/the-world-factbook/index.html	CIA World Factbook: Guide to the country comparison	CIA: Library: The world factbook	Online and downloaded folders	Last update 2018 (each year)	Very Good	Easy	Both	Both
	https://www.crisisgroup.org/	International Crisis Group/crisisWatch		Online	Updated	Good	Easy	Qualitative	

	https://reliefweb.int/	Relief web		Pdf	Depend on the country	Very good	Easy	Qualitative	
	https://reliefweb.int/report/world/global-peace-index-2017	Global peace index	ReliefWeb: Updates	pdf	2017	good	Easy	Quantitative	
	https://hiik.de/conflict-barometer/?lang=en	Conflict barometer				Good	Easy		

4 Conclusions

The types of data identified in this report are varied in many aspects, including data format, quality, degree to which the data is up to date, official status and both geographical and temporal completeness. This heterogeneity presents a significant challenge for the analyst attempting to put a particular incident into context for the purposes of risk assessment and response.

Some needs are met through accessible and complete formatted datasets with an official or quasi-official stamp. These tend to be multi-use datasets with application across a broad range of uses giving a certain economy of scale. Demographic data is a good example of this.

As data becomes more specific to the context of this document, it can become more difficult to find and be associated with the drawbacks associated with quality mentioned in the previous paragraph. In addition, certain information needs are ad-hoc and geographically specific, necessitating targeted research as part of the risk assessment process.

There are certain data needs identified in Mantero et al (¹) which are more or less impossible to meet at the moment. Further work could be done to investigate ways forward for these specific types of data.

References

Mantero, J., Doherty, B., *Identification of Informative Content Needs supporting Rapid Risk Assessment of Acute Public Health Events (ICN-RRA)*, EUR 29049 EN, Publications Office of the European Union, Luxembourg, 2017, ISBN 978-92-79-77698-4, doi:10.2760/53486

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