RAND EUROPE

Enhancing Defence's Contribution to Societal Resilience in the UK

Lessons from International Approaches

Ben Caves, Rebecca Lucas, Livia Dewaele, Julia Muravska, Chris Wragg, Tom Spence, Zudik Hernandez, Anna Knack, James Black

For more information on this publication, visit www.rand.org/t/RRA1113-1

The Global Strategic Partnership (GSP), a consortium of research, academic and industry organisations that is led by RAND Europe, provides ongoing analytical support to the UK Ministry of Defence.

About RAND Europe

RAND Europe is a not-for-profit research organisation that helps improve policy and decision making through research and analysis. To learn more about RAND Europe, visit www.randeurope.org.

Research Integrity

Our mission to help improve policy and decision making through research and analysis is enabled through our core values of quality and objectivity and our unwavering commitment to the highest level of integrity and ethical behaviour. To help ensure our research and analysis are rigorous, objective, and nonpartisan, we subject our research publications to a robust and exacting quality-assurance process; avoid both the appearance and reality of financial and other conflicts of interest through staff training, project screening, and a policy of mandatory disclosure; and pursue transparency in our research engagements through our commitment to the open publication of our research findings and recommendations, disclosure of the source of funding of published research, and policies to ensure intellectual independence. For more information, visit www.rand.org/about/principles.

RAND's publications do not necessarily reflect the opinions of its research clients and sponsors.

Cover image: RAF Chinook helping the Environment Agency to bolster the flood defences in a vulnerable area. Crown copyright

Preface

This is the final report of a study conducted by the Global Strategic Partnership (GSP) on behalf of the Development, Concepts and Doctrine Centre (DCDC) within the UK Ministry of Defence (MOD). The study aims to review how concepts of societal resilience vary across different countries and to identify good practices from how other nations promote societal resilience that might be adapted to the UK context.

The GSP is an independent research consortium that provides rolling academic and analytical support to the DCDC within the MOD and to other parts of UK government. The GSP is led by RAND Europe, a not-for-profit research institute that is part of the global RAND Corporation. RAND's mission is to help improve policy and decision making through objective research and analysis. Other research partners on the GSP framework include the University of Exeter, the International Institute for Strategic Studies, QinetiQ, Professor Hew Strachan, and Aleph Insights. This particular study was conducted by a team from RAND and Aleph Insights.

For more information on the study, the GSP or RAND Europe, please contact:

Ben Caves

Senior Research Leader – Defence, Security & Infrastructure

RAND Europe

Westbrook Centre, Milton Rd

Cambridge, CB4 1YG

United Kingdom

bcaves@randeurope.org

Summary

Resilience, or how well nations are able to rebound from the shock of natural disaster or attack, has emerged as a key priority for governments in recent years

Resilience is a core aspect of modern defence and security, enabling communities and countries to rebuild in the aftermath of crisis. As great power competition increases and challenges from climate change, pandemics and new technologies proliferate, resilience has increasingly become a priority for governments. Societal resilience is often described as requiring a 'whole-of-society' approach, with Defence (i.e. Ministries of Defence (MODs) and the Armed Forces) providing a supporting role. In this sense, understanding Defence's place in helping a country prepare for and respond to crises is essential. This study for the Development, Concepts and Doctrine Centre (DCDC) explores implications that this increased focus on societal resilience might have for UK Defence in the 21st century. It seeks to understand what the UK can learn from approaches to defining and promoting societal resilience in other nations. This includes defining what is meant by societal resilience, why it is important, what lessons and good practice can be derived from other nations, and which lessons may be transferable to UK Defence.

Following a review of UK Defence's existing role in societal resilience, the study team first selected case studies to identify their approaches to societal resilience

The study team first consulted with DCDC to select the causal variables necessary to perform a clustering analysis to identify possible case study countries. Based on these variables and relevant open-source datasets, the study team generated clusters of different countries that shared similar characteristics that might impact resilience. Together with DCDC and the MOD, the team then selected five countries to take forward as case studies: **Australia**, **Colombia**, **Israel**, **Russia,** and **Sweden**. The clustering analysis helped to ensure the selected case studies represented a spread of different national approaches and contexts. A literature review and stakeholder interviews were used to understand each case study country and the various structural factors that help to influence the degree of societal resilience, as well as explain the different approaches taken by those nations.

Findings from the case studies led to a conceptual framework that defines societal resilience and organises good practice into different phases of activity

Based on this research, the GSP study team developed a conceptual model that identified separate phases of societal resilience: **Prepare, Respond** and **Recover**. Variations of these stages feature prominently in various legislation and policy guidance on societal resilience and are terms that are familiar to the MOD. These stages are illustrated as part of an ongoing cycle, as shown in the figure below.

Figure E.1: Phases of societal resilience

A critical characteristic is that these should not be seen as sequential, but rather overlap and at times take place concurrently as various crises unfold. Elements of each stage are dependent on actions in the previous stage, while feeding into and enabling subsequent stages. It is important to note that, as crises may occur in parallel or with cascade effects, actors may find themselves in the midst of several tasks simultaneously. It is important to remember that societal resilience is an ongoing, cyclical process; actions in each phase enable and support tasks in the subsequent phases. For example, Recover phase-activity is likely to overlap frequently with the Respond phase, with personnel needing to respond to a new crisis or cascade effect while beginning the Recover phase for an earlier crisis. Preparations will also continue, to some extent in the background of both the Respond and Recover phases. The study team, however, still felt that laying out each stage of a crisis, or aspect thereof, was key to conceptualising the necessary efforts involved. This is particularly true for the Recover phase on which the study team found considerably less information, but that remains a key component of persistent societal resilience. Each of these phases is further broken down into various sub-tasks as outlined in Figure E.1. These are explained in more detail in Section 2.3 of the full report.

This study developed a Societal Resilience Index to model different causal and indicator variables to understand the performance of different countries in terms of resilience

Based on this conceptual framework and understanding of societal resilience derived from the literature review, the GSP study team was also tasked to develop quantitative analysis of relative societal resilience levels in different countries. To do so, a series of causal and indicator variables were further down selected based on the statistical significance of their relationship to societal resilience. This led the team to create a theoretical model, presented in Figure E.2 below, to capture all relationships between causal variables (on the left of the figure) and indicator variables (on the right of the figure). Causal variables were found to

influence societal resilience, whereas indicator variables were found to be influenced by it. The model could be applied to different countries as an analytical device to understand their approaches to societal resilience.

Figure E.2: Theoretical model of variables to measure societal resilience

Using open source datasets to populate these variables, the study team then generated an indicative societal resilience index (SRI). This can provide a tentative indication of the level of societal resilience in different countries. Rather than serving as a definitive metric, the SRI provides an analytical tool to both compare the levels of resilience across different countries, and to understand how different structural characteristics of countries (the variables) – such as the level of corruption or socio-economic inequality – might impact this. The Index results are presented in Chapter 2.

Drawing on these activities, the study team identified proposals to improve the UK Defence approach to societal resilience

Based on the research and analysis it conducted as part of this study, the GSP team identified a set of proposals for UK Defence, aimed at helping it improve how it conceptualises and operationalises societal resilience, and think through how it can contribute to the wider context of UK efforts in this area. Below, we present the overarching proposals that the study team deemed to be relevant to UK Defence, chiefly because these identified principles and approaches that then underpin other more specific proposals for Defence. The overarching proposals include:

1. Improve civil-military coordination and integration, including more clearly defined roles and responsibilities.

This should occur in line with norms of civil control, existing societal resilience, and military aid to civil authorities (MACA) and humanitarian assistance and disaster relief (HADR) doctrine. This could include greater use of military liaison officers across different government departments to build and formalise long-term relationships and gain experience. Additionally, regular meetings between key Defence headquarters, including MOD Main Building (MOD MB), the Headquarters of the Standing Joint Committee (HQ SJC), Front Line Commands (FLCs), Permanent Joint Headquarters (PJHQ), Defence Equipment & Support (DE&S) PJHQ, DE&S, and appropriate agencies or departments across government may be necessary.

Defence could also initiate a review of the processes for generating and coordinating Defence crisis response plans with the necessary government departments. Information about crisis roles and responsibilities should also be made as widely available as possible; this includes crisis roles being double-hatted with normal daytime positions.

A key part of this proposal also entails examining current Defence resourcing, C2 structures and funding mechanisms for societal resilience activity to determine whether they are fit for purpose. The MOD can consider advocating for a resourcing and funding model that aligns incentives for its participation with the objectives outlined in the national approach to societal resilience. This could include dedicated funding models and charging mechanisms for Defence support to societal resilience tasks, dedicated senior responsible officers (SROs), or networks of liaison officers.

2. Work to build more effective long-term relationships between Defence and national, regional, and local level organisations to support societal resilience planning.

This can include having clear points of contact for given contingencies - clearly defined and named points of contact in key positions across government and in local resilience forums (LRFs) with up-to-date contact lists. This can also include Defence engagement with local civil emergency planning bodies, in part to raise awareness of Defence capabilities available during a crisis and how they can be accessed. This could also include Defence-specific forums to engage communities via mechanisms like a dedicated civilian corp.

Greater mechanisms for sharing good practise across different areas of the country could help facilitate bringing all areas up to a common standard.

3. Enhance communication at all levels to strengthen trust and understanding between military, other government departments, civilian agencies and the general public.

Communications is an effective means of both demonstrating to the public the societal resilience measures government has in place, and building public awareness and confidence. It also allows government to control the narrative as a crisis unfolds. Communications could also be used to inform the public of any role they might be expected or able to play in the event of crisis, or of the utility of stockpiling supplies in the event of emergency. Within government, it is important to clearly communicate what capabilities UK Defence can and cannot provide in an emergency to manage expectations.

4. Exercise routinely in different configurations with various partners at local, national and multinational levels.

Exercising in partnership with wider government, other civil agencies and industry will help to improve understanding of interrelationships and cascade effects, and build awareness at national and local level. Exercising with international partners and allies provides opportunities to share good practices and improve interoperability, access vital information sources as well as demonstrating capability in a non-escalatory manner.

