

JRC TECHNICAL REPORT

INFORM Covid-19 Risk Index

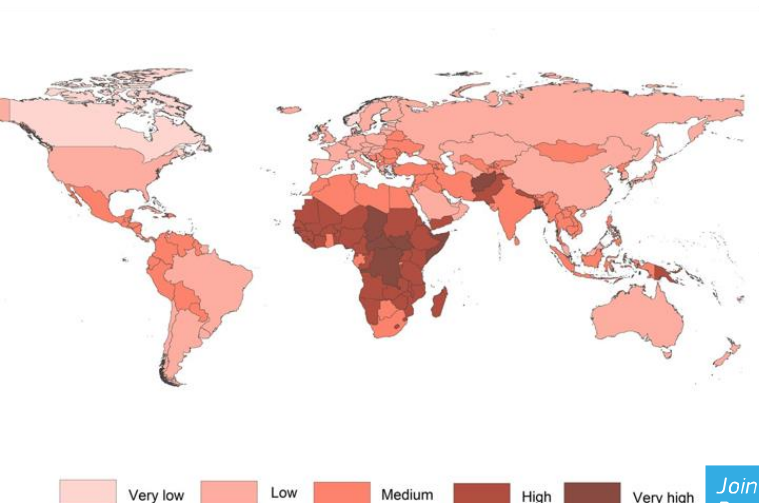
Methodology and results

Poljanšek, K

Vernaccini, L

Marin Ferrer, M

2020



Risk	INFORM COVID-19 RISK				
Dimension	RISK FORMULA				
Category	Hazard & Exposure		Vulnerability		Lack of Coping Capacity
	P2P		GEOMETRIC AVERAGE		GEOMETRIC AVERAGE
	ARITHMETIC AVERAGE		INFORM Vulnerability	Covid-19 Vulnerability	INFORM Lack of Coping Capacity
	WaSH	Population			
					Covid-19 Lack of Coping Capacity

This publication is a Technical report by the Joint Research Centre (JRC), the European Commission's science and knowledge service. It aims to provide evidence-based scientific support to the European policymaking process. The scientific output expressed does not imply a policy position of the European Commission. Neither the European Commission nor any person acting on behalf of the Commission is responsible for the use that might be made of this publication. For information on the methodology and quality underlying the data used in this publication for which the source is neither Eurostat nor other Commission services, users should contact the referenced source. The designations employed and the presentation of material on the maps do not imply the expression of any opinion whatsoever on the part of the European Union concerning the legal status of any country, territory, city or area or of its authorities, or concerning the delimitation of its frontiers or boundaries.

Contact information

Name: Karmen Poljanšek

Address: European Commission, Joint Research Centre (JRC), Via Fermi, 2479 – Ispra (VA), Italy

Email: karmen.poljansek@ec.europa.eu

Tel.: +39 0332 783650

EU Science Hub

<https://ec.europa.eu/jrc>

JRC120799

EUR 30240 20

PDF

ISBN 978-92-76-19203-9

ISSN 1831-9424

doi:10.2760/596184

Luxembourg: Publications Office of the European Union, 2020

© European Union, 2020



The reuse policy of the European Commission is implemented by the Commission Decision 2011/833/EU of 12 December 2011 on the reuse of Commission documents (OJ L 330, 14.12.2011, p. 39). Except otherwise noted, the reuse of this document is authorised under the Creative Commons Attribution 4.0 International (CC BY 4.0) licence (<https://creativecommons.org/licenses/by/4.0/>). This means that reuse is allowed provided appropriate credit is given and any changes are indicated. For any use or reproduction of photos or other material that is not owned by the EU, permission must be sought directly from the copyright holders.

All content © European Union 2020

How to cite this report: Poljansek, K., Vernaccini, L. and Marin Ferrer, M., INFORM Covid-19 Risk Index, EUR 30240 EN, Publications Office of the European Union, Luxembourg, 2020, ISBN 978-92-76-19203-9, doi:10.2760/596184, JRC120799.

Authors affiliations:

Karmen Poljanšek, European Commission, Joint Research Centre (JRC), Ispra, Italy

Luca Vernaccini, Fincons SpA external service provider of European Commission, Joint Research Centre (JRC), Ispra, Italy

Montserrat Marin Ferrer, European Commission, Joint Research Centre (JRC), Ispra, Italy

Contents

Acknowledgements	2
Abstract	3
1 Introduction	4
2 Purpose and scope.....	5
3 Methodology	6
3.1 Starting point	6
3.2 Key changes to the INFORM Epidemic Risk Index analytical framework	6
References	15
List of figures	16
List of tables	17
Annexes.....	18
Annex 1. INFORM Covid-19 Risk Index results table	18

Acknowledgements

The conceptualisation of the presented model and the editing of the report has been done with the fundamental contribution of Andrew Thow from UN OCHA.

Role of authors

Karmen Poljanšek, as the editor of the report, was responsible for designing the concept and leading the development of the models and the preparation of the report.

Montserrat Marin Ferrer, as the coordinator of the DRMKC projects, overviewed the whole process.

Luca Vernaccini, as the external consultant, adapted the INFORM Epidemic Risk Index model to the Covid-19 pandemic and implemented the INFORM Covid-19 Risk Index, adopted scientific and technical solution, computed and presented the results, and wrote the report.

Abstract

The INFORM COVID-19 Risk Index is an experimental adaptation of the INFORM Epidemic Risk Index and aims to identify: "countries at risk from health and humanitarian impacts of COVID-19 that could overwhelm current national response capacity, and therefore lead to a need for additional international assistance".

It can be used to support prioritization of preparedness and early response actions for the primary impacts of the pandemic, and identify countries where secondary impacts are likely to have the most critical humanitarian consequences.

The main scope of the INFORM COVID-19 Risk Index is global and regional risk-informed resource allocation, i.e. where comparable understanding of countries' risk is important. It cannot predict the impacts of the pandemic in individual countries.

1 Introduction

INFORM is a multi-stakeholder forum for developing shared, quantitative analysis relevant to humanitarian crises and disasters. INFORM includes organisations from across the multilateral system, including the humanitarian and development sector, donors, and technical partners. The Joint Research Centre of European Commission is the scientific and technical lead for INFORM.

INFORM is developing a suite of quantitative, analytical products to support decision-making on humanitarian crises and disasters. These help make decisions at different stages of the disaster management cycle, specifically prevention, preparedness and response. INFORM develops methodologies and tools for use at the global level and also supports their application at subnational level.

In response to the COVID-19 pandemic, INFORM has released a COVID Risk Index to support the specific decision-making needs of humanitarian and other organisations.

