1.Supplementary Materials

Identifying the importance of disaster resilience dimensions across different countries using the Delphi method

Table S1. Countries selected in the research.

Afghanistan, Albania, Algeria, Angola, Antigua e Barbuda, Argentina, Armenia, Australia, Austria, Azerbaijan, Bahamas, Bangladesh, Barbados, Bahrain, Belarus, Belgium, Belize, Benin, Bhutan, Bolivia, Bosnia-Herzegovina, Botswana, Brazil, Brunei, Bulgaria , Burkina Faso, Burundi, Cabo Verde, Cambodia, Cameroon, Canada, Chad, Chile, China, Colombia, Comoros, Congo, Costa Rica, Cote d'Ivoire, Croatia, Cuba, Cyprus, Czechia (Czech Republic), Democratic People's Republic of Korea (North), Democratic Republic of the Congo, Denmark, Djibouti, Dominica, Dominican Republic, Ecuador, Egypt, El Salvador, Estonia, Ethiopia, Fiji, Finland, France, Gabon, Gambia, Georgia, Germany, Ghana, Greece, Guatemala, Guinea, Guinea Bissau, Guyana, Haiti , Honduras, Hungary, Iceland, India, Indonesia, Iran, Iraq, Ireland, Israel, Italy, Jamaica, Japan, Jordan, Kazakhstan, Kenya, Kiribati, Kirghizstan, Lao, Latvia, Lebanon, Lesotho, Liberia, Lithuania, Luxembourg, Madagascar, Malawi, Malaysia, Maldives, Mali, Malta, Mauritania, Mauritius, Mexico, Mongolia, Montenegro, Morocco, Mozambique, Myanmar, Namibia, Nepal, Netherlands, New Zealand, Nicaragua, Niger, Nigeria, Norway, Oman, Pakistan, Panama, Papua New Guinea, Paraguay, Peru, Philippines, Poland, Portugal, Qatar, Republic of Korea (South), Republic of Moldova, Romania, Russia, Rwanda, Saint Lucia, Saint Vincent and Grenadine, Samoa, Sao Tome e Principe, Saudi Arabia, Senegal, Serbia, Seychelles, Sierra Leone, Slovakia, Slovenia, Solomon Islands, South Africa, Spain, Sri Lanka, Sudan, Suriname, Swaziland, Sweden, Switzerland, Syria, Tajikistan, Tanzania (united Republic of), Thailand, The former Yugoslav Republic of Macedonia, Timor Est, Togo, Tonga, Trinidad e Tobago, Tunisia, Turkey, Turkmenistan, Uganda, Ukraine, United Arab Emirates, United Kingdom, United States of America, Uruguay, Uzbekistan, Vanuatu, Venezuela, Vietnam, Yemen, Zambia, Zimbabwe.

Table S2. Imputation of missing values: identification of the nearest neighbours, geographical meaningfulness and availability of data *.

Country	Missing value	Nearest neighbour	Correlation coefficient	Meaningfulness	Available
Australia	I4	Canada	0.99	yes	no
		Austria	0.99	no	
		Norway	0.99	no	average
		Finland	0.99	no	
Canada	I4	UK	0.99	yes	no
		Switzerland	0.99	no	
		Austria	0.99	no	average
		Norway	0.99	no	
New Zealand	I1, I4	Canada	0.99	yes	no
		Denmark	0.99	yes	
		Finland	0.99		average
		Hungary	0.99		
USA	I4	France	0.99	no	no
		Estonia	0.99	no	yes
UK	I4	Switzerland	1.00	yes	yes
Turkmenistan	I4	Uzbekistan	0.98	yes	yes
Bosnia and Herzegovina	I4	Russia	0.98	no	yes
		The former Yugoslav Republic of Macedonia	0.97	yes	yes
Qatar	I1, I2	Saudi Arabia	0.98	yes	yes
Syria	I2	Iraq	0.97	yes	yes
Seychelles	I2, I6	Lithuania	0.99	no	
		Chile	0.99	no	
		Cyprus	0.99	no	
		France	0.99	no	
		Georgia	0.99	no	
		Greece	0.99	no	
		Israel	0.99	no	
		Latvia	0.99	no	
		Mauritius	0.98	yes	yes
Samoa	I6, I11	Fiji	0.99	yes	yes
Tonga	I2, I6, I11, I13	Fiji	0.98	yes	yes
		Samoa	0.98	no	yes
Kiribati	I6, I13	Samoa	0.89	yes	no
		Fiji	0.87	yes	yes
Solomon Islands	I13, I16	Vanuatu	0.97	no	yes
		Botswana	0.97	yes	yes
Iraq	I16	Syria	0.97	yes	yes
Guinea Bissau	I13	Democratic Republic of the Congo	0.95	yes	yes

Table S2 (continued). Imputation of missing values: identification of the nearest neighbours, geographical meaningfulness and availability of data *.