5. Explore mechanisms of rapid mass and cross-sector mobilisation.

There is a need to think about how the UK can do this without resorting to conscription, which may be unpalatable. Keeping in mind that the UK already has a reserve force, this could also include partnerships with non-governmental organisations who might be able to attract different demographics or have pre-existing networks. The UK could also consider enabling the activation of volunteers through new and emerging technologies such as apps on phones. It could also explore ways of alerting civilians with certain skills, such as basic first aid training. In the UK context, Defence could explore partnerships with existing volunteer databases such as those belonging to the British Red Cross, which could be activated in an emergency.

In exploring these mechanisms, it is also important to assess Defence relationships with industry to ensure adequate capacity and response times, as well as the ability to mobilise the necessary resource at speed. To this end, Defence could assess current relationships with industry to ensure adequate capacity and response times to meet societal resilience needs. This includes statutory tools to leverage Defence industrial capacity and manufacturing capability, improving contracting mechanisms (i.e. Key Resilience Indicators in Typhoon Total Availability eNterprise contract, Defence Cyber Protection Partnership (DCPP) and Cyber Essentials, or similar interests), and forging ties between critical national infrastructure (CNI)[1] providers and Defence. Use of open, modular systems architectures, Industry 4.0, and rapid prototyping may support creation of resource at short notice. Discussions could also include any need for stockpiling or protecting domestic industrial capacity as laid out in the *Defence and Security Industrial Strategy* (*DSIS*), and maintaining a national database of capabilities or building relationships with industry to understand their needs and access their specialist skills and capabilities.

As well as these high priority proposals, a number of more specific lessons for UK Defence and wider government were identified which are worthy of consideration, but are potentially less impactful than the overarching proposals above. These are described in detail in Chapter 4.

---

[1] Critical national infrastructure "are those facilities, systems, sites, information, people, networks and processes, necessary for a country to function and upon which daily life depends." (Centre for the Protection of National Infrastructure, 2021).

Table of contents

Figures

Tables

Boxes

Abbreviations

ABC	Atomic, Biological, Chemical
AI	Artificial Intelligence
AWE	Atomic Weapons Establishment
CBRN	Chemical, Biological, Radiological and Nuclear
CCA	Civil Contingencies Act
CCS	Civil Contingencies Secretariat
CERT	Community Emergency and Resilience Team
COBR	Cabinet Office Briefing Room
COMDISPLAN	Commonwealth Disaster Response Plan
COVID-19	Coronavirus 2019
CNI	Critical National Infrastructure
CPI	Cyber Preparedness Index
CPNI	Centre for the Protection of National Infrastructure
DACC	Defence Assistance to the Civil Community
DCDC	Development, Concepts and Doctrine Centre
DCPP	Defence Cyber Protection Partnership
DE&S	Defence Equipment & Support
DFACA	Defence Force Aid to the Civil Authority
DPA	Defense Production Act
DSIS	Defence and Security Industrial Strategy
Dstl	Defence Science and Technology Laboratory
ELN	Ejercito de Liberacion Nacional / National Liberation Army
EMA	Emergency Management Australia
EMERCOM	Russian Federation State Committee for Civil Defence, Emergencies, and Elimination of Consequences of Natural Disasters

EPC	Emergency Planning College
ESIMO	Unified Information System on Sea
EU	European Union
EW	Electronic Warfare
FAO	Food and Agriculture Organization of the United Nations
FARC	Fuerzas Armadas Revolucionarias de Colombia / Revolutionary Armed Forces of Colombia
FLC	Front Line Command
GDP	Gross Domestic Product
GLT	Government Liaison Team
GMM	Gaussian Mixture Model
GSP	Global Strategic Partnership
GTD	Global Terrorism Database
HADR	Humanitarian Assistance and Disaster Relief
HFC	Home Front Command
HMT	Human-Machine Teaming
HQ RC	Headquarters Regional Command
HQ SJC	Headquarters Standing Joint Command
ICRC	International Committee of the Red Cross
IDF	Israeli Defence Force
IDP	Internally Displaced Person
IEM	Integrated Emergency Management
IGEM	Inspectors-General for Emergency Management
IMOD	Israeli Ministry of Defense
IOpC	Integrated Operating Concept
IoT	Internet of Things
IR	Integrated Review
ISR	Intelligence, surveillance and reconnaissance
JDP	Joint Doctrine Publication
JESIP	Joint Emergency Services Interoperability Principles
JEP	Special Jurisdiction for Peace
JRLO	Joint Regional Liaison Officer

LGD	Lead Government Department
LRF	Local Resilience Forum
MACA	Military Aid to Civil Authorities
MHCLG-RED	Ministry of Housing, Community and Local Government – Resilience and Emergencies Division
MIMIC	Multiple Indicator Multiple Cause
ML	Machine Learning
MOD	Ministry of Defence
MOD MB	Ministry of Defence Main Building
MSB	Swedish Civil Contingencies Agency
NATCASDISPLAN	Nature Catastrophic Disaster Plan
NATO	North Atlantic Treaty Organisation
NEMA	National Emergency Management Authority
NGO	Non-Governmental Organisation
NHS	National Health Service
NIS	Network and Information Systems
NPC	National Preparedness Commission
NSS	National Security Strategy
OECD	Organisation for Economic Cooperation and Development
OGD	Other Government Department
OKSION	All-Russian Comprehensive Informing and Warning System
PCA	Primary Component Analysis
PDET	Development Programs with a Territories Approach
PJHQ	Permanent Joint Headquarters
PM	Prime Minister
QSDR	Queensland Strategy for Disaster Resilience
RACHEL	Israel National Emergency Management Authority (NEMA)
RAF	Royal Air Force
RAFRLO	Royal Air Force Regional Liaison Officer
RC	Resilience Center (Israel)
RNRLO	Royal Navy Regional Liaison Officers
RPoC	Regional Points of Command

RQ	Research Question
S&P	Standard and Poor's
SAR	Search and Rescue
SARS	Severe Acute Respiratory Syndrome
SCG	Strategic Coordinating Group
SDSR	Strategic Defence and Security Review
SEM	Structural Equation Model
SONAC	Secretary of State's Office of Net Assessment and Challenge
SRO	Senior Responsible Officer
TyTAN	Typhoon Total Availability eNterprise
UAE	United Arab Emirates
UK	United Kingdom
UNDRR	United Nations Office for Disaster Risk Reduction
US	United States
USAID	United States Agency for International Development
USSR	United Soviet Socialist Republic
VTC	Video Teleconference
WHO	World Health Organisation
WP	Work Package

Acknowledgements

1. Introduction

1.1. Background

1.1.1. Resilience has re-emerged as a key priority for governments in recent years

The central role of modern governments is to protect their citizens from domestic violence and foreign threats, while providing essential goods and services. Therefore, resilience can be seen as a fundamental concern for governments. The more a society is resilient, the better it can withstand the impact of shocks and destabilising events such as adversary attacks and natural disasters. At a strategic level, resilience contributes to deterrence, as different levels of resilience have implications for an adversaries' cost-benefit calculation when deciding whether or not to take hostile action.

Despite this long-term importance, resilience has re-emerged as a key topic in recent years. Relevant trends affecting discussions of societal resilience include increasing great power competition, or the growing challenges posed by climate change, pandemics, so-called 'grey zone' conflicts and new technologies. The growing awareness that contemporary societies are increasingly made up of complex networks, which feature an elaborate intertwinement of different sectors with significant, widespread interdependencies. Although interdependency is built in to expand efficiency and generate economies of scale, the risk of a domino effect is significantly heightened should disruptive incidents occur. For example, recent power outages in Texas in the United States significantly impacted individuals' ability to access drinkable water, communication links, central heating, and food.[2] These cascading disruptions could be triggered either by natural disasters or hostile activity.

For this reason, the extensive interconnectedness in modern societies requires a whole-of-society construction where citizens and organisations alongside governments hold a responsibility for national security and resilience.[3] The involvement of both the public and private sectors in civil preparedness planning is decisive to mitigating existing vulnerabilities that can be exploited by adversaries. Individual citizens also have an important role to play.[4]

Another possible contributor to this new focus is recent trends that have given rise to new types of threats both above and below the threshold of armed conflict. These threats, typically referred to as 'hybrid' or 'grey zone' warfare, may require governments to revisit their conceptualisation of 'societal resilience'. Man-made threats to societal cohesion and resilience are manifold and differ from country to country, potentially

---

[2] Singh (2021).

[3] Harris (2019).

[4] Interviews conducted by RAND Europe with interviewees I, M and P.

including disinformation, cyber-attacks, or sub-threshold attacks. For this reason, states are increasingly perceiving a need to achieve an early, comprehensive understanding of their respective strengths, vulnerabilities, anticipatory measures and future risks ahead of the escalation of any crisis.

1.1.2. The 2021 *Integrated Review* heavily emphasised the importance of boosting societal resilience to support UK strategy in an uncertain and competitive age

In its recent cross-government review, '*Global Britain in a Competitive Age: The Integrated Review of Security, Defence, Development and Foreign Policy'*, the UK government identified societal resilience as a key area of concern for strategy and policy in the coming years.[5] The *Integrated Review* (*IR*) noted the requirement to build resilience to physical and digital threats, as well as the importance of a strong economic base in the competitive world of the 21ˢᵗ century, and linked resilience with the protection of democratic institutions and strategic advantage.[6] In the context of the ongoing COVID-19 pandemic and climate emergency, it identified societal resilience as a necessary enabler for the UK to 'withstand risks and unexpected shocks, including future environmental and global health emergencies'.[7] It also recognised resilience is a dynamic and evolving concept with far-reaching implications that demands agility and flexibility from policy makers.