2 Purpose and scope

The INFORM COVID-19 Risk Index is a composite index that identifies: “countries at risk from health and humanitarian impacts of COVID-19 that could overwhelm current national response capacity, and therefore lead to a need for additional international assistance”.

The INFORM COVID-19 Risk Index is primarily concerned with structural risk factors, i.e. those that existed before the outbreak. It can be used to support prioritization of preparedness and early response actions for the primary impacts of the pandemic, and identify countries where secondary impacts are likely to have the most critical humanitarian consequences.

The main scope of the INFORM COVID-19 Risk Index is global and regional risk-informed resource allocation, i.e. where comparable understanding of countries’ risk is important. It cannot predict the impacts of the pandemic in individual countries. It does not consider the mechanisms behind secondary impacts - for example how a COVID-19 outbreak could increase conflict risk.

INFORM is working on developing other products that can help monitor changing risks as a result of the pandemic.

3 Methodology

3.1 Starting point

The INFORM Epidemic Risk Index (Poljansek, 2018) is highly relevant, easily adapted and was developed through an extensive process prior to COVID-19. Therefore it has been used as the starting point for a COVID-19 specific risk index, with the structure and relevant indicators retained as far as possible.

The INFORM Epidemic Risk Index consists of Hazard & Exposure, Vulnerability and Lack of Coping Capacity dimensions. The Person to Person component of Hazard & Exposure is the most relevant to COVID-19 and is used alone.

Vulnerability and Lack of Coping Capacity consist of hazard dependent (specific to the epidemic hazard) and hazard independent (relevant to all hazards covered by the INFORM Global Risk Index). Both parts are retained:

- There are many indicators of broader vulnerability and lack of coping capacity that are directly relevant for COVID-19.
- COVID-19 will compound existing risks (i.e. will not happen alone), so broader factors of vulnerability and lack of coping capacity are important when considering the humanitarian impact of the pandemic.

The main focus of the adaptation for COVID-19 is improvement of the hazard-dependent parts of the index (i.e. factors specific to COVID-19), but within the existing structure.

The COVID-19 Risk Index (like other INFORM risk indexes) is focused on structural factors. It does not contain rapidly changing information, for example on cases, government restrictions, and changing health system capacity in response to the pandemic. However, INFORM is looking at how dynamic risk information on COVID-19 can be organised and potentially aggregated for use in conjunction with the risk index.

Only risk factors for which there is sufficient evidence are included.

3.2 Key changes to the INFORM Epidemic Risk Index analytical framework

The following changes were made to the original INFORM Epidemic Risk Index analytical framework (Poljansek, 2018). The full analytical framework for the INFORM COVID-19 Risk Index is shown in **Table 1**. The previously published INFORM Risk methodology (Marin Ferrer, 2017) is applied.

The changes to the analytical framework are based on literature review and expert input and take into account: 1) the most relevant and certain factors relating to COVID-19; 2) availability of comprehensive and quality indicators that measure the identified factors directly or by proxy.

All of the research around COVID-19 is new. Only factors where there is sufficient published or pre-publication evidence, or that are widely accepted and publicized by credible organisations are included.

Hazard & Exposure

- Only the Person to Person component is used.

Vulnerability

- Movement and behaviour components retained. Although these are less relevant during restrictions on movement, they will become more relevant when restrictions are partially or fully lifted.
- Demographic and Comorbidities specific to COVID-19 added.
- Less relevant vulnerable groups removed.

Lack of Coping Capacity

- Health system capacity specific to COVID-19 added.
- Less relevant institutional and infrastructure capacities removed.

Table 1. INFORM Covid-19 Risk Index Analytical Framework

Dimension	Category	Component	Sub-component	Sub-component
Hazard & Exposure	Person to person	Population	Population density	
			Urban population growth	
			Population living in urban areas	
			Population living in slums	
			Household size	
		WaSH	Sanitation	
			Drinking water	
			Hygiene	
Vulnerability	Covid-19 Vulnerability	Movement (25%)	International movement	Air transport, passengers carried
				International tourism, number of arrivals
				Point of entry
			Internal movement	Access to Cities
				Road density

		Behaviour (25%)	Awareness	Adult literacy rate
				Mobile cellular subscriptions
				Internet users
			Trust	
		Demographic and Comorbidities (50%)	Proportion of the population at increased risk of severe COVID-19 disease	1+ underlying conditions plus 0 conditions (50+ yrs)
	INFORM Vulnerability	Socio-Economic Vulnerability	Development & Deprivation	Human Development Index
				Multidimensional Poverty Index
			Inequality	Gender Inequality Index
				Gini Index
			Economic Dependency Index	Public Aid per capita (US\$)
				Net ODA received (% of GNI)
				Volume of remittances
		Vulnerable Groups	Uprooted people	
			Gender Based Violence	

			Health Conditions	HIV
				Incidence of Tuberculosis
				Malaria incidence per 1,000 population at risk
				People requiring interventions against neglected tropical diseases
			Food Security	Food Availability Score
				Food Utilization Score
Lack of coping capacity	Covid-19 Lack of coping capacity	Health Capacity	Health system capacity specific to Covid-19	International Health Regulations Core Capacities average score
				Country Preparedness and Response Status for COVID-19
	INFORM Lack of coping capacity	Institutional	Governance	Corruption Perception Index
				Government Effectiveness
		Infrastructure	Access to health care	Health system capacity
				Immunization coverage
				Per capita public and private expenditure on health care
				Maternal Mortality ratio