Country	Missing value	Nearest neighbour	Correlation coefficient	Meaningfulness	Available
Dominica	I10, I13	Sao Tome	0.99	no	yes
		Indonesia	0.98	no	yes
		Seychelles	0.98	no	
		Saint Lucia	0.97	yes	yes
Timor-Leste	I13	Namibia	0.87	no	yes
		Lao People's Democratic Republic	0.87	no	yes
		Mongolia	0.86	no	yes
		Ecuador	0.86	no	yes
		Ghana	0.86	no	yes
		Dominica	0.85	no	yes
		Philippines	0.85	yes	
		Papua	0.84	yes	average
		Indonesia	0.83	yes	
Saint Lucia	I1, I13	Bahamas	0.99	yes	yes
Saint Vincent and the Grenadines	I1, I10, I13	Bahamas	0.99	yes	yes
Comoros	I2, I13	Togo	0.93	no	yes
		Nigeria	0.93	no	yes
		Ghana	0.93	no	yes
		Swaziland	0.91	yes	yes
Antigua	I1	Samoa	0.97	yes	yes
Barbados	I1	Israel	0.96	no	yes
		Seychelles	0.95	yes	yes
Bahrain	I1	Egypt	0.96	yes	yes
Brunei	I1, I10	Malaysia	0.98	yes	yes
Cuba	I1, I10	Mexico	0.98	yes	yes
Oman	I1, I10	Iran	0.99	yes	average
		Jordan	0.97	yes	

* The imputation of missing values was based on the "nearest neighbour", which in this case is the country with the highest correlation value. When different countries showed similarly high correlation values, those with the highest geographical proximity or historical commonalities (for example countries in the Commonwealth) were selected. When the value for those countries was not available, the value from the next best correlated country was selected.
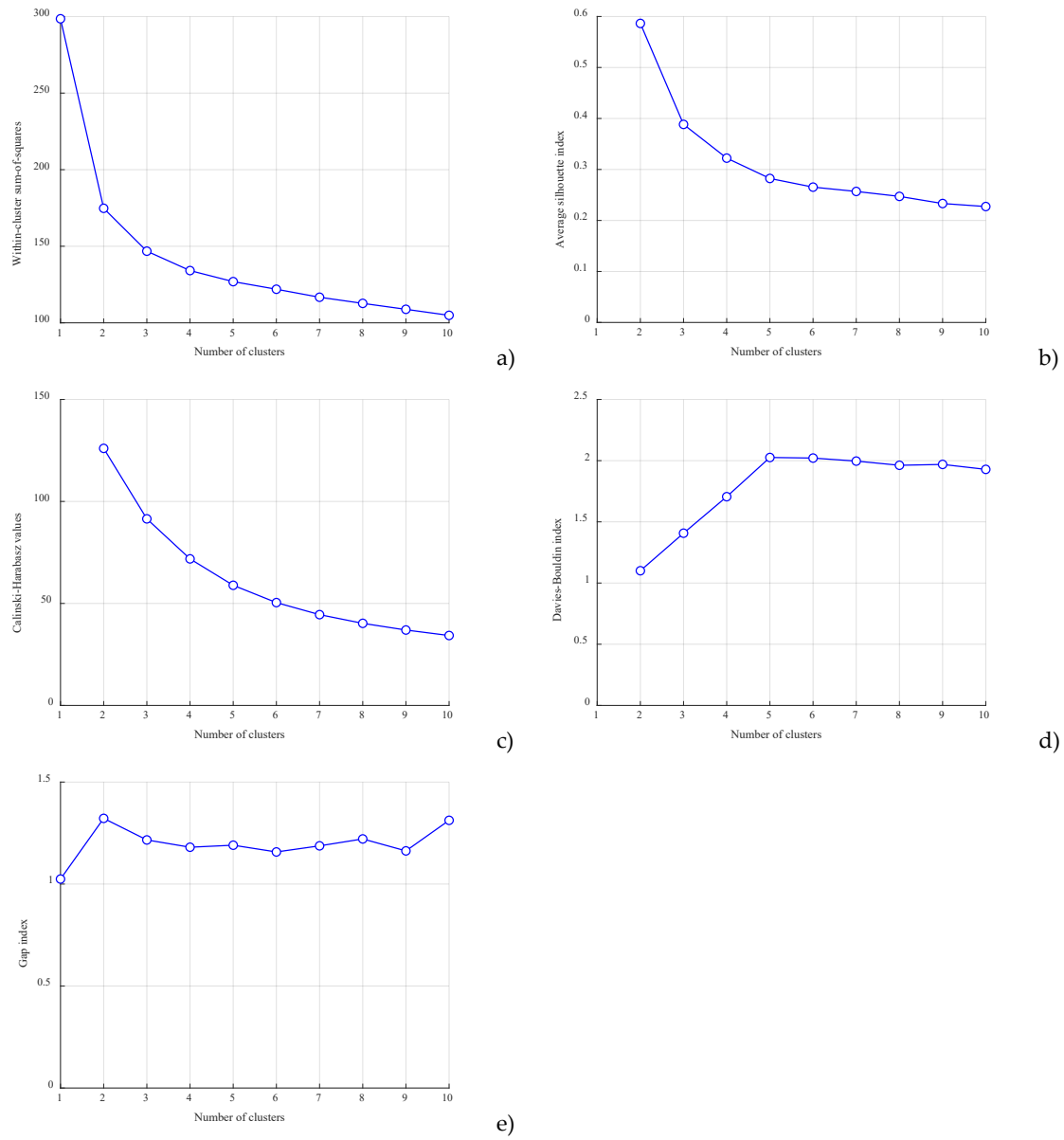
Figure S1. Results of the internal cluster validity indices: Within-cluster sum-of-squares (elbow index) (a), average silhouette index (b) Calinski-Harabasz index (c), Davies-Bouldin index (d), gap index (e).

Table S3. Clusters of countries considering 3 clusters.