The disruption caused by COVID-19, both to the UK's public health and its broader economic, social and political functions, has provided a highly visible demonstration of the importance of this topic. There is consequently a window of opportunity to revisit existing definitions and approaches. This is especially the case given the increased political and public appetite for investing in resilience after decades of focus on efficiency as opposed to resilience. Though the UK has long maintained a National Risk Register and sought to address possible crises or challenges to societal resilience, the prominence given to discussion of resilience in the 2021 *IR* represents a significant shift for the UK government.[8]

1.1.3. The Integrated Review recognises Defence's important role to play in supporting cross-government efforts to increase societal resilience

The *IR* further pointed out that, to achieve large-scale capacity to resist shocks, cooperation cannot be limited to civilian agencies within government or to civil society. Resilience is also a core aspect of modern defence and thus entails tight collaboration with the Ministry of Defence (MOD) and Armed Forces.[9] The ability to withstand threats and hazards and recover from incidents encompasses contingency planning, crisis management and response throughout the whole spectrum from competition to open conflict – from 'sub-threshold operations' such as delivering military aid to civil authorities (MACA), through to fighting wars at scale. Given the focus of the *IR* on boosting societal resilience, the MOD is currently in the process of creating a clear definition of societal resilience and Defence's contribution to it, which is coherent with wider government's role.

---

[5] HM Government (2021).

[6] HM Government (2021).

[7] HM Government (2021).

[8] Interviews conducted by RAND Europe with interviewees K, H and Q.

[9] Second Line of Defence (2020).

1.2.   Research scope and objectives

1.2.1.   DCDC commissioned the Global Strategic Partnership to consider societal resilience across a range of countries

In refining its own understanding of the theory and practice of societal resilience, the MOD is not only looking to draw on its own internal analysis and expertise, but also to learn from international perspectives. This includes close engagement with key allies and partners, as well as examination of wider approaches from potential competitors and adversaries, with the aim of identifying transferrable lessons about how societal resilience is conceptualised, operationalised, and resourced, across the public sector, private sector, and the population. This is loosely termed as the 'approach' to societal resilience taken by different countries. To build on its existing insights into how other countries are approaching societal resilience, the Development, Concepts and Doctrine Centre (DCDC) within the MOD commissioned a study through the Global Strategic Partnership (GSP), a research consortium led by RAND Europe, to investigate what might be learned from comparator nations. Specifically, DCDC tasked a team from RAND and Aleph Insights to investigate what the UK in general, and Defence specifically, can potentially learn from how other countries define societal resilience and take action to enhance societal resilience in the 21st century.

1.2.2.   The aim of this study is to understand promising practice that the UK can learn from non-UK approaches to societal resilience

In commissioning this analysis, DCDC tasked the GSP to answer the overarching research question (RQ) and series of subordinate questions outlined in Table 1.1.

Table 1.1: Research questions

Overarching question	
1	What can the UK, and Defence specifically, learn from approaches to societal resilience in other nations?
Subordinate questions	
2	What is meant by 'societal resilience' today and why is it important?
3	How can the different approaches to societal resilience undertaken by different nations be categorised and what policy levers or initiatives do these involve?
4	What lessons or good practice can be derived from the approaches of other nations, including the UK's allies, partners, and potential adversaries?
5	How transferrable are these lessons or good practice to the UK context, given policy, social and cultural considerations?
6	How might insights into measures for enhancing societal resilience be used by the UK to support its international partners and allies?
7	What are the implications for UK Defence, including its contribution to cross-government efforts to enhance societal resilience through Fusion Doctrine?

Source: DCDC.

In addressing these RQs, the study team considered the opportunities and challenges for enhancing societal resilience in an era of continuous global competition, both above and below the threshold of armed conflict,

as well as in the face of other hazards and risks (e.g. natural disaster). Lessons about societal resilience derived from ongoing responses to the COVID-19 pandemic were included where relevant, but did not form the primary focus of this research. Instead, the research sought to develop a more holistic understanding of the broad range of threats countries might face and how different societies work to mitigate these.

1.3.   Research approach and methodology

1.3.1.   The project team applied a robust mixed-method approach to identify good practices and lessons from other countries that might be applicable to the UK

The research team used a tailored mixed-method approach, including a literature review, interviews and quantitative analysis, to gather data and identify and analyse possible lessons of relevance to the UK in general and to Defence specifically (i.e. the MOD and Armed Forces). While this section provides a high-level overview, a more detailed discussion of the methodology, particularly in relation to the quantitative methods used, can be found in Annex A. The overarching research approach is set out in Figure 1.1 broken down into a series of work packages (WPs).

Figure 1.1: Executed research approach
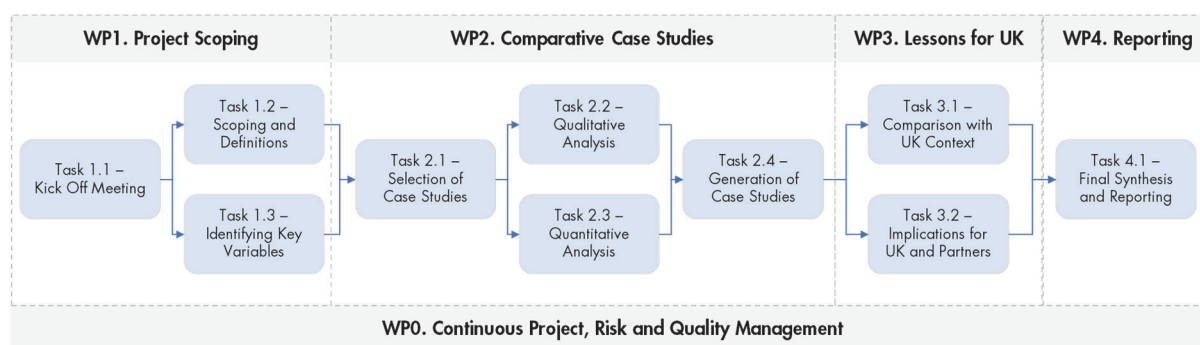
Source: GSP.

In WP1, the study team conducted a comprehensive literature review in an effort to understand how societal resilience is understood and defined by UK Defence (if at all), and identify any specific topics, sources, or nations that should be in or out of scope. The team also identified key structures and actors within existing efforts to address UK societal resilience. During this phase, the team also identified potential interviewees or sources to consult in future WPs, both on resilience in the UK context, as well as for a more global view.

As part of this scoping, the team also worked to identify and describe the range of variables, or characteristics that could be measured across different countries. Together, these variables helped define different models for societal resilience and what constitutes high and low societal resilience (or 'resilience outcomes').[10] The team also identified which variables could be reliably measured across a sufficiently wide variety of case studies to be of use. Based on direction from DCDC and the Secretary of State's Office of Net Assessment and Challenge (SONAC) within the MOD, this longlist of variables was down-selected to a shortlist of

---

[10] For example, the indicator variable 'Cyber Attacks' could not be included due to the lack of data available at a country level. For more information on variables discarded, please see Annex A.

causal (those that influence the level of resilience) and indicator (those that are influenced by resilience) variables. These variables are presented in Chapter 2 as part of the scoping discussion.

1.3.2. The team leveraged both quantitative and qualitative research to better understand the case study countries and their relevance to the UK

For each of these countries, the study team conducted desk-based research to understand the context, nature, structure, processes, and capabilities of different national approaches to societal resilience. In addition, the team conducted a total of 21 interviews with relevant experts and stakeholders to gain more insight into each of the case studies and the ways in which they might or might not be applicable to the UK. While not all case study countries were represented in the interviews, interviewees represented expertise in eight countries, including the Sweden, Russia, Israel and Australia cases studies. A full list of interviewees and the interview protocol can be found in Annex A.

In parallel to this, the research team identified both casual and indicator variables to generate a model of the complex relationships between different factors that contribute to a given country having high or low levels of societal resilience. This was done to provide a structured mechanism of comparison of what is inherently a fuzzy and variable concept – societal resilience – across different national contexts and to add another layer of analysis to the qualitative examination of how it is operationalised. This model, and the Societal Resilience Index (SRI) that it underpins, is discussed in greater length in Chapter 2. The Index assigns a composite score to each country based on a Multiple Indicator, Multiple Cause (MIMIC) model incorporating both the causal and indicator variables described above to produce the composite score.[11] Countries could then be ranked in order by their score, with higher scores indicating higher societal resilience and vice-versa. The project team used it to determine the relative importance of different indicators in affecting or reflecting societal resilience, shedding light on how countries differed and indicating possible areas of inquiry for the qualitative analysis.

In WP3, the study team conducted a series of internal workshops to review all data and identify similarities and differences between the UK context and that of each of the case study nations. In addition to the structural factors identified through the SRI, these features included comparing the UK and each of the case study countries in terms of: (1) recognised vulnerabilities and threats (including geographic location, susceptibility to natural disaster, horizon scanning processes and infrastructure protection efforts); (2) emergency response structures in place (including whether they are civilian or military and tools that government can access to compel industry cooperation and participation); (3) recent exercises and training available; and (4) whether these aspects explicitly discussed their role in societal resilience.

This enabled the team to consider potential barriers or enablers to implementing similar models of societal resilience – or importing elements thereof – in the UK. Barriers could include different methods of organisation, lack of dedicated resource, or cultural differences, while enablers could include dedicated resource and clear policy direction. In assessing these features, the team sought to identify aspects of the UK context that might influence how transferrable lessons are from elsewhere to the UK's unique setting. The

---

[11] Further detail regarding the construction of the MIMIC model is provided in Chapter 4 and Annex A.

team also discussed possible support that the UK could offer to partner nations who may also be seeking to enhance their own resilience.

Based on this analysis, in WP4 the team held a series of internal workshops to generate proposals and areas for further consideration, both by the UK in general and by Defence specifically, as captured in this report (see Chapter 4).

1.3.3.   Structure of this report

In addition to this introduction, this report comprises the following core chapters and annexes:

Chapter 2 Scoping and analysing societal resilience: Discusses the scoping effort to define, conceptualise and bound societal resilience, and presents the structured approach that was used to identify case-studies and compare societal resilience across them in a consistent way.

Chapter 3 Identifying societal resilience practices, trends and lessons in different countries: Presents the five selected case studies and draws out relevant societal resilience practices for consideration by UK Defence.

Chapter 4 Developing implications and recommendations for UK Defence: Presents a series of proposals to help UK Defence conceptualise and operationalise societal resilience.

In addition, the report contains a bibliography and series of supporting annexes, presenting more detail on the study methodology (Annex A), the case studies (Annex B), and the UK's current societal resilience structures (Annex C).