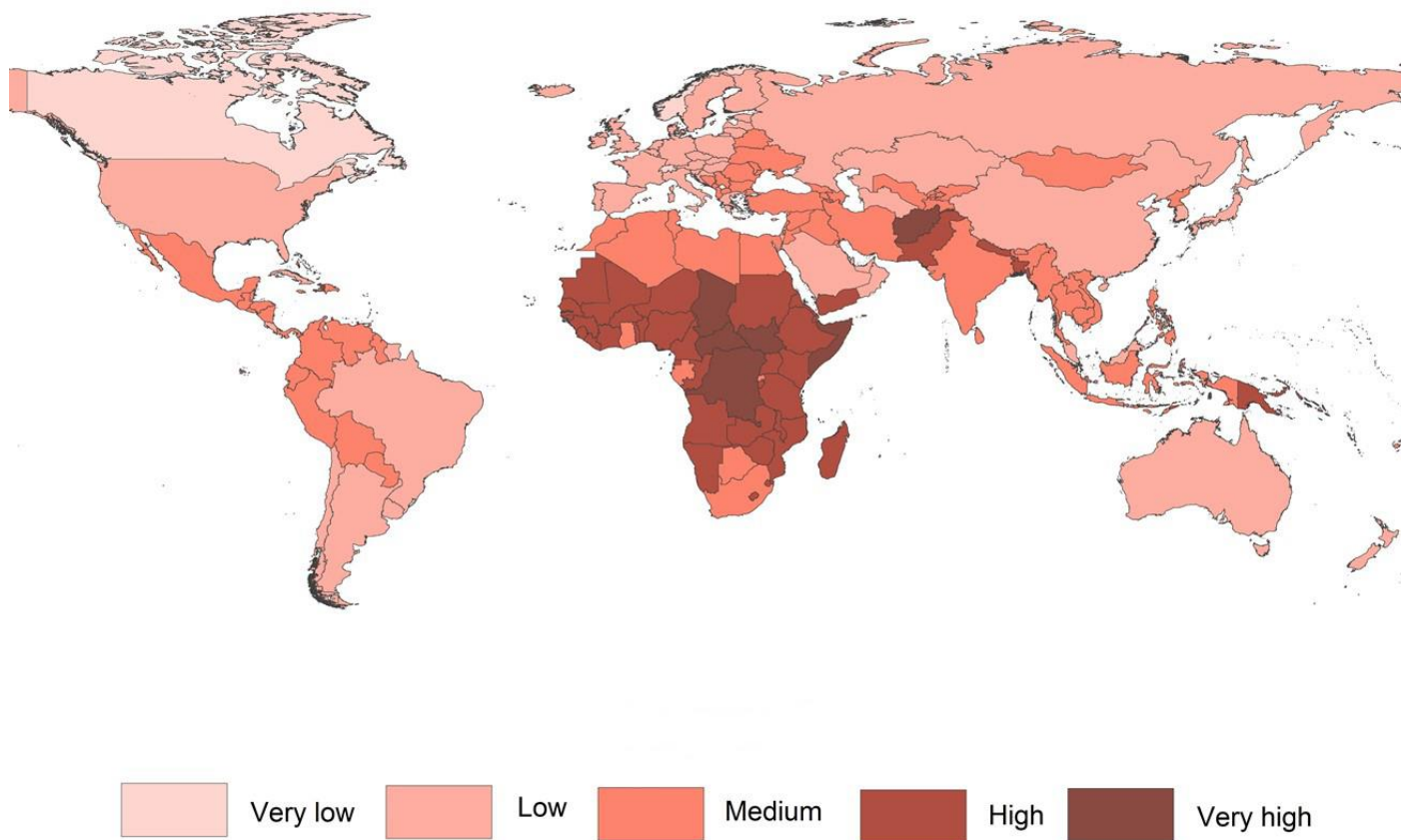


Figure 1. INFORM Covid-19 Risk

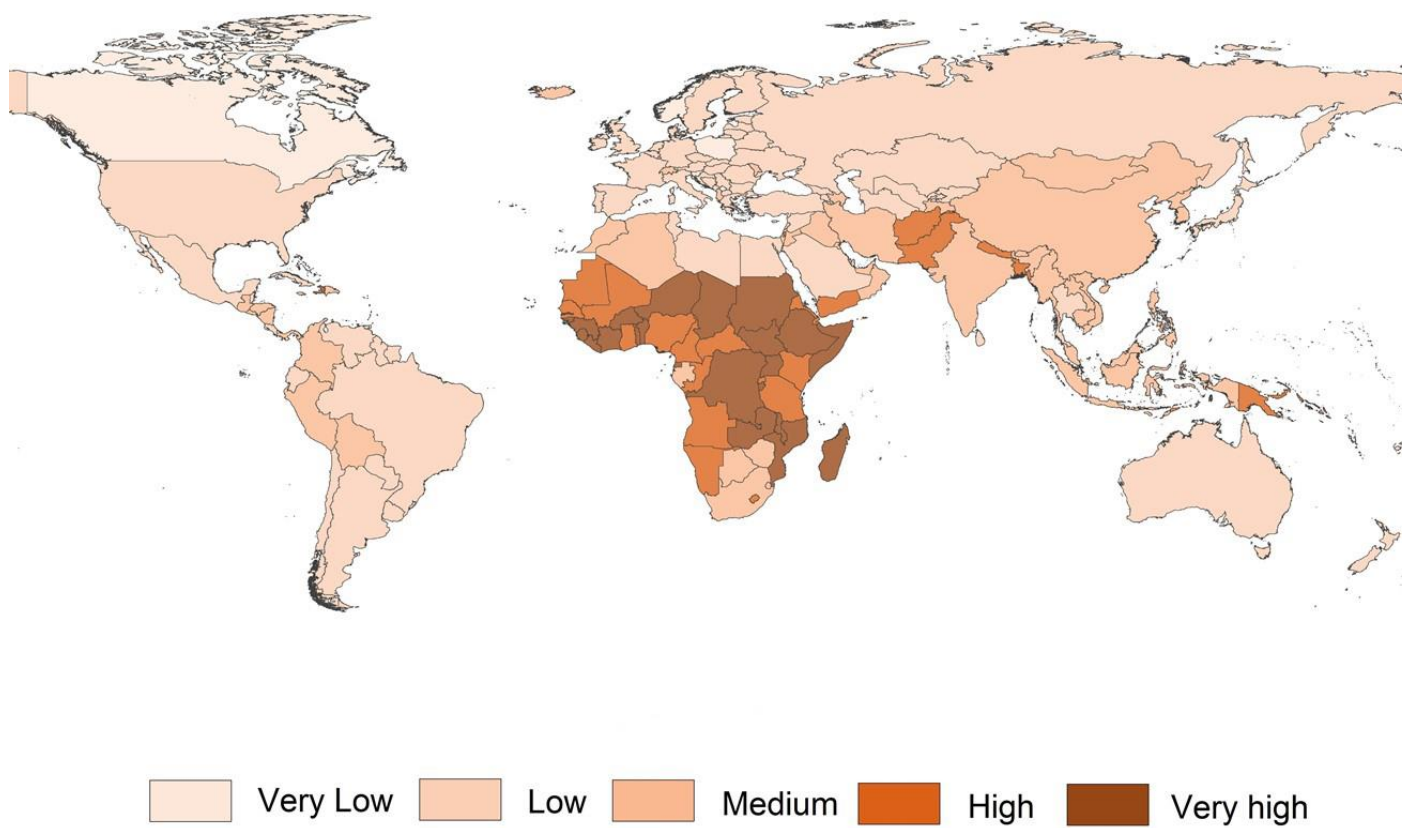


Figure 2. INFORM Covid-19 Hazard & Exposure

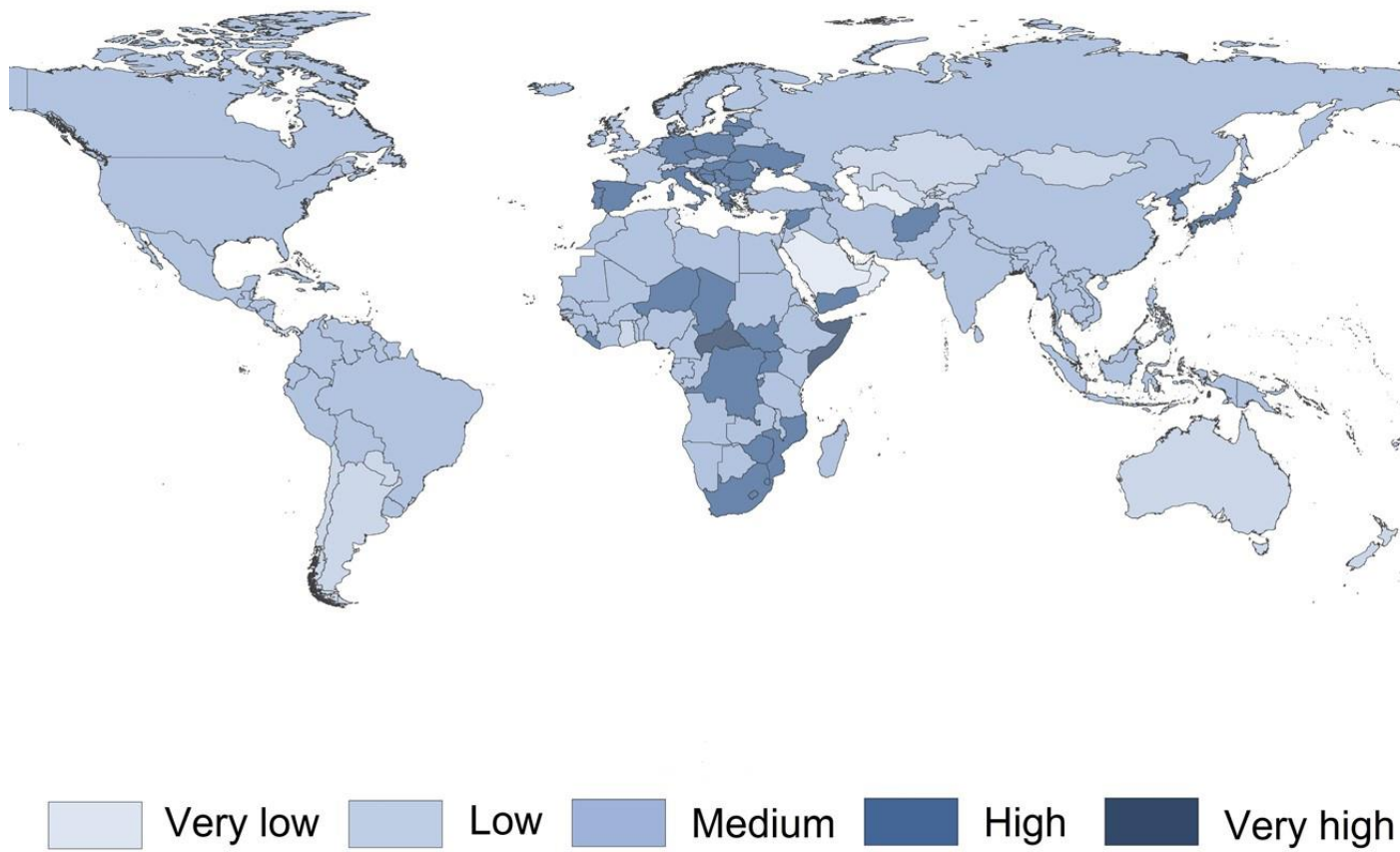


Figure 3. INFORM Covid-19 Vulnerability

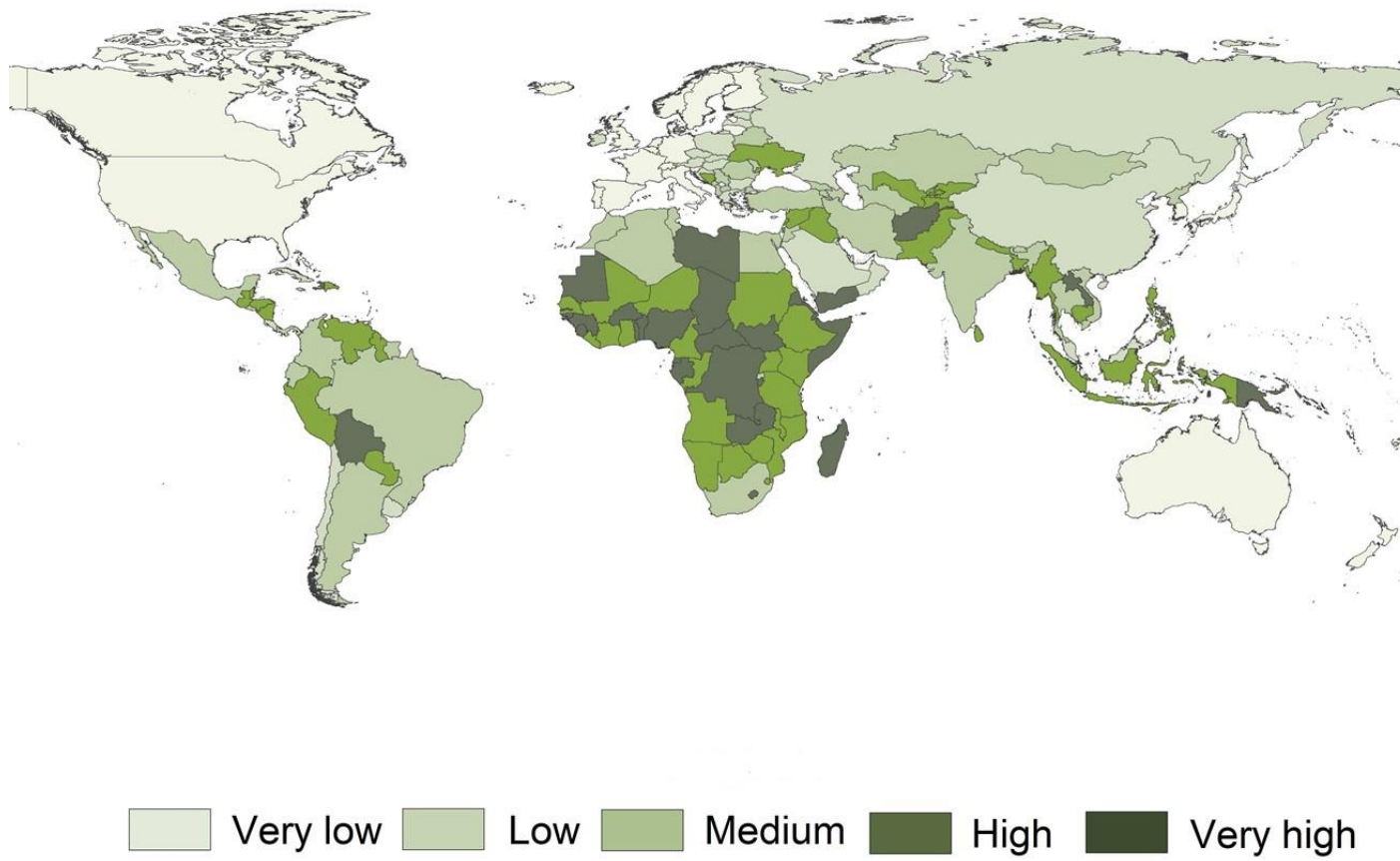


Figure 4. INFORM Covid-19 Lack of Coping Capacity

References

Poljanšek, K., Marin-Ferrer, M., Vernaccini, L., Messina, L., Incorporating epidemics risk in the INFORM Global Risk Index, EUR 29603 EN, Publications Office of the European Union, Luxembourg, 2018, ISBN 978-92-79-98670-3, doi:10.2760/647382, JRC114652

Marin-Ferrer, M., Vernaccini, L. and Poljansek, K., Index for Risk Management INFORM Concept and Methodology Report — Version 2017, EUR 28655 EN, doi:10.2760/094023

List of figures

Figure 1. INFORM Covid-19 Risk.....	11
Figure 2. INFORM Covid-19 Hazard & Exposure	12
Figure 3. INFORM Covid-19 Vulnerability	13
Figure 4. INFORM Covid-19 Lack of Coping Capacity	14

List of tables

Table 1. INFORM Covid-19 Risk Index Analytical Framework 8

Annexes

Annex 1. INFORM Covid-19 Risk Index results table

(0-10 where 10 is higher risk or contribution to risk)