Cluster 1	Afghanistan, Angola, Benin, Botswana, Burkina Faso, Burundi, Cambodia, Cameroon, Chad, Comoros (the), Congo (the Democratic Republic of the), Congo (the), Côte d'Ivoire, Djibouti, Eswatini, Ethiopia, Gabon, Gambia (the), Guinea, Guinea-Bissau, Haiti, Kenya, Korea (the Democratic People's Republic of), Lao People's Democratic Republic (the), Lesotho, Liberia, Madagascar, Malawi, Mali, Mauritania, Mozambique, Myanmar, Namibia, Niger (the), Nigeria, Papua New Guinea, Rwanda, Senegal, Sierra Leone, Solomon Islands, Sudan (the), Tanzania (United Republic of), Timor-Leste, Togo, Uganda, Vanuatu, Yemen, Zambia, Zimbabwe.
Cluster 2	Albania, Algeria, Antigua and Barbuda, Armenia, Azerbaijan, Bahrain, Bangladesh, Belize, Bhutan, Bolivia (Plurinational State of), Bosnia and Herzegovina, Brazil, Bulgaria, Cabo Verde, China, Colombia, Dominican Republic (the), Ecuador, Egypt, El Salvador, Fiji, Ghana, Guatemala, Honduras, India, Indonesia, Iran (Islamic Republic of), Iraq, Jamaica, Jordan, Kiribati, Korea (the Republic of), Kyrgyzstan, Lebanon, Maldives, Mexico, Moldova (the Republic of), Mongolia, Morocco, Nepal, Nicaragua, Oman, Pakistan, Panama, Paraguay, Peru, Philippines (the), Qatar, Republic of North Macedonia, Russian Federation (the), Samoa, Sao Tome and Principe, Saudi Arabia, South Africa, Sri Lanka, Suriname, Syrian Arab Republic, Tajikistan, Thailand, Tonga, Trinidad and Tobago, Tunisia, Turkey, Turkmenistan, Ukraine, Uzbekistan, Venezuela (Bolivarian Republic of), Viet Nam.
Cluster 3	Argentina, Australia, Austria, Bahamas (the), Barbados, Belarus, Belgium, Brunei Darussalam, Canada, Chile, Costa Rica, Croatia, Cuba, Cyprus, Czechia, Denmark, Dominica, Estonia, Finland, France, Georgia, Germany, Greece, Guyana, Hungary, Iceland, Ireland, Israel, Italy, Japan, Kazakhstan, Latvia, Lithuania, Luxembourg, Malaysia, Malta, Mauritius, Montenegro, Netherlands (the), New Zealand, Norway, Poland, Portugal, Romania, Saint Lucia, Saint Vincent and the Grenadines, Serbia, Seychelles, Slovakia, Slovenia, Spain, Sweden, Switzerland, United Arab Emirates (the), United Kingdom of Great Britain and Northern Ireland (the), United States of America (the), Uruguay.

Table S4. Clusters of countries considering 4 clusters.

Cluster 1	Angola, Benin, Burkina Faso, Burundi, Chad, Congo (the Democratic Republic of the), Ethiopia, Guinea, Guinea-Bissau, Haiti, Lesotho, Liberia, Madagascar, Malawi, Mali, Mozambique, Niger (the), Papua New Guinea, Rwanda, Sierra Leone, Tanzania (United Republic of), Uganda, Zambia
Cluster 2	Afghanistan, Botswana, Cambodia, Cameroon, Comoros (the), Congo (the), Côte d'Ivoire, Djibouti, Eswatini, Gabon, Gambia (the), Kenya, Kiribati, Korea (the Democratic People's Republic of), Lao People's Democratic Republic (the), Mauritania, Myanmar, Namibia, Nigeria, Pakistan, Sao Tome and Principe, Senegal, Solomon Islands, Sudan (the), Timor-Leste, Togo, Vanuatu, Yemen, Zimbabwe
Cluster 3	Albania, Algeria, Antigua and Barbuda, Armenia, Azerbaijan, Bahrain, Bangladesh, Belize, Bhutan, Bolivia (Plurinational State of), Bosnia and Herzegovina, Brazil, Bulgaria, Cabo Verde, China, Colombia, Dominican Republic (the), Ecuador, Egypt, El Salvador, Fiji, Ghana, Guatemala, Honduras, Hungary, India, Indonesia, Iran (Islamic Republic of), Iraq, Jamaica, Jordan, Korea (the Republic of), Kyrgyzstan, Lebanon, Malaysia, Maldives, Mauritius, Moldova (the Republic of), Mongolia, Morocco, Nepal, Nicaragua, Oman, Panama, Paraguay, Peru, Philippines (the), Qatar, Republic of North Macedonia, Russian Federation (the), Saint Lucia, Samoa, Saudi Arabia, South Africa, Sri Lanka, Suriname, Syrian Arab Republic, Tajikistan, Thailand, Tonga, Trinidad and Tobago, Tunisia, Turkey, Turkmenistan, Ukraine, Uzbekistan, Venezuela (Bolivarian Republic of), Viet Nam
Cluster 4	Argentina, Australia, Austria, Bahamas (the), Barbados, Belarus, Belgium, Brunei Darussalam, Canada, Chile, Costa Rica, Croatia, Cuba, Cyprus, Czechia, Denmark, Dominica, Estonia, Finland, France, Georgia, Germany, Greece, Guyana, Iceland, Ireland, Israel, Italy, Japan, Kazakhstan, Latvia, Lithuania, Luxembourg, Malta, Montenegro, Netherlands (the), New Zealand, Norway, Poland, Portugal, Romania, Saint Vincent and the Grenadines, Serbia, Seychelles, Slovakia, Slovenia, Spain, Sweden, Switzerland, United Arab Emirates (the), United Kingdom of Great Britain and Northern Ireland (the), United States of America (the), Uruguay.

Table S5. Clusters of countries considering 5 clusters.