2. Scoping and analysing societal resilience

The purpose of this chapter is to formulate a coherent and defensible conceptualisation of societal resilience. It is a term with no standardised definition, which carries a range of different meanings and entails a variety of different practices in different national contexts and within the UK itself. Due to its various meanings, there is also no straightforward way of measuring societal resilience. Far from being simply an academic discussion, this conceptualisation is important because it enables a structured comparison of case study countries selected for this study and the formulation of recommendations that would be useful for UK Defence. Therefore, this chapter begins with an examination of different definitions and conceptual approaches to societal resilience and related concepts, both in the UK and around the world. This chapter also attempts to conceptualise societal resilience in a systematic way that can enable a structured comparison across countries. By identifying a set of measurable characteristics within a given country, which could influence the level of societal resilience (causal variables), as well as a set of characteristics that can result from different levels of societal resilience (indicator variables). The chapter then presents an indicative Societal Resilience Index (SRI), based on the theoretical model of what influences, or is influenced by, societal resilience, to provide another layer of analysis of the five case studies and enable a degree of comparison between them. Importantly, however, the SRI should not be regarded as a definitive formulation and measurement of societal resilience, but rather as a device to introduce an additional analytical layer to cross-country comparisons.

This chapter concludes by proposing an analytical framework, which was used to conduct comparative analysis of societal resilience approaches across the five case-study countries (Chapter 3) and frame recommendations for the UK and UK Defence (Chapter 4).

2.1. Definitions

2.1.1. A consistent definition is lacking, but at its core societal resilience appears to have the ability to absorb and bounce back from crisis

Resilience is typically defined as the ability of a system to continue to function in times of difficulty and 'bounce back' or recover from shocks or crises with minimal disruption. Definitions of resilience often describe three phases which loosely conform to preparation, response and recovery. This is an iterative cycle: resilience is not the result of a single effort or initiative, but rather a long-term, on-going effort and discussion that changes over time.[12] It is, however, important to note that several interviewees highlighted

---

[12] Interview conducted by RAND Europe with interviewee O and V.

that resilience as a term is often used imprecisely to refer to a number of different phenomena and characteristics.[13] Indeed, some experts argue that 'resilience' has become a buzzword with little intrinsic meaning; instead, the important aspect for policymakers is how they choose to define it and whether they are able to operationalise that definition.[14]

Interviewees and literature consulted for this GSP study most commonly explained societal resilience as referring to resilience in the context of broader society: the ability of communities or broader society to respond to shocks, absorb them without suffering from severe fractures, and then recover.[15] Here too, however, the definition is not straightforward. Societal resilience is also often used interchangeably with other types of resilience, such as 'national' or 'operational'. Interviewees also noted that the term 'society' is an imprecise definition: societies are not single entities, but rather are made up of a series of groups or communities.[16]

This ambiguity results in different organisations or parts of government defining 'societal resilience' in slightly different ways. Table 2.1 provides a selection of definitions or uses of the term in official publications in the UK and selected international organisations to demonstrate not only the commonly recognised features of resilience, but also the variation between them.

Table 2.1: Selected definitions of resilience

Publication	Definition of resilience
BS65000 Guidance for Organizational Resilience (BSI)	Resilience is 'the ability of an organisation to anticipate, prepare to and respond and adapt to incremental change and sudden disruption in order to survive and prosper... So that's: do a horizon scan, consider the issues, put plans in place, so that when the disruptive event does happen, you're better able to respond to the incident and get back to normal.'[17]
Resilience in society: infrastructure, communities and businesses (Cabinet Office)	'Integrated emergency management includes anticipation, assessment, prevention, preparation, response and recovery. Resilience is about all these aspects'.[18]
Civil Contingencies Act (HM Government)	Resilience is achieved by 'understanding what capabilities we need to deal with the consequences of emergencies, regardless of whether those emergencies are caused by accidents, natural hazards or man-made threats...coordinat[ing] cross-government efforts to build capabilities. Response to and recovery from any emergency will call upon a number of different capabilities, which have to be able to work effectively together. Every emergency will call upon the capabilities in a slightly different way. The [Resilience Capabilities Programme' helps government departments, understand the relationships between risk, consequence and capabilities'.[19]

---

[13] Interview conducted by RAND Europe with interviewee V.

[14] Interview conducted by RAND Europe with interviewee D.

[15] Interviews conducted by RAND Europe with interviewees F, G and H.

[16] Interview conducted by RAND Europe with interviewee V.

[17] Interview conducted by RAND Europe with interviewee T.

[18] Cabinet Office (2014).

[19] Cabinet Office (2013a).

Publication	Definition of resilience
The Lead Government Department and its role – Guidance and Best Practice (Civil Contingencies Secretariat)	'Resilience is defined as the ability to detect, prevent and, if necessary, handle disruptive challenges. This includes, but is not limited to, disruptive challenges arising from the possibility of a terrorist attack.'[20]
Integrated Operating Concept (IOpC) (UK MOD)	'Cohesion, trust, shared values, social habits and behaviour all form vital lines of defence against our adversaries' sub-threshold attacks on our societies and decision-making. On the new sub-threshold battlefield, assuring societal resilience constitutes deterrence by denial…Renewed focus on the resilience, readiness, reach and responsiveness that enables us to withstand shocks.'[21]
Integrated Review (HM Government)	'National resilience is the product of multiple factors, including effective and trusted governance, government capabilities, social cohesion, and individual and business resilience. Achieving this goal therefore requires a national effort, supported by the Government's wider domestic agenda. In particular, we will adopt a new approach to preparedness and response to risks, which fully recognises that natural hazards and other risks can cause as much disruption to the UK's core interests as security threats.'[22]
Joint Doctrine Publication 02 (UK MOD)	Resilience is the 'ability of the community, services, areas or infrastructure to detect, prevent, and, if necessary, to withstand, handle and recover from disruptive challenges.'[23]
Warsaw Summit Statement (NATO)	'Resilience is an essential basis for credible deterrence and defence and effective fulfilment of the Alliance's core tasks…We now face a broader and evolving range of military and non-military security challenges, which is the context for the Alliance's long-term adaptation. Being resilient against these challenges requires Allies to maintain and protect critical civilian capabilities, alongside and in support of military capabilities, and to work across the whole of government and with the private sector. It also requires the Alliance to continue to engage, as appropriate, with international bodies…To complement and enable our military capabilities, we will continue to improve civil preparedness.' [24]
Sector Security and Resilience Plans (HM Government)	'Government's core objective includes reducing CNI's vulnerability to threats and hazards and improving resilience, by strengthening the ability of CNI to withstand and recover from disruption. Its approach to security and resilience focuses on Resistance, Reliability, Redundancy, and Response & Recovery.'[25]

Source: GSP.

---

[20] Cabinet Office (2004).

[21] MOD (2020).

[22] HM Government (2021).

[23] MOD (2017).

[24] NATO (2016).

[25] Cabinet Office (2018).

2.1.2. Resilience has both physical and psychological aspects

In thinking about assessing or enhancing societal resilience, it is important to distinguish between two elements: the ability of physical structures and infrastructure to withstand shocks and the psychological capacity of the population to endure and respond to moments of crisis.[26] While the two are interrelated, each require very different metrics and mechanisms.

The resilience of physical infrastructure can be enhanced in several ways. These include measures to protect critical national infrastructure, such as telecommunications networks, transportation infrastructure, or the electrical grid, from either physical or cyber-attack. Many countries have taken specific steps to do this in recent years, including the European Union's Network and Information Security Directive or the UK's Centre for the Protection of National Infrastructure (CPNI).[27] Countries may also work to secure more mobile and dynamic aspects of infrastructure, such as food or medical supplies, through stockpiling or enabling redundancy in supply chains.[28] Enhancing physical resilience can extend all the way to individual homes: earthquake prone zones often have extensive construction codes that endeavour to ensure that individual buildings are less likely to collapse in the event of an earthquake.[29]

The psychological preparedness of a community or country is often discussed as a key element of resilience, but is difficult to objectively measure.[30] Often, it can reflect the history of the country and its cultural familiarity with threats. For example, communities in Israel that were frequently the victims of rocket attacks have been shown in some studies to be better able to recover from shock.[31] It can also result from trust in government and its ability to handle whatever crises might arise.[32] Several interviewees also suggested the importance of community-level ties and social cohesion as key enablers for psychological resilience.[33]

In many areas, the physical and psychological elements of resilience are intertwined. For example, with information sharing, physical infrastructure is required to improve the availability of information, whilst psychological resilience benefits from comprehensive and timely sharing of information.[34] Conversely, the increasing interdependence of previously separate physical infrastructure as a result of the internet can negatively affect psychological resilience, by impeding information sharing when systems suffer failures or cyber-attacks.[35] Increasing interconnectedness means that threats must be considered in terms of impact across the whole system.[36]

---

[26] Interviews conducted by RAND Europe with interviewees G, I and L.

[27] CPNI (2021); European Union (2016).

[28] Ben-Yehuda (2015).

[29] UNDRR (2019).

[30] Interviews conducted by RAND Europe with interviewees F and L; Padan & Elran (2019).

[31] Padran & Elran (2019).

[32] Jackson (2019).

[33] Interviews conducted by RAND Europe with interviewees F, L and P; Jackson (2019); Fiala (2019).

[34] Interviews conducted by RAND Europe with interviewees M and T; Pille & Prins (2018).

[35] Interviews conducted by RAND Europe with interviewees B and Q; Flanagan et al. (2019).

[36] Interview conducted by RAND Europe with interviewee K; Juncos (2016).

2.1.3. Defence's ability to support physical resilience is clear, while the nature of their contribution to psychological resilience is less so

Defence's ability to provide support to the resilience of physical structures is comparatively straightforward and therefore relatively well understood. Defence can contribute niche capabilities that are not economically viable for civilian agencies to maintain, such as heavy lift support helicopters or Explosive Ordinance Disposal (EOD), which are primarily required for Defence's war time commitments and operational roles.[37] Defence can also augment civilian agencies, such as the police, to prevent them from being overwhelmed, and to enable personnel to be re-directed to higher priority tasks. Finally, there are numerous examples of Defence providing the necessary personnel for labour-intensive tasks, such as guarding national infrastructure. The contribution that Defence could make to national psychological resilience is less immediately evident, given the lack of objective metrics.