COUNTRY	COVID-19 HAZARD & EXPOSURE	VULNERABILITY (Hazard-)	COVID-19 VULNERABILITY	VULNERABILITY	LACK OF COPING CAPACITY (Hazard-)	COVID-19 LACK OF COPING CAPACITY	LACK OF COPING CAPACITY	INFORM COVID-19 RISK	Rank
Afghanistan	6.4	8.2	3.5	6.4	8.3	7.0	7.7	6.8	5
Albania	3.6	1.9	5.7	4.1	4.8	5.0	4.9	4.2	88
Algeria	4.3	3.0	4.2	3.6	5.2	2.3	3.9	3.9	104
Angola	6.5	5.4	3.0	4.3	7.4	4.6	6.2	5.6	37
Antigua and Barbuda	2.8	2.7	4.0	3.4	4.4	5.4	4.9	3.6	131
Argentina	2.8	1.6	4.6	3.2	4.0	4.3	4.2	3.4	139
Armenia	2.7	2.1	6.1	4.4	4.3	3.4	3.8	3.6	131
Australia	2.5	1.4	5.1	3.5	1.6	0.5	1.1	2.1	183
Austria	2.5	1.5	6.8	4.7	1.4	3.3	2.4	3.0	161
Azerbaijan	4.1	3.2	4.3	3.8	4.5	3.4	3.9	3.9	104
Bahamas	3.4	3.6	4.2	3.9	3.7	5.0	4.4	3.9	104
Bahrain	6.4	1.2	4.3	2.9	4.2	1.9	3.1	3.9	104
Bangladesh	5.7	5.2	3.9	4.6	6.2	4.6	5.5	5.2	48
Barbados	3.0	1.8	6.9	4.8	3.5	5.0	4.3	4.0	98
Belarus	2.9	1.1	6.3	4.2	3.9	5.0	4.5	3.8	112
Belgium	3.4	1.2	7.0	4.7	1.7	1.0	1.4	2.8	168
Belize	2.6	3.1	4.0	3.6	5.5	5.9	5.7	3.8	112
Benin	7.0	5.2	2.9	4.1	6.4	7.0	6.7	5.8	27
Bhutan	3.9	4.9	2.7	3.9	4.4	4.9	4.6	4.1	91
Bolivia	4.6	3.8	3.8	3.8	5.7	7.5	6.7	4.9	61