Cluster 1	Afghanistan, Benin, Botswana, Cambodia, Cameroon, Comoros (the), Congo (the), Côte d'Ivoire, Djibouti, Eswatini, Gabon, Gambia (the), Kenya, Kiribati, Lao People's Democratic Republic (the), Mauritania, Myanmar, Nigeria, Pakistan, Sao Tome and Principe, Senegal, Solomon Islands, Sudan (the), Togo, Vanuatu, Yemen.
Cluster 2	Albania, Algeria, Antigua and Barbuda, Armenia, Azerbaijan, Bahrain, Belize, Bhutan, Bolivia (Plurinational State of), Bosnia and Herzegovina, Brazil, Bulgaria, Cabo Verde, China, Colombia, Dominican Republic (the), Ecuador, Egypt, El Salvador, Fiji, Ghana, Guatemala, Honduras, Hungary, India, Indonesia, Iran (Islamic Republic of), Iraq, Jamaica, Jordan, Korea (the Republic of), Kyrgyzstan, Lebanon, Malaysia, Maldives, Mauritius, Mexico, Moldova (the Republic of), Mongolia, Morocco, Nepal, Nicaragua, Oman, Panama, Paraguay, Peru, Philippines (the), Republic of North Macedonia, Russian Federation (the), Saint Lucia, Samoa, South Africa, Sri Lanka, Suriname, Syrian Arab Republic, Tajikistan, Thailand, Tonga, Trinidad and Tobago, Tunisia, Turkey, Turkmenistan, Ukraine, Uzbekistan, Venezuela (Bolivarian Republic of), Viet Nam.
Cluster 3	Bangladesh, Qatar, Saudi Arabia, United Arab Emirates (the).
Cluster 4	Angola, Burkina Faso, Burundi, Chad, Congo (the Democratic Republic of the), Ethiopia, Guinea, Guinea-Bissau, Haiti, Korea (the Democratic People's Republic of), Lesotho, Liberia, Madagascar, Malawi, Mali, Mozambique, Namibia, Niger (the), Papua New Guinea, Rwanda, Sierra Leone, Tanzania (United Republic of), Timor-Leste, Uganda, Zambia, Zimbabwe.
Cluster 5	Argentina, Australia, Austria, Bahamas (the), Barbados, Belarus, Belgium, Brunei Darussalam, Canada, Chile, Costa Rica, Croatia, Cuba, Cyprus, Czechia, Denmark, Dominica, Estonia, Finland, France, Georgia, Germany, Greece, Guyana, Iceland, Ireland, Israel, Italy, Japan, Kazakhstan, Latvia, Lithuania, Luxembourg, Malta, Montenegro, Netherlands (the), New Zealand, Norway, Poland, Portugal, Romania, Saint Vincent and the Grenadines, Serbia, Seychelles, Slovakia, Slovenia, Spain, Sweden, Switzerland, United Kingdom of Great Britain and Northern Ireland (the), United States of America (the), Uruguay.

Table S6. Clusters of countries considering 6 clusters.

Cluster 1	Australia, Austria, Bahamas (the), Barbados, Belarus, Belgium, Brunei Darussalam, Canada, Chile, Croatia, Cuba, Cyprus, Czechia, Denmark, Estonia, Finland, France, Georgia, Germany, Greece, Iceland, Ireland, Israel, Italy, Japan, Latvia, Lithuania, Luxembourg, Malta, Montenegro, Netherlands (the), New Zealand, Norway, Poland, Portugal, Romania, Saint Vincent and the Grenadines, Serbia, Seychelles, Slovakia, Slovenia, Spain, Sweden, Switzerland, United Kingdom of Great Britain and Northern Ireland (the), United States of America (the), Uruguay.
Cluster 2	Angola, Burkina Faso, Burundi, Chad, Congo (the Democratic Republic of the), Ethiopia, Guinea, Guinea-Bissau, Haiti, Korea (the Democratic People's Republic of), Lesotho, Liberia, Madagascar, Malawi, Mali, Mozambique, Namibia, Niger (the), Papua New Guinea, Rwanda, Sierra Leone, Tanzania (United Republic of), Timor-Leste, Uganda, Zambia, Zimbabwe.
Cluster 3	Afghanistan, Benin, Botswana, Cambodia, Cameroon, Comoros (the), Congo (the), Côte d'Ivoire, Djibouti, Eswatini, Gabon, Gambia (the), Kenya, Kiribati, Lao People's Democratic Republic (the), Mauritania, Myanmar, Nigeria, Pakistan, Sao Tome and Principe, Senegal, Solomon Islands, Sudan (the), Togo, Vanuatu, Yemen.
Cluster 4	Bangladesh, Qatar, Saudi Arabia, United Arab Emirates (the).
Cluster 5	Albania, Algeria, Armenia, Azerbaijan, Bahrain, Bhutan, Bosnia and Herzegovina, China, Egypt, Fiji, Ghana, Hungary, India, Indonesia, Iran (Islamic Republic of), Jordan, Kazakhstan, Korea (the Republic of), Kyrgyzstan, Lebanon, Malaysia, Maldives, Mauritius, Moldova (the Republic of), Mongolia, Nepal, Oman, Republic of North Macedonia, Russian Federation (the), Samoa, Sri Lanka, Tajikistan, Thailand, Tonga, Tunisia, Turkey, Turkmenistan, Ukraine, Uzbekistan, Viet Nam.
Cluster 6	Antigua and Barbuda, Argentina, Belize, Bolivia (Plurinational State of), Brazil, Bulgaria, Cabo Verde, Colombia, Costa Rica, Dominica, Dominican Republic (the), Ecuador, El Salvador, Guatemala, Guyana, Honduras, Iraq, Jamaica, Mexico, Morocco, Nicaragua, Panama, Paraguay, Peru, Philippines (the), Saint Lucia, South Africa, Suriname, Syrian Arab Republic, Trinidad and Tobago, Venezuela (Bolivarian Republic of).

Table S7. First structure of the proposed DRI.