2.1.4. There is a dearth of consistently used, objective metrics to measure societal resilience

One interviewee identified a key challenge for anyone seeking to assess or implement societal resilience policy as the lack of objective metrics to measure societal resilience.[38] This has certainly been one finding of this study, and is in part because resilience is an outcome of a dynamic process making it difficult to employ standard, static measurements.[39] Further, resilience is also difficult to measure because it is a characteristic of societies or systems,[40] which are made up of large numbers of interdependent input variables like geographic location and levels of public trust. Finally, resilience can only be truly observed post-hoc, as it is only truly tested when the crisis or shock occurs. Authorities' actions, however, in understanding and increasing societal resilience would ideally occur before a crisis, through preparation and mitigation.[41] Theoretical measures are therefore required to assess resilience levels.

Some methods of measuring resilience have focused on measuring a number of relevant input variables, including location and trust, as well as demographics, built infrastructure, economic planning and community planning efforts.[42] Other approaches have focused on identifying requirements that are needed to maintain societal function, and measuring each of those, through impact and risk assessments, to understand overall resilience.[43] For example, NATO has outlined seven baseline requirements that must be maintained for resilience: government and critical services; energy supplies; food and water resources; communications; transport systems; ability to deal with the mass movement of people; and the ability to deal with casualties.[44]

---

[37] MOD (2017).

[38] Interview conducted by RAND Europe with interviewee H.

[39] Helm (2014).

[40] Helm (2014).

[41] Harris (2019).

[42] Sfetsos et al. (2017).

[43] HM Government (2019).

[44] Shea (2016).

2.2. Identifying quantifiable dimensions of societal resilience

 To address these inconsistencies, the study team identified and then modelled the relationships between different variables that either influence or are influenced by a country's levels of societal resilience. Based on this model, the GSP study team was able to develop a Societal Resilience Index (SRI) as one possible measure of the quantifiable dimensions of resilience, using open-source datasets to enable an international comparison. In tandem with this analysis, clusters of countries with similar characteristics and levels of resilience were identified, which served to inform the selection of a five case studies by DCDC and the MOD. These case studies for Sweden, Australia, Israel, Russia, and Colombia are then set out in Chapter 3 and Annex B, ahead of generation of proposals in Chapter 4 for the UK and Defence based on the good practices observed.

2.2.1. Relevant variables for quantifying societal resilience were identified through literature review and selected in consultation with DCDC

Possible variables were identified through literature review and causal variables were those identified in the literature as contributing in some way to societal resilience, either positively or negatively. For example, supply chain resilience emerged as a variable that positively impacted societal resilience, while corruption and conflict intensity appeared to have a significant negative impact. These variables are reflected in Table 2.2.

Table 2.2: Selected causal variables

Variable	Justification for inclusion	Data source
Civic engagement	Includes a wider set of engagement types than military service and covers a good range of countries.	Global Civic Engagement Report[45]
Conflict intensity	Potential cause and effect of poor resilience with high quality data available.	Uppsala Conflict Data Program dataset[46]
Corruption	High corruption could interfere with government response to shocks. Data of high quality and covers good range of countries.	Corruption Perceptions Index[47]
Democracy	Thought to be a relevant factor with full coverage democracy index data readily available.	Democracy Index[48]
Ethnic fractionalisation	Literature suggests this could be a variable of interest with readily available, good quality data.	Historical Index of Ethnic Fractionalisation[49]
Food security	Significant co-correlation with supply chain resilience, but testing indicated that this did not impact modelling results significantly, so both were included.	Global Food Security Index[50]
Inequality	Literature suggests that inequality may be a major driver of instability with the GINI coefficient data readily available.	GINI index (World Bank estimate)[51]
Supply chain resilience	Identified as a possible major driver of overall societal resilience and data available has acceptable range.	FM Global Resilience Index[52]
Unemployment	Literature suggests youth unemployment could be a major driver of poor resilience; general unemployment used as a proxy given poor data available for youth specifically.	Unemployment, total (% of total labour force)[53]

Source: GSP.

Indicator variables included factors that might be influenced by the degree of societal resilience in a given country. For example, low levels of resilience might manifest in large numbers of internally displaced persons or a high incidence of terrorism, mass protests and other forms of disorder. High resilience, in contrast, might present in a high Cyber Preparedness Index (CPI). The complete list of these variables is reflected in Table 2.3.

---

[45] Gallup (2016).

[46] Department of Peace and Conflict Research (2021).

[47] Transparency International (2020).

[48] Economist Intelligence Unit (2020).

[49] Drazanova (2019).

[50] Global Food Security Index (2020).

[51] World Bank (2021a).

[52] FM Global (2021).

[53] World Bank (2021b).

Table 2.3: Selected indicator variables

Variable	Justification for inclusion	Data source
Coup attempts	Potential outcome of poor resilience; high quality data available.	REIGN[54]
CPI	Used as a proxy for a cyber-attacks' variable, which was not available.	National Cyber Security Index[55]
Internally displaced persons (IDPs) resulting from disaster	Added valuable new information over total IDP numbers.	Internal Displacement Monitoring Centre[56]
Mass protests	Potential outcome of poor resilience; violent protests only used to avoid e.g. pro-government demonstrations and look only at 'negative' events.	Mass Mobilization Protest Data[57]
Organised crime	Possible outcome of poor societal resilience.	World Economic Forum[58]
Terrorism	Potential outcome of poor resilience; high quality data available.	Global Terrorism Database (GTD)[59]

Source: GSP.

2.2.2. These variables were used to design a theoretical model of societal resilience to enable structured comparison of different approaches

Using the GSP team's understanding of the theoretical relationships between societal resilience and measurable variables developed through the literature review, interviews, and consultations with DCDC and SONAC members, it is possible to gain an indicative understanding of the relative level of societal resilience in different countries through a specification and optimisation process.[60] To aid this, the team designed a theoretical model to capture its understanding of societal resilience, which is presented in Figure 2.1 below. The model shows the variables that impact societal resilience on the left (causal variables) and variables that result from societal resilience on the right (indicator variables). The model also depicts the direction of these relationships, for instance, higher supply chain resilience significantly contributed to higher societal resilience, while corruption significantly contributed to lower societal resilience. Inequality also contributed to higher societal resilience, but to a lesser extent than corruption. Using this model, the contributions of the proposed causal variables to societal resilience can potentially be compared across countries and different time periods. More detail on the full methodology can be found in Annex B.

---

[54] One Earth Future (2021)

[55] National Cyber Security Index (2020).

[56] Internal Displacement Monitoring Centre (2019).

[57] Clark & Regan (2016).

[58] World Economic Forum (2018).

[59] University of Maryland (2021).

[60] This is done using a Structural Equation Model (SEM), which includes both measurable and latent, or unmeasurable, variables (the value of which can be estimated after the model is specified). The team used it to generate a model based on all of the shortlisted variables. We then repeated this process, removing the least significant variable each time, until we had a properly optimised model.

Figure 2.1: Theoretical model of factors and outcomes of societal resilience

Source: GSP.

2.2.3. Higher corruption, inequality, and levels of conflict appears to reduce a country's societal resilience while better supply chain resilience raises it

The model suggests that higher corruption, inequality, and levels of conflict all serve to reduce a country's societal resilience while better supply chain resilience raises societal resilience. According to the model, higher societal resilience then leads to fewer violent protests and terror incidents, to lower conflict intensity, and to better cyber security and less organised crime. In fact, the model construction process found that conflict intensity was both a significant cause and a significant indicator of low societal resilience. This could indicate a concerning feedback loop, in which low societal resilience acts as a driver for increased conflict, further lowering societal resilience. As such, conflict reduction could be a strong candidate for priority in efforts to build sustainable societal resilience. Supply chain resilience and corruption both have a large effect on the societal resilience variable, roughly twice that of the inequality, conflict intensity and civic engagement. This suggests, for example, that efforts to support societal resilience through anti-corruption efforts and development of resilient supply chains may be more effective than tackling inequality.

2.2.4. The model indicates the need for further research about the impact of democracy, ethnic fragmentation, unemployment, and civic engagement on societal resilience

In contrast, the variables removed during the iterative process of model development, such as democracy or ethnic fragmentation are unlikely to offer the same benefits according to the model. This is particularly interesting in light of the frequent use of Sweden, Norway and the Baltic countries as exemplars of societal resilience. In contrast with public discourse, the model suggests that this has little or nothing to do with their ethnic homogeneity, or lack thereof. It also has implications for those who argue that diversity in the UK, for example, might somehow hinder societal resilience.[61] Instead, the model suggested that the impact of homogeneity, whether ethnic or religious, was minimal compared to other factors. Together with unemployment, it is possible that these variables may have second-order effects that are not captured by the model – for example, by influencing another variable such as conflict intensity.

According to the model, higher civic engagement is more likely to lead to lower societal resilience.[62] This could suggest an underlying causal relationship not previously considered, potentially indicating that civic engagement rises in response to low societal resilience. While further research is required, the project team hypothesised that this could be the result of informal networks stepping up to fill a void where government is unable to provide certain basic social services.

2.2.5. Building on the theoretical model of societal resilience, the study team created a Societal Resilience Index (SRI)

Because it describes all the relationships between variables and assigns numerical values to them, the theoretical model also served as the basis for a Societal Resilience Index (SRI). The Index was generated using a specific type of structural equation model, a MIMIC model. which in effect allowed the GSP study team to assign a notional 'Societal Resilience' variable using these relationships. The SRI score is an aggregate score, on a scale between 0 and 1, derived from summing up the adjusted scores of each causal variable (obtained from the datasets publicly available for each causal variable and listed in Table 2.2), multiplied by the Societal Resilience variable that was calculated through a separate equation.

The GSP study team then situated clusters of countries on the SRI (i.e. given scores), allowing better visualisation of how they related to one another. Mapping these clusters based on their SRI scores, as shown in Figure 2.2, allowed the team to more clearly visualise how they related to each other, not only in terms of individual causal and indicator variables, but also in terms of their perceived performance in terms of overall societal resilience.

The full methodology explaining the generation of the Index and scoring is provided in Annex A.

---

[61] Interview conducted by RAND Europe with interviewee O.

[62] Gallup (2016). In this context, civic engagement is defined as people's 'inclination to give their time, money or assistance to others in need'.