COUNTRY	COVID-19 HAZARD & EXPOSURE	VULNERABILITY (Hazard-)	COVID-19 VULNERABILITY	VULNERABILITY	LACK OF COPING CAPACITY (Hazard-)	COVID-19 LACK OF COPING CAPACITY	LACK OF COPING CAPACITY	INFORM COVID-19 RISK	Rank
Bosnia and Herzegovina	2.1	2.8	7.2	5.4	5.2	7.1	6.2	4.1	91
Botswana	3.9	4.2	4.3	4.3	4.5	7.4	6.2	4.7	67
Brazil	3.0	2.9	4.4	3.7	5.2	1.9	3.7	3.5	136
Brunei Darussalam	3.9	1.1	4.0	2.7	3.0	2.5	2.8	3.1	156
Bulgaria	2.7	2.1	7.8	5.6	3.6	3.1	3.3	3.7	119
Burkina Faso	7.7	6.4	2.5	4.7	6.4	7.3	6.9	6.3	10
Burundi	6.8	7.2	2.8	5.4	7.5	7.6	7.6	6.5	8
Cabo Verde	4.7	3.5	3.3	3.4	4.5	6.5	5.6	4.5	76
Cambodia	4.9	4.6	3.6	4.1	6.6	5.2	5.9	4.9	61
Cameroon	6.4	6.3	2.4	4.6	7.0	5.6	6.4	5.7	31
Canada	2.0	1.5	5.7	3.9	2.0	0.1	1.1	2.0	188
Central African Republic	6.5	9.4	2.8	7.3	8.7	9.4	9.1	7.6	1
Chad	7.7	7.9	2.8	5.9	9.1	7.3	8.3	7.2	4
Chile	2.9	1.7	4.7	3.3	3.1	2.6	2.8	3.0	161
China	4.0	2.9	5.2	4.1	4.2	0.3	2.5	3.4	139
Colombia	3.8	4.7	4.2	4.5	5.0	4.2	4.6	4.3	80
Comoros	6.6	4.9	2.7	3.9	6.9	9.1	8.2	6.0	19
Congo	5.9	6.5	2.6	4.8	7.4	5.2	6.4	5.7	31
Congo DR	7.9	7.7	2.6	5.7	7.7	5.8	6.9	6.8	5
Costa Rica	3.2	2.3	4.5	3.5	4.0	2.8	3.4	3.4	139
Côte d'Ivoire	6.6	5.8	2.7	4.4	6.6	5.3	6.0	5.6	37
Croatia	2.4	1.1	8.1	5.6	3.5	2.6	3.1	3.5	136
Cuba	2.9	1.6	6.4	4.4	3.5	2.5	3.0	3.4	139