Dimension	Sub-dimension
Social (11)	Social fabric
	Education
	Awareness
	Preparedness
	Attitude towards risk
	Experience
	Social capital (support, participation and community bonds,
	Sense of community, sense of place, trust and participation
	Social capacity (critical reflection and problem solving skills)
	Social support
	Access
Economic (6)	Financial level
	Financial sources
	Financial distribution (by gender and GINI index)
	Financial services
	Savings
	Resources
Environmental (1)	Land use
Habitat (7)	Density
	Type of settlement
	Type of house
	Type of ownership
	Quality of dwellings
	Regulations and planning
	Local services
Infrastructural (8)	Health
	Water
	Sewage
	Power
	Telecommunications
	Transportation
	Waste management
	Facilities and services
Institutional (4)	Trust in government
	Risk identification
	Disaster preparedness and response
	Financial support

S8. Survey used in the Delphi process

Survey used in the Delphi process – Round 1

Introduction

Resilience is one of the most widely used, yet controversial, terms. After years of debate a generally agreed upon definition of what being resilient means has been reached: "Resilient is who is able to bounce back and possibly build back better after a disaster occurs".

How communities actually reach this goal can differ consistently. Some can rely on community bonds, self-reconstruction and private savings, while others only count on institutional emergency funds and response plans. Nevertheless, countries might still have the same level of resilience as they balance different dimensions. As a result of these differences, the performance of countries in terms of achieved resilience is difficult to compare. However, by grouping countries according to their characteristics, e.g. development, we might be able to obtain an array of countries that attains resilience through the same factors.

In this research, countries have been clustered using the SDG framework. You are now asked to grade the importance of different dimensions and sub-dimensions, according to the way you think they contribute to resilience, for a given list of countries that belong to the same cluster. Whether possible, please provide a short explanation of the reasoning behind your choice.

In this first consultation you are invited to score only one cluster of countries. During a second consultation you will be provided with the results obtained for all the clusters and you will then have the opportunity to revise the scores you initially defined and to add comments on the results obtained for all the countries.

Dimension 1: SOCIAL

This dimension encompasses all the characteristics of the population that enable it to cope with an external event and recover from it.

Sub-dimensions

Social fabric: it represents the composition of the population. It can also help to define what the potential post disaster needs are.

It reflects household size, number of female-headed households, number of children per woman, population growth, migration rate, crime rate, social disparity index, quality of life, and educational level.

Awareness and preparedness: it illustrates all the characteristics specifically related to knowledge about risk, attitude towards risk and disaster preparedness, and risk reduction measures taken at the household/community level.

It reflects knowledge and perception of risk, risk aversion, and previous disaster-related experience.

Social capital: it describes all the characteristics that make a community feel like one.

It reflects attachment to place, sense of community, trust, participation, common beliefs, and social networks.

Social capacity: it defines all the qualities and skills that make communities able to withstand adversities, but do not specifically target disaster preparedness.

It reflects adaptive capacity, problem solving skills, leadership, capacity building, labour

power, and access to resources like financial resources, tools, materials, food stocks.

Social support: It represents a household's access to support from institutions at every level (i.e. community, municipality, and country levels).

It reflects social security, financial support, counselling services, social assistance and general social services, and entitlement to rights

Using a scale of 0 to 10, with 0 being "not important at all" and 10 being "very important", rate the relevance of the social dimension and of each of its sub-dimensions to the final resilience score.

Dimension	0	1	2	3	4	5	6	7	8	9	10
Social											
Sub-dimensions											
Social fabric											
Awareness and preparedness											
Social capital											
Social capacity											
Social support											

Dimension 2: ECONOMIC

This dimension encompasses all the available economic resources of the population, at the household and country levels, that enable it to cope with an external event and recover from it.

Sub-dimensions

Economic level: it represents the amount and source of economic resources the population can rely on.

It reflects the level of income, diversification of income, and sources of income.

Wealth distribution: it describes how wealth is distributed across the population and among genders.

It reflects GINI index, or the ratio of high income among women/men.

Pre-disaster financial services: it describes the amount of financial services that are provided before a disaster.

It reflects the number of insurance policies, the number of banks, and the number of mortgages.

Post-disaster financial services: it describes the amount of financial services that can be provided after a disaster strikes.

It reflects loans, donations, and savings.

Resources: it defines all the basic resources that are necessary to face a crisis and meet the response and recovery needs

It reflects food production, availability of building materials, and manufacturing.

Using a scale of 0 to 10, with 0 being "not important at all" and 10 being "very important", rate the relevance of the economic dimension and of each of its sub-dimensions to the final resilience score.

Dimension	0	1	2	3	4	5	6	7	8	9	10
Economic											
Sub-dimensions											
Economic level											
Wealth distribution											
Pre-disaster financial services											
Post-disaster financial services											
Resources											

Dimension 3: ENVIRONMENTAL

This dimension encompasses all the available natural resources and their use.

Sub-dimensions

Natural resources: it represents the amount and diversity of natural resources.
It reflects land cover classification, available natural resources, and available biomass.
Land Use: it describes how natural resources are exploited and preserved.
It reflects air quality, water quality, erosion rate, inappropriate land use, deforestation, habitat loss, biodiversity.

Using a scale of 0 to 10, with 0 being "not important at all" and 10 being "very important", rate the relevance of the environmental dimension and of each of its sub-dimensions to the final resilience score.

Dimension	0	1	2	3	4	5	6	7	8	9	10
Environmental											
Sub-dimensions											
Natural resources											
Land use											

Dimension 4: HABITAT

This dimension explains all the characteristics of the built environment.