Figure 2.2: Societal Resilience Index scores by country clusters
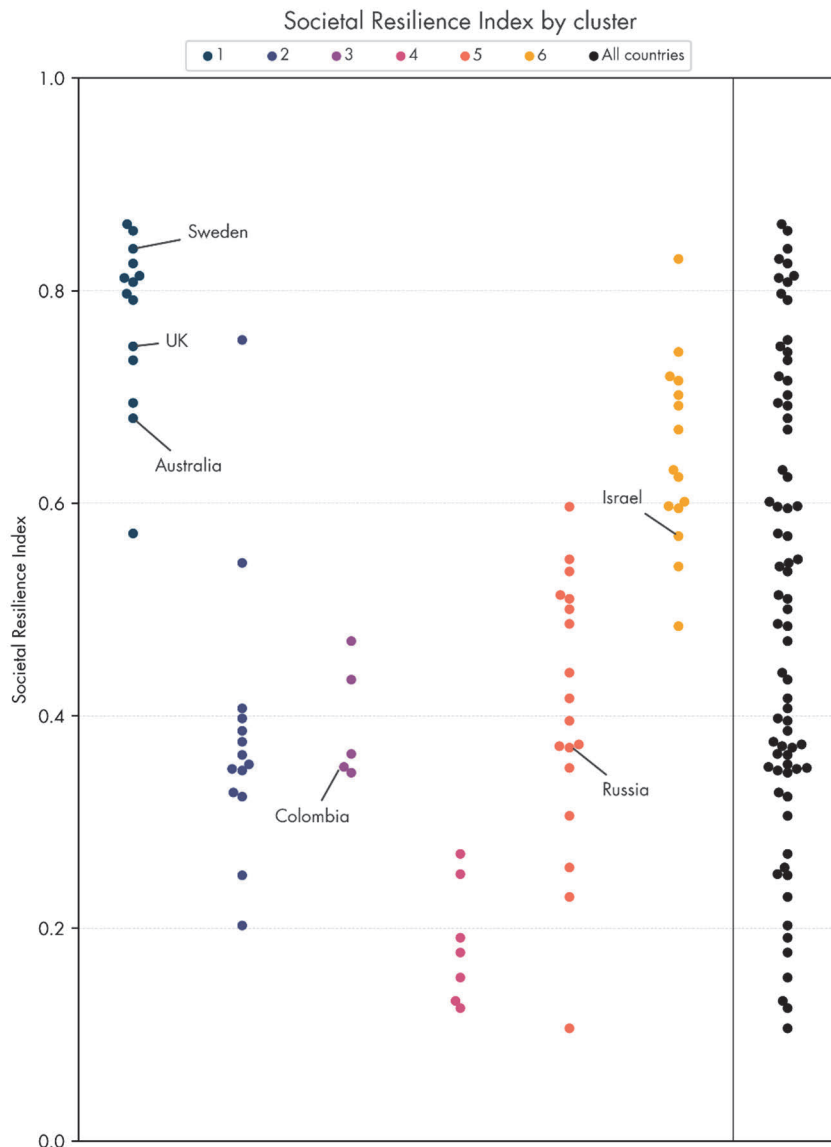
Source: GSP.

2.2.6. The societal resilience model also helped inform a framework for country case study selection

In WP2, the causal variables shown in Table 2.2 were taken forward to conduct clustering analysis to help categorise countries into different groups based on various characteristics that were deemed relevant to the way in which they might deal with societal resilience.[63] In general terms, clustering analysis seeks to assign data points into groups based on their distances from each other for a given set of variables. Points that are close together will likely be put into the same cluster, while distant points will be assigned to different clusters. This can provide insight as to the shared (and disparate) characteristics of different groups of points,

---

[63] The clustering analysis was conducted using a Gaussian Mixture Model (GMM). A full discussion of the qualitative methodology is included in Annex A.

or, in our case, groups of countries. Based on this analysis, the team defined six clusters of countries that shared similar characteristics, as shown in Table 2.4. Using the clusters, the DCDC and MOD then selected five countries (Australia, Colombia, Israel, Russia and Sweden) to serve as case studies intended to provide a spread of different approaches and experiences that might provide useful insights to the UK. It is important to note that, while the selection of case studies used the cluster analysis as a reference point, this was not the only factor – selection criteria also included countries of wider interest to the MOD. Ultimately, countries from Clusters 2 and 4 were not selected, as it was felt that their levels of societal resilience were too low, and their characteristics too different, to yield lessons for the UK. A full explanation for the selection of the case study countries is included in Annex A.

Table 2.4: Countries clustered by structural conditions that affect their societal model of resilience

Cluster	Description	Cluster countries
1	Consists of many Western European and Anglophone countries. These are distinguished from the other countries in the dataset by their high food security, supply chain resilience, civic engagement, and democracy indices, and by low levels of corruption and inequality.	**Australia,** Austria, Belgium, Canada, Denmark, Finland, Germany, Ireland, Netherlands, Norway, **Sweden,** Switzerland, UK, US
2	A range of countries from around the world. These countries have highly variable supply chain resilience and food security and worse-than-average corruption and inequality. They are also ethnically diverse, and usually have high levels of civic engagement and very low unemployment.	Benin, Dominican Rep., Ghana, Guatemala, Indonesia, Malawi, Malaysia, Panama, Peru, Senegal, Sri Lanka, Tanzania, Thailand, UAE
3	The smallest group, only containing five countries. These countries all score above the global average for democracy, but their economies are troubled by very high unemployment rates and inequality.	Botswana, Brazil, **Colombia,** Costa Rica, South Africa
4	Primarily characterised by the presence of significant conflict. All of these countries are in the top ten in the dataset for conflict intensity since 2015. They are also extremely ethnically fractionalised, when compared to global averages, and have poor food security and supply chain resilience.	Chad, Ethiopia, Kenya, Nigeria, Pakistan, Philippines, Uganda
5	Similar to Cluster 2, this cluster comprises a geographically wide range of countries. Primarily made up of middle-income countries, this cluster is distinguished by below-average supply chain resilience and civic engagement, as well as low scores for both corruption and democracy.	Bangladesh, Bulgaria, China, Ecuador, El Salvador, Haiti, Honduras, Kazakhstan, Mexico, Morocco, Nicaragua, Paraguay, **Russia,** Rwanda, Serbia, Tajikistan, Tunisia, Ukraine
6	Similar in many ways to Cluster 1, this cluster contains several developed economies. These countries tend to score slightly lower than those in Cluster 1 on supply chain resilience, corruption, democracy, and food security, but are still usually above average in all of these metrics. This cluster is also the most homogenous, with typically low ethnic fractionalisation scores.	Argentina, Chile, Czechia, Greece, Hungary, **Israel,** Italy, Japan, South Korea, Poland, Portugal, Romania, Slovakia, Spain, Uruguay

Source: GSP. The countries selected as case studies have been highlighted in bold font.

2.2.7. The SRI enabled a comparison of the scores of the five case study countries in terms of the quantifiable dimensions of resilience

Comparing the resultant index to the clustering analysis illustrates some trends among different clusters. The top of the index is largely populated by countries from Cluster 1, with the Nordic states scoring particularly highly and claiming four of the top five spots. Countries in Cluster 2 also tend to achieve good scores for societal resilience, with many of them coming ahead of Cluster 1's worst performer, the United States. The middle of the index is populated largely by Clusters 2, 3 and 5.

The countries selected for the case studies represent a broad range of both clusters and outcomes in the Index. Among these countries, Sweden scores the highest on the index (third overall with a score of 0.84), suggesting that the country is well-positioned to have a resilient society. This high SRI value is driven by Sweden's better-than average scores in almost all variables. Sweden's relative inequality, corruption, supply chain resilience and levels of conflict are all better than the global average by more than a full standard deviation. Sweden's above-average civic engagement does lower its score somewhat, but this has minimal impact in comparison to the strongly positive factors.

Australia, like Sweden, performs well in most categories. It has, however, a lower overall SRI score at 0.68. This is primarily because Australia scores closer to average than Sweden in terms of inequality, corruption and supply chain resilience. As a result, the upwards pressure on Australia's score is weakened; a larger degree of civic engagement also serves to depress Australia's overall score.

Israel performs averagely on the SRI, with its score of 0.57 placing it near to countries like the United States and Uruguay. This is largely due to two factors. First, Israel has average levels of inequality, corruption, and civic engagement. It does have a reasonably high level of supply chain resilience (albeit lower than both Sweden and Australia), but this does not serve to raise its score a long way above average. Second, Israel is among the states in the sample with the highest level of conflict intensity, at more than one standard deviation above the global average. This lowers Israel's score; as a result, the index suggests that Israel does not have a naturally strong structural basis from which to develop societal resilience, indicating that only using quantifiable dimensions of societal resilience may not give a complete picture

Russia also suffers from significant conflict intensity, which lowers its position on the index. Yet, where Israel benefits from high supply chain resilience and neutral scores elsewhere, Russia does not. Russia's corruption is more than a standard deviation worse than average, and its supply chain resilience is also below the global mean. A low level of civic engagement goes some way towards supporting Russia's final score, but it does not allow it to attain an SRI score of more than 0.37.

At first glance, with an SRI score of 0.35, Colombia appears similar to Russia. This score, however, is driven by a different combination of factors. Colombia's supply chain resilience, corruption, and conflict levels are less bad than Russia's (although they are all still worse than average). Yet, this improvement is counteracted by the country's extreme inequality, which drives its overall score down. The low SRI scores of Russia and Colombia respectively suggest that these countries face an uphill challenge when attempting to build societal resilience, particularly when compared to countries such as Sweden and Australia.

While the modelling and analysis presented in this chapter offers one tool for comparing large numbers of different countries in terms of quantifiable dimensions of societal resilience, it is not possible to understand the more nuanced picture behind the numbers without also conducting qualitative research into how

individual nations approach building societal resilience. Context matters. To this end, Chapter **Error! Reference source not found.** presents an overview of the five case studies for Sweden, Australia, Israel, Russia and Colombia, with further information included in Annex B.