COUNTRY	COVID-19 HAZARD & EXPOSURE	VULNERABILITY (Hazard-)	COVID-19 VULNERABILITY	VULNERABILITY	LACK OF COPING CAPACITY (Hazard-)	COVID-19 LACK OF COPING CAPACITY	LACK OF COPING CAPACITY	INFORM COVID-19 RISK	Rank
Cyprus	2.9	2.9	5.6	4.4	3.1	2.6	2.8	3.3	146
Czech Republic	2.8	0.8	7.8	5.3	2.5	2.9	2.7	3.4	139
Denmark	2.9	1.2	7.1	4.8	1.2	0.2	0.7	2.1	183
Djibouti	5.4	5.6	3.3	4.6	6.7	6.9	6.8	5.5	42
Dominica	3.9	2.3	5.3	4.0	5.5	4.0	4.8	4.2	88
Dominican Republic	4.2	2.7	4.2	3.5	5.8	5.1	5.5	4.3	80
Ecuador	3.5	3.4	3.7	3.6	5.2	3.9	4.6	3.9	104
Egypt	3.0	3.4	4.6	4.0	5.5	2.2	4.0	3.6	131
El Salvador	3.8	3.0	5.2	4.2	5.5	3.8	4.7	4.2	88
Equatorial Guinea	6.7	4.7	2.9	3.9	7.6	7.7	7.6	5.8	27
Eritrea	6.4	5.7	2.8	4.4	7.3	7.0	7.2	5.9	22
Estonia	2.3	1.0	7.0	4.7	2.2	2.6	2.4	3.0	161
Eswatini	4.9	4.9	5.3	5.1	6.2	5.4	5.8	5.3	45
Ethiopia	7.6	6.4	2.5	4.7	6.8	4.6	5.8	5.9	22
Fiji	3.3	3.3	5.1	4.3	4.4	5.6	5.0	4.1	91
Finland	2.3	1.1	7.1	4.8	1.2	0.3	0.8	2.1	183
France	2.8	1.8	7.0	4.9	1.8	2.2	2.0	3.0	161
Gabon	5.0	4.5	2.7	3.7	6.4	6.8	6.6	5.0	56
Gambia	6.9	5.4	2.1	3.9	6.7	7.0	6.9	5.7	31
Georgia	3.1	3.7	6.6	5.3	3.7	4.2	4.0	4.0	98
Germany	2.2	2.1	7.8	5.6	1.2	0.5	0.8	2.1	183
Ghana	5.5	4.4	2.5	3.5	5.8	5.2	5.5	4.7	67
Greece	2.2	2.1	7.7	5.6	3.3	2.5	2.9	3.3	146

COUNTRY	COVID-19 HAZARD & EXPOSURE	VULNERABILITY (Hazard- VULNERABILITY)	COVID-19 VULNERABILITY	VULNERABILITY	LACK OF COPING CAPACITY (Hazard- CAPACITY)	COVID-19 LACK OF COPING CAPACITY	LACK OF COPING CAPACITY	INFORM COVID-19 RISK	Rank
Grenada	2.7	2.3	4.8	3.7	4.5	5.0	4.8	3.6	131
Guatemala	4.6	4.6	3.6	4.1	6.2	5.7	5.9	4.8	64
Guinea	6.9	6.1	2.9	4.7	8.0	4.8	6.7	6.0	19
Guinea-Bissau	7.0	6.4	2.3	4.7	7.6	6.8	7.2	6.2	11
Guyana	2.4	3.6	4.1	3.9	5.4	5.0	5.2	3.7	119
Haiti	6.8	6.9	3.9	5.6	8.4	6.8	7.7	6.6	7
Honduras	4.3	4.8	3.3	4.1	5.9	7.1	6.5	4.9	61
Hungary	2.4	1.4	7.7	5.4	3.2	2.9	3.1	3.4	139
Iceland	3.8	0.7	5.7	3.6	1.7	0.8	1.3	2.6	175
India	4.7	4.5	4.5	4.5	5.4	3.8	4.6	4.6	73
Indonesia	4.4	3.4	4.4	3.9	5.7	4.4	5.1	4.4	77
Iran	3.6	3.1	4.2	3.7	5.2	2.0	3.8	3.7	119
Iraq	4.2	5.6	3.1	4.5	7.0	4.7	6.0	4.8	64
Ireland	3.1	0.9	5.9	3.8	1.9	2.9	2.4	3.0	161
Israel	4.1	1.4	4.6	3.2	2.4	0.5	1.5	2.7	173
Italy	2.8	1.5	8.2	5.8	3.0	0.8	1.9	3.1	156
Jamaica	4.0	2.8	5.2	4.1	4.7	3.7	4.2	4.1	91
Japan	3.2	1.1	8.2	5.7	1.4	0.0	0.7	2.3	181
Jordan	4.1	4.8	3.0	4.0	4.4	5.1	4.8	4.3	80
Kazakhstan	2.6	0.9	4.2	2.7	4.3	4.0	4.1	3.1	156
Kenya	6.0	6.1	2.9	4.7	6.8	5.8	6.3	5.6	37
Kiribati	5.9	5.6	6.2	5.9	5.5	6.2	5.9	5.9	22
Korea DPR	3.9	6.0	4.8	5.4	5.6	4.4	5.0	4.7	67