Sub-dimensions

Settlements: it describes how the population is spatially distributed in the area and the type of entitlement/ownership.
It reflects population density, percentage of slums/informal settlements, ratio of urban/rural areas, percentage of owners/renters/squatters, type of ownership.
Homes: it describes the type and quality of the single housing units.
It reflects housing density, building techniques, year of construction, quality of the housing, number of mobile homes.
Regulations and planning: it shows the presence and implementation of Building codes or other regulations.
It reflects the presence and implementation of building codes, the availability of housing regeneration plans and urban development plans, and the degree of law enforcement related to the built environment.

Using a scale of 0 to 10, with 0 being "not important at all" and 10 being "very important", rate the relevance of the habitat dimension and of each of its sub-dimensions to the final resilience score.

Dimension	0	1	2	3	4	5	6	7	8	9	10
Habitat											
Sub-dimensions											
Type of settlement											
Type of home											
Regulations and planning											

Dimension 5: INFRASTRUCTURE

This dimension covers all the infrastructures that can be disrupted and that might be useful to provide help in case of emergency.

Sub-dimensions

Health: it quantifies the capacity of the health infrastructure to treat patients in the face of a disaster

It reflects the number of people covered by health insurance, the number of physicians, beds, hospitals, health centres and their spatial concentration and accessibility.

WaSH, electricity, waste treatment: it describes the level of water, power sewage and waste treatment infrastructures.

It reflects the number of power plants, the number of households with electricity and water, the existence of alternative power sources, and the number of people with access to water sanitation and hygiene services.

Telecommunications: it describes the of telecommunication facilities.

It reflects the number of radio transmitters, the number of households with fixed telephone, the number of subscriptions to mobile phones, or the number of subscriptions to broadband communications.

Transportation: it describes the spatial distribution of transportation network

It reflects the capacity of the public transportation network, the number of airports, bus terminals and ferry facilities, the density of the road network, or the number of paved roads.

Local services: it quantify all the local facilities that can be useful for shelter, or to fulfil other primary needs.

It reflects the number of pharmacies, grocery stores, fire stations, police stations, cars, hotels, or shops.

Using a scale of 0 to 10, with 0 being "not important at all" and 10 being "very important", rate the relevance of the infrastructure dimension and of each of its sub-dimensions to the final resilience score.

Dimension	0	1	2	3	4	5	6	7	8	9	10
Infrastructure											
Sub-dimensions											
Health											
WaSH, electricity, waste treatment											
Telecommunication											
Transportation											
Local services											

Dimension 6: INSTITUTIONAL

This dimension describes the institutional attitude and behaviour towards disaster risk and how they implement it.

Sub-dimensions

Trust in government: it quantifies the population's level of trust in the local and national institutions in the face of a disaster.

It reflects the abstention rate, corruption index, high elections turnouts, or the number of past or ongoing conflicts.

Disaster preparedness and mitigation: it defines the engagement of local and national institution in the identification of risk, the implementation of mitigation measures and the ability to produce and engage the population in preparedness campaigns.

It reflects the capacity for data collection, the availability of risk maps, the capacity for contingency planning, the number of emergency drills, early warning systems, and disaster risk-related information campaigns.

Disaster response and recovery: it describes the capacity of local and national institutions to help the population during an emergency, in an effective and timely fashion, and to provide the means to support fast recovery.

It reflects the type of civil protection systems that are in place, the availability of emergency funds, emergency shelter, and multisector coordination.

Using a scale of 0 to 10, with 0 being "not important at all" and 10 being "very important", rate the relevance of the institutional dimension and of each of its sub-dimensions to the final resilience score.

Dimension	0	1	2	3	4	5	6	7	8	9	10
Institutional											
Sub-dimensions											
Trust in government											
Disaster preparedness and mitigation											
Disaster response and recovery											

Survey used in the Delphi process – Round 2

Introduction

In the previous round of this survey you have been asked to attribute a score from 1 to 10 to each dimension of resilience and their relative sub-dimensions. More than 90 experts from all over the world participated in the first round providing their suggestions and comments.

In the following pages you will find summary statistics of the results. You are now asked to provide an agreement score between 1 (strongly disagree) and 5 (strongly agree) regarding the results of each dimension. You also have the opportunity to revise your previous answers providing new scores (optional) and to add observations and remarks (optional).

CLUSTER			
1	2	3	4

Dimension 1: SOCIAL

This dimension encompasses all the characteristics of the population that enable it to cope with an external event and recover from it.

Sub-dimensions

Social fabric: it represents the composition of the population. It can also help to define what the potential post disaster needs are.

It reflects household size, number of female-headed households, number of children per woman, population growth, migration rate, crime rate, social disparity index, quality of life, and educational level.

Awareness and preparedness: it illustrates all the characteristics specifically related to knowledge about risk, attitude towards risk and disaster preparedness, and risk reduction measures taken at the household/community level.

It reflects knowledge and perception of risk, risk aversion, and previous disaster-related experience.

Social capital: it describes all the characteristics that make a community feel like one.

It reflects attachment to place, sense of community, trust, participation, common beliefs, and social networks.

Social capacity: it defines all the qualities and skills that make communities able to withstand adversities, but do not specifically target disaster preparedness.

It reflects adaptive capacity, problem solving skills, leadership, capacity building, labour power, and access to resources like financial resources, tools, materials, food stocks.

Social support: It represents a household's access to support from institutions at every level (i.e. community, municipality, and country levels).

It reflects social security, financial support, counselling services, social assistance and general social services, and entitlement to rights.

How much do you agree with the results? 1 = strongly disagree, 5 = strongly agree

Dimension	1	2	3	4	5
Social					
Sub-dimensions					
Social fabric					
Awareness and preparedness					
Social capital					
Social capacity					
Social support					

If you wish to change the scores you attributed during the first round, please use a scale of 0 to 10, with 0 being "not important at all" and 10 being "very important", rate the relevance of the social dimension and of each of its sub-dimensions to the final resilience score.