2.3.   Analytical framework for country comparison

2.3.1.   The processes that together comprise societal resilience can be divided into three overarching phases: Prepare, Respond and Recover

Based on the interviews and the literature review, the GSP study team developed a conceptual model for the phases of societal resilience used to structure case study findings and good practices in Chapter **Error! Reference source not found.**, as well as proposals for the UK in Chapter 4. The team identified three stages of actions to increase and safeguard societal resilience, **Prepare, Respond** and **Recover**, as illustrated in Figure 2.3.[64]

Figure 2.3: The stages of societal resilience

Source: GSP.

These stages are illustrated as part of an ongoing cycle. Elements of each stage are dependent on actions intended to occur in the previous stage, while also feeding into and enabling subsequent stages. It is important to note that, as crises may occur in parallel or in a cascade effect, actors may find themselves in the midst of several phases simultaneously. Actors may be in the midst of the Recover phase for an initial crisis and find themselves needing to respond from a cascade effect or second-order consequence. Laying

---

[64] Names for the three stages are drawn from the MOD JDP *Military Aid to Civil Authorities*, which defines these as the three primary aspects of crisis response. See MOD (2016).

out each phase in sequence, however, is important for understanding the elements required to fully respond. Given how infrequently the Recover phase came up in literature or interviews, the study team felt that it was important to emphasise here.

2.3.2. The Prepare phase aims to ensure awareness and assessment of risks, threats and vulnerabilities

The first phase, **Prepare**, consists of all activities undertaken prior to a crisis or incident in order to ensure that awareness and assessment of potential risks, threats and vulnerabilities has taken place and that the necessary resources and relationships are in place to enable an effective response. The sub-tasks included within Prepare are also interrelated, but are likely to all be occurring in parallel, even in the background of an ongoing crisis. Prepare includes the sub-tasks of **Foresee**, **Build**, and **Educate**, which are defined in greater detail in Table 2.5 below.

Table 2.5: Sub-tasks within the Prepare phase of building societal resilience

Foresee	**Foster awareness of potential risks and threats to societal resilience, as well as possible vulnerabilities, and take appropriate mitigation steps.**
Build	Form connections across diverse stakeholder groups and institutions that enable appropriate measures to protect societal resilience; build relationships and capability.
Educate	Provide information and opportunities to train or exercise for potential crises across different stakeholder groups, including wider awareness among the public.

Source: GSP.

2.3.3. The Respond phase focuses on assessing and mitigating the impact of the immediate crisis

The second phase, **Respond**, consists of all activities taken once a crisis has ensued. Regardless of the nature of that crisis, the same overall types of activity are required. While there is some temporal element to the order in which they are presented, different sub-tasks may need to reoccur in a small version of the overall cycle of Prepare – Respond – Recover. Multiple sub-tasks may also occur in parallel. These sub-tasks, **Understand**, **Inform**, and **Mobilise** are defined in Table 2.6 below.

Table 2.6: Sub-tasks within the Respond phase of building societal resilience

Understand	**Gather information to understand the scope and scale of the situation and determine appropriate courses of action.**
Inform	Communicate effectively and efficiently in the event of a crisis to facilitate prompt and appropriate responses from stakeholder groups across society.
Mobilise	Ensure personnel, equipment, capability, and all necessary resources from across society can engage with crisis response as appropriate and with all necessary speed.
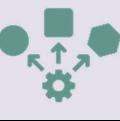
Source: GSP.

It is important to note that, while it is easy to mistake actions within Respond for a short-term commitment, crises may continue for long periods of time, or may cause concurrent or adjacent incidents. Therefore, sustainment is a significant component of all tasks in this phase.

2.3.4. The Recover phase includes actions taken to return to a pre-crisis state and rebuild capabilities or equipment needed to respond to any future crises

Finally, the third phase, **Recover**, occurs once the initial crisis has passed or been mitigated and consists of tasks needed both in the short-term to ensure that civilians have been moved to safety and that resources have been returned to their previous locations, as well as longer-term tasks to ensure that responding personnel and equipment are returned to readiness. Finally, the importance of learning from previous tasks to adapt existing structures, resources and institutions, or create innovative and novel practices came through strongly in the case studies and interviews. Recover may well be the most resource-intensive and long-lasting of all of the tasks and is likely to continue long after public attention has moved on. The sub-tasks for Recover are **Reset**, **Regenerate** and **Reflect**. These are defined in Table 2.7 below.

Table 2.7: Sub-tasks within the 'Recover' phase of building societal resilience

Reset	**Collect all personnel and equipment and move them from the crisis area to a designated location (i.e. pre-crisis location, temporary accommodation, etc.). Support the return of the civilian population to a safe location (i.e. return to area of crisis, temporary shelters, hospitals or other infrastructure as appropriate).**
Regenerate	Return responding personnel and equipment to a response-ready condition, including replacing personnel or equipment lost in crisis response, and return society to pre-crisis state (e.g. basic service provision, resumption of business-as-normal).
Innovate	Generate, analyse, and apply lessons identified across all stakeholder groups. Incorporate lessons identified across subsequent iterations of the Prepare stage to adapt existing structures, institutions, resource, etc. and create innovative practices to improve the ability to prepare and respond to future crises.

Source: GSP.

2.4.   Summary

In this chapter, the study team has examined the different definitions of societal resilience with common features including an ability to bounce back from a shock with minimal disruption. It has been shown that most definitions describe three phases that are loosely organised around preparation, response and recovery. Yet, the terms 'resilience' and 'societal resilience' are often defined imprecisely, mean different things to different people and are used interchangeably with other types of resilience. This has led to different parts of government defining resilience in slightly different ways and made it difficult to measure. Resilience has also been characterised as having both physical and psychological elements, the former relating to the ability of physical structures and infrastructure to withstand shocks, and the latter concerning the capacity of the population to endure crises. UK Defence's contribution to psychological resilience is more difficult to distinguish.

The team also proposed a structured, quantitatively based approach to bringing great clarity to societal resilience as a concept to enable analysis across countries. This entailed: (1) identifying structural variables that influence societal resilience and those that result from it through a combination of literature review and statistical analysis; and then (2) fashioning the relationships between them into a theoretical model of societal resilience. The theoretical model then enabled the construction of clusters and an indicative Societal Resilience Index to:

a)   Add a level of rigour to case study selection for the next phase of the study and,

b)   Provide a degree of analytical depth to qualitative investigation of case studies provided in the next chapter.

Against this setting, the study team created a conceptual framework for each of the phases of societal resilience: Prepare, Respond and Recover. Each phase has several sub-tasks which are shown as part of an ongoing cycle. These have been used to help structure the case study findings in Chapter 3 and recommendations presented in Chapter 4. The Prepare phase aims to ensure awareness and assessment of risks and vulnerabilities, the Respond phase focuses on assessing and mitigating the impact of the immediate crisis, whilst the Recover phase includes actions taken to return to a pre-crisis state and rebuild capabilities or equipment needed to respond to future crises. A crucial component of this phase is also adapting current practices and measures, as well as leveraging the lessons identified to generate new, innovative practices and source new skills.

3. Identifying societal resilience practices, trends and lessons in different countries

This chapter contains a summary of relevant background information and key findings from each of the five selected case studies: Sweden, Australia, Israel, Russia and Colombia. A more detailed explanation of why each country was chosen is included in Annex A, and the full case studies are detailed in Annex B.

Country case studies are listed here in order of their score in the SRI (from highest to lowest). For each case study, a summary of key characteristics has been provided to help introduce and describe that country's structures and approach to societal resilience. This is followed by a table detailing a list of relevant resilience practices identified. The societal resilience structures, institutions and practices of each country are, of course, borne out of their national specificities (such as their threat assessment and the particularities of the social contract between their population and governments). Despite this, the way that the Prepare, Respond and Recover phases of societal resilience are operationalised and have been assessed in each country, may indicate lessons for the UK as it considers its own conceptualisation and operationalisation of societal resilience, and how Defence could support it.

These practices have been broken out into the three phases of the conceptual framework of societal resilience, **Prepare, Respond** and **Recover**, as outlined in Chapter 2. Finally, implications for Defence in that country are summarised at the end of each case study. These implications also feed into Chapter 4, which sets out proposals for the UK in general and for Defence specifically.

Detailed discussion of the qualitative methods used to generate the case studies is included in Annex A.

3.1. Countries have structural differences that have led to their adoption of different definitions and approaches to societal resilience

There is a great deal of variety in terms of the environment in which countries find themselves in; this helps shape their different approaches to societal resilience. Countries that face an imminent threat, whether manmade or natural, can appear significantly more proactive in their approach to societal resilience. It is important to note that this may be entirely outside the control of the country in question, particularly if the threat is the result of natural phenomena or an aggressive neighbour. For example, interviewees discussed extensive societal resilience preparation in countries as varied as Mexico and Chile due to earthquakes; the Netherlands due to frequent flooding; and the Baltic countries due to their proximity to Russia.[65] Such

---

[65] Interviews conducted by RAND Europe with interviewees E, G, H and O; Flanagan et al. (2019).

countries frequently have more resources or established mechanisms in place for emergency preparedness, as well as more practised responses and a greater public awareness of what actions individuals are expected to take in a crisis situation.[66]

Differences in threat level can cause significant variation within countries as well as between them. For example, certain areas within countries that are prone to natural disasters are often perceived as being qualitatively more resilient than those that are not.[67] Studies have shown that the same applies for areas frequently exposed to manmade attacks, such as the parts of Israel that border the Gaza Strip, and have extensive civilian emergency response plans in place.[68] These areas are more resilient against all threats, whether or not they come from Gaza, because they have mobilised resources in response to the high threat level, and because previous experience has affected the public mindset and led the public to practise more active responses to a crisis.[69] Interviewees from the UK suggested that, in their experience, this held true for areas of the UK that are more prone to flooding or are in the vicinity of possible hazards, such as a nuclear power station.[70] The lack, however, of objective metrics makes this a difficult question to comprehensively answer.

Before moving on to an examination of the case studies, it is instructive to provide a brief overview of how UK Defence is integrated into the wider societal resilience ecosystem of the UK (discussed in greater detail in Annex A). This will serve to frame and guide the recommendations and implications for UK Defence provided in the next chapter.