COUNTRY	COVID-19 HAZARD & EXPOSURE	VULNERABILITY (Hazard-)	COVID-19 VULNERABILITY	VULNERABILITY	LACK OF COPING CAPACITY (Hazard-)	COVID-19 LACK OF COPING CAPACITY	LACK OF COPING CAPACITY	INFORM COVID-19 RISK	Rank
Korea Republic of	3.9	1.2	7.1	4.8	2.2	0.3	1.3	2.9	167
Kuwait	4.9	1.9	4.3	3.2	3.8	3.5	3.6	3.8	112
Kyrgyzstan	3.1	3.1	3.1	3.1	5.4	5.9	5.7	3.8	112
Lao PDR	4.1	4.0	3.2	3.6	6.2	7.0	6.6	4.6	73
Latvia	2.4	1.1	8.1	5.6	3.0	2.5	2.8	3.4	139
Lebanon	4.5	5.2	5.5	5.4	5.7	4.6	5.2	5.0	56
Lesotho	5.5	5.8	5.6	5.7	6.4	7.1	6.8	6.0	19
Liberia	7.0	6.8	3.2	5.3	7.4	5.2	6.4	6.2	11
Libya	3.0	4.1	3.7	3.9	6.7	6.7	6.7	4.3	80
Liechtenstein	1.9	0.9	4.0	2.6	1.5	x	1.5	1.9	189
Lithuania	2.4	1.0	7.6	5.2	2.5	0.9	1.7	2.8	168
Luxembourg	3.8	1.0	6.4	4.2	1.4	2.5	1.9	3.1	156
Madagascar	6.9	6.0	2.7	4.6	7.2	7.5	7.3	6.1	15
Malawi	6.6	6.1	3.1	4.8	6.6	5.4	6.0	5.7	31
Malaysia	4.2	2.9	4.2	3.6	3.7	0.3	2.1	3.2	153
Maldives	4.8	1.9	3.0	2.5	5.0	5.3	5.2	4.0	98
Mali	6.0	6.5	2.5	4.8	7.6	5.1	6.5	5.7	31
Malta	4.7	1.4	7.2	4.9	2.6	3.3	2.9	4.1	91
Marshall Islands	4.7	4.8	4.7	4.8	7.6	6.3	7.0	5.4	44
Mauritania	6.3	5.4	2.4	4.1	7.4	7.5	7.4	5.8	27
Mauritius	3.0	1.6	7.2	5.0	3.7	3.2	3.4	3.7	119
Mexico	3.3	3.1	5.2	4.2	5.0	2.0	3.6	3.7	119
Micronesia	3.6	4.9	5.5	5.2	5.3	7.5	6.5	5.0	56

COUNTRY	COVID-19 HAZARD & EXPOSURE	VULNERABILITY (Hazard-)	COVID-19 VULNERABILITY	VULNERABILITY	LACK OF COPING CAPACITY (Hazard-)	COVID-19 LACK OF COPING CAPACITY	LACK OF COPING CAPACITY	INFORM COVID-19 RISK	Rank
Moldova Republic of	3.8	2.2	6.6	4.8	5.0	4.5	4.8	4.4	77
Mongolia	3.8	3.1	3.5	3.3	4.9	3.2	4.1	3.7	119
Montenegro	2.7	1.2	5.9	3.9	4.2	5.2	4.7	3.7	119
Morocco	4.1	3.2	5.0	4.2	5.1	3.8	4.5	4.3	80
Mozambique	6.9	7.2	3.5	5.7	7.1	4.9	6.1	6.2	11
Myanmar	4.3	5.1	4.4	4.8	6.5	4.2	5.5	4.8	64
Namibia	5.1	5.2	3.6	4.4	5.1	6.4	5.8	5.1	51
Nauru	4.9	4.3	5.1	4.7	4.7	7.1	6.0	5.2	48
Nepal	5.1	4.7	3.4	4.1	6.4	6.4	6.4	5.1	51
Netherlands	3.5	1.4	6.6	4.5	1.3	0.6	0.9	2.4	178
New Zealand	3.1	0.8	5.1	3.2	1.5	0.5	1.0	2.1	183
Nicaragua	4.3	3.7	4.2	4.0	6.1	5.1	5.6	4.6	73
Niger	7.1	7.0	2.9	5.3	7.2	5.3	6.3	6.2	11
Nigeria	6.5	5.7	2.7	4.4	8.7	4.9	7.2	5.9	22
North Macedonia	2.5	1.8	6.4	4.5	4.4	4.4	4.4	3.7	119
Norway	2.0	1.4	6.1	4.1	1.2	0.4	0.8	1.9	189
Oman	5.0	1.4	3.0	2.2	3.4	1.3	2.4	3.0	161
Pakistan	5.3	5.3	3.4	4.4	6.5	6.2	6.4	5.3	45
Palau	3.5	2.8	3.7	3.3	4.5	5.8	5.2	3.9	104
Palestine	5.1	5.2	2.9	4.1	4.0	7.5	6.0	5.0	56
Panama	3.6	2.6	4.2	3.4	4.6	4.0	4.3	3.7	119
Papua New Guinea	5.6	5.3	4.2	4.8	6.6	7.0	6.8	5.7	31
Paraguay	2.5	3.0	3.7	3.4	5.7	5.7	5.7	3.6	131

COUNTRY	COVID-19 HAZARD & EXPOSURE	VULNERABILITY (Hazard-)	COVID-19 VULNERABILITY	VULNERABILITY	LACK OF COPING CAPACITY (Hazard-)	COVID-19 LACK OF COPING CAPACITY	LACK OF COPING CAPACITY	INFORM COVID-19 RISK	Rank
Peru	4.0	3.8	3.8	3.8	5.5	4.8	5.1	4.3	80
Philippines	4.5	3.9	4.3	4.1	5.9	5.0	5.5	4.7	67
Poland	2.0	1.1	7.6	5.2	3.0	2.5	2.8	3.1	156
Portugal	2.2	1.0	8.1	5.6	2.3	1.2	1.7	2.8	168
Qatar	5.0	1.0	3.4	2.3	3.2	3.2	3.2	3.3	146
Romania	2.4	1.6	7.9	5.6	4.6	2.7	3.7	3.7	119
Russian Federation	2.3	2.1	6.7	4.8	4.4	1.3	3.0	3.2	153
Rwanda	5.9	6.4	2.2	4.6	5.1	4.2	4.6	5.0	56
Saint Kitts and Nevis	2.9	1.7	3.9	2.9	3.5	5.1	4.3	3.3	146
Saint Lucia	2.5	2.9	6.2	4.8	5.0	4.5	4.8	3.9	104
Saint Vincent and the Grenadines	3.8	1.8	5.6	3.9	4.3	5.3	4.8	4.1	91
Samoa	1.8	3.9	3.7	3.8	5.2	5.1	5.2	3.3	146
Sao Tome and Principe	6.4	4.4	2.2	3.4	5.5	6.8	6.2	5.1	51
Saudi Arabia	3.1	1.2	3.2	2.3	3.2	2.8	3.0	2.8	168
Senegal	6.1	5.3	2.1	3.9	5.9	5.3	5.6	5.1	51
Serbia	2.3	1.9	7.3	5.2	4.1	4.1	4.1	3.7	119
Seychelles	3.8	2.1	5.3	3.9	3.6	5.1	4.4	4.0	98
Sierra Leone	7.1	6.3	2.8	4.8	7.6	5.6	6.7	6.1	15
Singapore	4.0	1.2	5.8	3.9	1.4	0.5	0.9	2.4	178
Slovakia	2.5	1.1	7.4	5.0	3.1	2.8	3.0	3.3	146
Slovenia	2.0	0.7	7.8	5.2	2.6	0.9	1.8	2.7	173
Solomon Islands	5.7	5.7	3.3	4.6	6.0	7.1	6.6	5.6	37
Somalia	6.9	8.7	2.6	6.6	9.4	7.2	8.5	7.3	2