Dimension	0	1	2	3	4	5	6	7	8	9	10
Social											
Sub-dimensions											
Social fabric											
Awareness and preparedness											
Social capital											
Social capacity											
Social support											

Dimension 2: ECONOMIC

This dimension encompasses all the available economic resources of the population, at the household and country levels, that enable it to cope with an external event and recover from it.

Sub-dimensions

Economic level: it represents the amount and source of economic resources the population can rely on.

It reflects the level of income, diversification of income, and sources of income.

Wealth distribution: it describes how wealth is distributed across the population and among genders.

It reflects GINI index, or the ratio of high income among women/men.

Pre-disaster financial services: it describes the amount of financial services that are provided before a disaster.

It reflects the number of insurance policies, the number of banks, and the number of mortgages.

Post-disaster financial services: it describes the amount of financial services that can be provided after a disaster strikes.

It reflects loans, donations, and savings.

Resources: it defines all the basic resources that are necessary to face a crisis and meet the response and recovery needs

It reflects food production, availability of building materials, and manufacturing.

How much do you agree with the results? 1 = strongly disagree, 5 = strongly agree

Dimension	1	2	3	4	5
Economic					
Sub-dimensions					
Economic level					
Wealth distribution					
Pre-disaster financial services					
Post-disaster financial services					
Resources					

If you wish to change the scores you attributed during the first round, please use a scale of 0 to 10, with 0 being "not important at all" and 10 being "very important", rate the relevance of the economic dimension and of each of its sub-dimensions to the final resilience score.

Dimension	0	1	2	3	4	5	6	7	8	9	10
Economic											
Sub-dimensions											
Economic level											
Wealth distribution											
Pre-disaster financial services											
Post-disaster financial services											
Resources											

Dimension 3: ENVIRONMENTAL
This dimension encompasses all the available natural resources and their use.

Sub-dimensions
Natural resources: it represents the amount and diversity of natural resources.
It reflects land cover classification, available natural resources, and available biomass.
Land Use: it describes how natural resources are exploited and preserved.
It reflects air quality, water quality, erosion rate, inappropriate land use, deforestation, habitat loss, biodiversity.

How much do you agree with the results? 1 = strongly disagree, 5 = strongly agree

Dimension	1	2	3	4	5
Environmental					
Sub-dimensions					
Natural resources					
Land use					

If you wish to change the scores you attributed during the first round, please use a scale of 0 to 10, with 0 being "not important at all" and 10 being "very important", rate the relevance of the environmental dimension and of each of its sub-dimensions to the final resilience score.

Dimension	0	1	2	3	4	5	6	7	8	9	10
Environmental											
Sub-dimensions											
Natural resources											
Land use											

Dimension 4: HABITAT

This dimension explains all the characteristics of the built environment.

Sub-dimensions

Settlements: it describes how the population is spatially distributed in the area and the type of entitlement/ownership.

It reflects population density, percentage of slums/informal settlements, ratio of urban/rural areas, percentage of owners/renters/squatters, type of ownership.

Homes: it describes the type and quality of the single housing units.

It reflects housing density, building techniques, year of construction, quality of the housing, number of mobile homes.

Regulations and planning: it shows the presence and implementation of Building codes or other regulations.

It reflects the presence and implementation of building codes, the availability of housing regeneration plans and urban development plans, and the degree of law enforcement related to the built environment.

How much do you agree with the results? 1 = strongly disagree, 5 = strongly agree

Dimension	1	2	3	4	5
Habitat					
Sub-dimensions					
Settlements					
Homes					
Regulations and planning					

If you wish to change the scores you attributed during the first round, please use a scale of 0 to 10, with 0 being "not important at all" and 10 being "very important", rate the relevance of the habitat dimension and of each of its sub-dimensions to the final resilience score.

Dimension	0	1	2	3	4	5	6	7	8	9	10
Habitat											
Sub-dimensions											
Type of settlement											
Type of home											
Regulations and planning											

Dimension 5: INFRASTRUCTURE

This dimension covers all the infrastructures that can be disrupted and that might be useful to provide help in case of emergency.

Sub-dimensions

Health: it quantifies the capacity of the health infrastructure to treat patients in the face of a disaster

It reflects the number of people covered by health insurance, the number of physicians, beds, hospitals, health centres and their spatial concentration and accessibility.

WaSH, electricity, waste treatment: it describes the level of water, power sewage and waste treatment infrastructures.

It reflects the number of power plants, the number of households with electricity and water, the existence of alternative power sources, and the number of people with access to water sanitation and hygiene services.

Telecommunications: it describes the of telecommunication facilities.

It reflects the number of radio transmitters, the number of households with fixed telephone, the number of subscriptions to mobile phones, or the number of subscriptions to broadband communications.

Transportation: it describes the spatial distribution of transportation network

It reflects the capacity of the public transportation network, the number of airports, bus terminals and ferry facilities, the density of the road network, or the number of paved roads.

Local services: it quantify all the local facilities that can be useful for shelter, or to fulfil other primary needs.

It reflects the number of pharmacies, grocery stores, fire stations, police stations, cars, hotels, or shops.

How much do you agree with the results? 1 = strongly disagree, 5 = strongly agree

Dimension	1	2	3	4	5
Infrastructure					
Sub-dimensions					
Health					
WaSH, electricity, waste treatment					
Telecommunication					
Transportation					
Local services					

If you wish to change the scores you attributed during the first round, please use a scale of 0 to 10, with 0 being "not important at all" and 10 being "very important", rate the relevance of the infrastructure dimension and of each of its sub-dimensions to the final resilience score.

Dimension	0	1	2	3	4	5	6	7	8	9	10
Infrastructure											
Sub-dimensions											
Health											
WaSH, electricity, waste treatment											
Telecommunication											
Transportation											
Local services											

Dimension 6: INSTITUTIONAL

This dimension describes the institutional attitude and behaviour towards disaster risk and how they implement it.

Sub-dimensions

Trust in government: it quantifies the population's level of trust in the local and national institutions in the face of a disaster.

It reflects the abstention rate, corruption index, high elections turnouts, or the number of past or ongoing conflicts.

Disaster preparedness and mitigation: it defines the engagement of local and national institution in the identification of risk, the implementation of mitigation measures and the ability to produce and engage the population in preparedness campaigns.

It reflects the capacity for data collection, the availability of risk maps, the capacity for contingency planning, the number of emergency drills, early warning systems, and disaster risk-related information campaigns.

Disaster response and recovery: it describes the capacity of local and national institutions to help the population during an emergency, in an effective and timely fashion, and to provide the means to support fast recovery.

It reflects the type of civil protection systems that are in place, the availability of emergency funds, emergency shelter, and multisector coordination.

How much do you agree with the results? 1 = strongly disagree, 5 = strongly agree

Dimensions	1	2	3	4	5
Institutional					
Sub-dimensions					
Trust					
Disaster preparedness and mitigation					
Disaster response and recovery					

If you wish to change the scores you attributed during the first round, please use a scale of 0 to 10, with 0 being "not important at all" and 10 being "very important", rate the relevance of the institutional dimension and of each of its sub-dimensions to the final resilience score.

Component	0	1	2	3	4	5	6	7	8	9	10
Institutional											
Sub-Components											
Trust											
Disaster preparedness and mitigation											
Disaster response and recovery											

Table S8. Average scores (sc) and normalized weights (w) of the Social sub-dimensions by cluster.

	Social Fabric		Awareness and Preparedness		Social Capital		Social Capacity		Social Support	
	SC	W	SC	W	SC	W	SC	W	SC	W
Cluster 1	6.4	17.2%	6.0	11.5%	6.8	22.8%	7.2	28.5%	6.6	20.0%
Cluster 2	7.7	16.8%	8.4	21.6%	8.2	20.4%	8.5	22.4%	8.0	18.7%
Cluster 3	8.3	18.0%	8.9	21.7%	8.4	18.4%	8.5	19.1%	9.1	22.8%
Cluster 4	8.6	19.4%	8.9	21.1%	8.5	19.1%	8.8	20.7%	8.6	19.7%

Table S9. Average scores (sc) and normalized weights (w) of the Economic sub-dimensions by cluster.

	Economic Level		Wealth Distribution		Pre-disaster Financial Services		Post-disaster Financial Services		Resources	
	SC	W	SC	W	SC	W	SC	W	SC	W
Cluster 1	6.0	16.0%	6.2	20.0%	6.4	24.0%	6.0	16.0%	6.4	24.0%
Cluster 2	8.0	21.4%	7.2	14.9%	7.9	20.3%	7.9	20.3%	8.3	23.0%
Cluster 3	8.1	19.2%	7.5	15.2%	8.0	19.0%	8.5	22.5%	8.8	24.1%
Cluster 4	7.9	19.2%	7.9	19.2%	7.5	16.3%	7.9	19.2%	8.9	26.2%

Table S10. Average scores (sc) and normalized weights (w) of the Environmental sub-dimensions by cluster.

	Natural Resources		Land Use	
	SC	W	SC	W
Cluster 1	5.6	40.1%	5.8	59.9%
Cluster 2	7.5	44.2%	8.1	55.8%
Cluster 3	7.8	43.2%	8.7	56.8%
Cluster 4	7.7	45.2%	8.2	54.8%

Table S11. Average scores (sc) and normalized weights (w) of the Habitat sub-dimensions by cluster.

	Settlements		Homes		Regulations and Planning	
	SC	W	SC	W	SC	W
Cluster 1	6.4	35.3%	6.4	35.3%	6.2	29.4%
Cluster 2	8.2	34.3%	8.0	32.2%	8.1	33.5%
Cluster 3	8.1	31.0%	8.1	31.3%	8.7	37.7%
Cluster 4	8.4	30.5%	8.7	33.9%	8.9	35.6%

Table S12. Average scores (sc) and normalized weights (w) of the Infrastructure sub-dimensions by cluster.

	Health		WaSH, Electricity, Waste Management		Telecommunications		Transportation		Local Services	
	SC	W	SC	W	SC	W	SC	W	SC	W
Cluster 1	7.2	25.6%	7.4	28.2%	6.0	10.3%	6.2	12.8%	7.0	23.1%
Cluster 2	8.1	20.0%	8.0	19.5%	8.0	19.7%	8.2	20.7%	8.1	20.2%
Cluster 3	8.6	22.5%	8.5	22.0%	7.8	17.3%	7.8	17.0%	8.4	21.2%
Cluster 4	9.2	21.4%	9.2	21.4%	8.5	17.7%	8.7	18.6%	9.1	20.8%

Table S13. Average scores (sc) and normalized weights (w) of the Institutional sub-dimensions by cluster.

	Trust		Disaster Preparedness and Mitigation		Disaster Recovery and Response	
	SC	W	SC	W	SC	W
Cluster 1	6.0	40.0%	6.0	40.0%	5.6	20.1%
Cluster 2	7.9	29.0%	8.5	36.5%	8.4	34.5%
Cluster 3	8.0	27.7%	8.8	35.4%	9.0	36.9%
Cluster 4	8.8	32.1%	8.8	32.6%	9.1	35.3%