COUNTRY	COVID-19 HAZARD & EXPOSURE	VULNERABILITY (Hazard-)	COVID-19 VULNERABILITY	VULNERABILITY	LACK OF COPING CAPACITY (Hazard-)	COVID-19 LACK OF COPING CAPACITY	LACK OF COPING CAPACITY	INFORM COVID-19 RISK	Rank
South Africa	4.1	5.2	5.5	5.4	5.2	4.2	4.7	4.7	67
South Sudan	7.3	8.3	2.7	6.2	9.7	6.8	8.6	7.3	2
Spain	2.5	1.4	7.7	5.4	2.3	0.8	1.6	2.8	168
Sri Lanka	3.4	3.3	5.5	4.5	5.0	5.2	5.1	4.3	80
Sudan	6.8	6.3	3.2	4.9	7.3	4.3	6.0	5.8	27
Suriname	2.5	3.0	4.3	3.7	5.7	3.9	4.8	3.5	136
Sweden	2.8	2.0	6.4	4.6	1.2	0.4	0.8	2.2	182
Switzerland	3.7	1.7	4.3	3.1	1.1	0.0	0.6	1.9	189
Syria	2.9	7.3	3.1	5.6	7.6	5.0	6.5	4.7	67
Tajikistan	4.3	4.1	2.2	3.2	5.9	5.9	5.9	4.3	80
Tanzania	6.4	6.2	2.4	4.6	6.5	5.2	5.9	5.6	37
Thailand	3.2	2.5	6.3	4.7	4.8	2.3	3.7	3.8	112
Timor-Leste	5.6	5.7	3.2	4.6	6.2	6.6	6.4	5.5	42
Togo	6.8	5.3	3.2	4.3	6.7	7.2	6.9	5.9	22
Tonga	2.7	4.3	4.3	4.3	5.0	5.9	5.5	4.0	98
Trinidad and Tobago	2.6	2.1	6.3	4.5	4.2	5.1	4.6	3.8	112
Tunisia	3.3	1.9	4.9	3.5	4.7	4.2	4.5	3.7	119
Turkey	3.4	3.6	5.4	4.6	4.6	2.6	3.7	3.9	104
Turkmenistan	3.1	1.5	3.2	2.4	5.5	4.2	4.9	3.3	146
Tuvalu	4.8	4.9	4.6	4.8	5.6	6.1	5.8	5.1	51
Uganda	7.1	7.2	2.6	5.3	6.7	5.0	5.9	6.1	15
Ukraine	2.4	2.9	7.2	5.4	5.2	5.0	5.1	4.0	98
United Arab Emirates	4.4	1.2	3.4	2.4	2.3	0.3	1.3	2.4	178

COUNTRY	COVID-19 HAZARD & EXPOSURE	VULNERABILITY (Hazard-)	COVID-19 VULNERABILITY	VULNERABILITY	LACK OF COPING CAPACITY (Hazard-)	COVID-19 LACK OF COPING CAPACITY	LACK OF COPING CAPACITY	INFORM COVID-19 RISK	Rank
United Kingdom	3.2	1.5	6.5	4.5	2.0	0.4	1.2	2.6	175
United States of America	2.8	1.9	6.1	4.3	2.0	0.5	1.3	2.5	177
Uruguay	2.9	1.7	5.2	3.7	2.7	3.3	3.0	3.2	153
Uzbekistan	3.5	2.9	3.4	3.2	5.3	6.6	6.0	4.1	91
Vanuatu	4.7	5.9	3.4	4.8	5.7	7.1	6.4	5.2	48
Venezuela	3.2	3.9	4.4	4.2	7.3	5.4	6.4	4.4	77
Viet Nam	3.7	2.5	4.6	3.6	5.1	3.2	4.2	3.8	112
Yemen	6.3	7.6	3.1	5.8	8.1	6.2	7.2	6.4	9
Zambia	6.9	6.7	2.7	5.0	6.1	7.2	6.7	6.1	15
Zimbabwe	4.8	6.3	4.0	5.3	7.0	4.8	6.0	5.3	45

GETTING IN TOUCH WITH THE EU

In person

All over the European Union there are hundreds of Europe Direct information centres. You can find the address of the centre nearest you at: https://europa.eu/european-union/contact_en

On the phone or by email

Europe Direct is a service that answers your questions about the European Union. You can contact this service:

- by freephone: 00 800 6 7 8 9 10 11 (certain operators may charge for these calls),
- at the following standard number: +32 22999696, or
- by electronic mail via: https://europa.eu/european-union/contact_en

FINDING INFORMATION ABOUT THE EU

Online

Information about the European Union in all the official languages of the EU is available on the Europa website at: https://europa.eu/european-union/index_en

EU publications

You can download or order free and priced EU publications from EU Bookshop at: <https://publications.europa.eu/en/publications>. Multiple copies of free publications may be obtained by contacting Europe Direct or your local information centre (see https://europa.eu/european-union/contact_en).

The European Commission's science and knowledge service

Joint Research Centre

JRC Mission

As the science and knowledge service of the European Commission, the Joint Research Centre's mission is to support EU policies with independent evidence throughout the whole policy cycle.



EU Science Hub
ec.europa.eu/jrc



@EU_ScienceHub



EU Science Hub - Joint Research Centre



EU Science, Research and Innovation



EU Science Hub



Publications Office
of the European Union

doi:10.2760/596184

ISBN 978-92-76-19203-9