3.2. Role of UK Defence in maintaining societal resilience

In the UK, Defence is not listed as a responder under the 2004 Civil Contingencies Act. Yet, the 2010 and 2015 *National Security Strategy* (*NSS*) and *Strategic Defence and Security Review* (*SDSR*) highlighted resilience as a key function of UK Defence. The 2015 *NSS* and *SDSR* stated that it was MOD's responsibility to 'support UK civil authorities in strengthening resilience.'[71] It also stated that military planners would be placed into key government departments to give Defence a more formal role in supporting national resilience planning.

Further, in the 2016 MACA policy review, the scope for the application of MACA was expanded. Whereas the military were previously only involved in the Respond phase, from 2016 their remit was widened to include the Prepare and Recovery phases as well.[72] Under the revised MACA rules, Defence supports civil authorities in cases where they might be overwhelmed, where they have need of certain niche capabilities, or in preparation for major national events.[73]

---

[66] Interview conducted by RAND Europe with interviewee M; Jackson (2019).

[67] Interviews conducted by RAND Europe with interviewees E, F, H and R; Kimhi et al. (2020).

[68] Elran (2017); Kimhi, et al. (2020).

[69] Interview conducted by RAND Europe with interviewee F; Kimhi, et al. (2020).

[70] Interview conducted by RAND Europe with interviewee R.

[71] HM Government (2015).

[72] MOD (2017).

[73] MOD (2017).

The *Integrated Operating Concept* 2025 (*IOpC*), published in 2020, and the 2021 *IR* placed an even greater emphasis on resilience and Defence's role in supporting it. The *IOpC* emphasises a need for deeper, more cohesive military-civilian responses to a range of threats.[74] The *IR* announced that in addition to continuing to use MACA, the government plans to make greater use of reserves and create a civilian reservist cadre to support domestic security during the Respond phase.[75]

The following sections outline the current roles Defence plays in supporting resilience across the three phases of the analytical framework presented in Chapter 2 (Prepare, Respond and Recover).

Box 1: Key contributors to UK societal resilience in the Defence context

The MOD Security Policy and Operations Directorate (SPO) is the lead within UK Defence for civil emergency response planning and works closely with the Civil Contingencies Secretariat (CCS).

Headquarters Standing Joint Command (HQ SJC) is part of the MOD Defence Commitments Management Organisation. It coordinates Defence's contribution to UK resilience operations.

Army Headquarters Regional Command (HQ RC) coordinates the Army's support to civil authorities. It oversees nine Regional Points of Command (RPoCs) around the UK, which coordinate with regional civil authorities.

Liaison Officers represent the MOD in Local Resilience Forums (LRFs) and assist with training and exercises.

Source: GSP analysis of Joint Emergency Services Interoperability Principles (2021); Ministry of Defence (2017).

3.2.1. Defence's role in the Prepare phase

National level: At a national/strategic level, the MOD Security Policy and Operations Directorate (SPO) within Head Office takes the lead in preparing for civil emergencies.[76] It works closely with the CCS.[77] It also provides strategic guidance for UK operations training and exercising in Defence.[78] Full-time liaison officers from the single-Services also contribute at the national level; they were placed in government departments following the 2015 *NSS* and *SDSR* to support national resilience planning.[79] Other key national actors in the Prepare phase are science organisations such as Defence Science and Technology Laboratory (Dstl) and the Atomic Weapons Establishment (AWE), which provide specialist advice to civil authorities for emergency preparedness.[80]

Sub-national level: At the sub-national level, HQ SJC provides operational-level training and exercising in UK resilience operations. The Army's HQ RC, and its regional branches, RPoC, assist with developing and delivering resilience training to civil authorities at a regional level.[81]

---

[74] MOD (2020).

[75] HM Government (2021).

[76] MOD (2017).

[77] MOD (2017).

[78] MOD (2017).

[79] HM Government (2015).

[80] MOD (2017).

[81] MOD (2017).

Local level: Liaison with civil authorities at local level is provided by joint regional liaison officers (JRLOs); Royal Navy regional liaison officers (RNRLOs); Royal Air Force regional liaison officers (RAFRLOs); and military liaison officers, who represent the MOD in LRFs and assist with training and exercises.[82]

An overview of Defence organisations involved in the Prepare phase is provided in Figure 3.1 below.

Figure 3.1: Overview of Defence's role in Prepare

Prepare	Civilian Organisation	Defence Organisation	Defence Role
National level	Home Office Lead Government Departments Cabinet Office's Civil Contingencies Secretariat	Full-time liaison officers from single-Services	Liaise with government departments
		Atomic Weapons Establishment (AWE) and the Defence Science and Technology Laboratory (Dstl)	Provide specialist scientific support to government
		MOD Operations Directorate	Strategic-level Defence resilience and UK operations training and exercising
Sub-national level	Ministry of Housing, Communities and Local Government - Resilience and Emergencies Division (MHCLG-RED)	Headquarters Standing Joint Commander (UK) (HQ SJC(UK))	Operations-level lead for education, training and exercising relating to resilience and UK ops
		Regional Point of Command (RPoC)	Integrated resilience training between Defence and civilian authorities
		Army's Headquarters Regional Command (HQ RC)	Helps develop, programme, and resource training with single-Service commands
Local level	Local Resilience Forums	Full-time liaison officers from single-Services	Assist Local Resilience Forums

Source: GSP analysis of Joint Emergency Services Interoperability Principles (2021); Ministry of Defence (2017).

3.2.2. Defence's role in the Respond phase

National level: As in the Prepare phase, in the Respond phase the MOD's SPO is one of the lead actors at the national level. It has strategic responsibility for the UK Defence Respond phase, works closely with the CCS and represents the MOD in Cabinet Office Briefing Room (COBR) meetings.[83] The Deputy Chief of the Defence Staff and the Director General Security Policy also advise COBR on strategy. Full command is the responsibility of the single-Service chiefs.[84]

Sub-national level: The Standing Joint Commander UK supports civil authorities' resilience operations and oversees the deployment and management of Defence assets. It also conducts joint actions with the three single-Service commands.[85] The Army's RPoC structure also provides command and control at the tactical level and oversight of Defence assets. There are nine RPoCs around the country, and they maintain close ties with the civil authorities in their areas.[86]

---

[82] JESIP (2021).

[83] MOD (2017).

[84] MOD (2017).

[85] MOD (2017).

[86] MOD (2017).

Local level: The military liaison officers that are already in place in LRFs can represent the RPoC commander at LRF's SGC meetings during a crisis. They can also advise on what military assistance can be made available to the local area.[87] The Army also has three Standby Battalions that can be deployed to support local authorities.[88]

An overview of Defence organisations involved in the Respond phase is provided in Figure 3.2 below.

Figure 3.2: Overview of Defence's role in Respond

Respond	Civilian Organisation	Defence Organisation	Defence Role
National level	Cabinet Office Briefing Room (COBR) Lead Government Departments	Deputy Chief of the Defence Staff (Military Strategy and Operations) and the Director General Security Policy (DG Sec Pol)	Provide strategic guidance to ministers and other government departments through COBR
		MOD Operations Directorate	Takes the lead for all UK operations activity
		Single-Service chiefs	Provide full command when requested
Sub-national level	Government Liaison Team MHCLG-RED	Headquarters Standing Joint Commander UK (HQ SJC)	Conducts operational-level joint actions with three single-Service commands and Defence agencies. Oversees deployment and management of Defence assets
		Army Regional Point of Command (RPoC)	Tactical level C2 of Defence forces
Local level	Local Resilience Forum Strategic Co-ordinating Group	UK Standby Battalions	3 generalist Army battalions to support civil authorities
		Full-time liaison officers from single-Services	Represent RPoC at LRFs

Source: GSP analysis of Joint Emergency Services Interoperability Principles (2021); Ministry of Defence (2017).

3.2.3. Defence's role in the Recover phase

Structures that were involved during the Prepare and Respond phases can also assist during the Recover phase. The main role of Defence organisations is to assist LRFs. Yet, publicly available information about Defence's role in the Recover phase is relatively limited. As already highlighted, phases of the framework can occur concurrently, especially where there is a cascade of crises either naturally or through design.

An overview of Defence organisations involved in the Recover phase and their roles is provided in Figure 3.3.

---

[87] JESIP (2021).

[88] MOD (2017).

Figure 3.3: Overview of Defence's role in Recover

Recover	Civilian Organisation	Defence Organisation	Defence Role
National level	Depending on the scale of the emergency: Central government, agencies, and devolved administrations		
Sub-national level	MHCLG-RED	Headquarters Standing Joint Commander UK (HQ SJC)	Oversees the recovery of Defence assets that were deployed during crisis operations
		Army Regional Point of Command (RPoC)	Support LRFs and local authorities
Local level	Local Resilience Forums (LRFs)	Full-time civilian liaison officers from single-Services	Support LRFs and local authorities

Source: GSP analysis of Joint Emergency Services Interoperability Principles (2021); Ministry of Defence (2017).

Having outlined the baseline of current UK and Defence approaches, this chapter goes on to explore approaches of other nations

This chapter has presented an overview of the role of Defence in societal resilience in the UK. It is also supported by Annex C, which features an overview of the civilian approach to societal resilience in the UK. As discussed in the preceding sections, there is an extensive ecosystem of different structures and processes already in place at the national, regional and local levels, across the Prepare, Respond and Recover phases of the analytical framework introduced in Chapter 2. From discussions with interviewees, however, it is apparent that these do not necessarily work well in practice. The UK is not alone in facing complex threats to societal resilience and could benefit from good practices that other nations have in place.

The following sections of this chapter go on to examine the five case study countries, selected in Chapter 2, to identify what lessons may be transferable to the UK.

3.3.   Sweden

As discussed in Chapter 2, even adjusting for a comparatively high level of socioeconomic equality and its proximity to Russia on the European frontier, Sweden's high SRI score indicates that it has a number of attributes associated with strong societal resilience. As part of Cluster 1, Sweden is of particular interest to the UK as an example of a non-Anglophone country that shares with it a number of high-level cluster characteristics, such as comparatively high levels of food security, supply chain resilience, and civic engagement coupled with low levels of corruption and inequality. Firstly, Sweden has adjusted its stance on societal resilience over time to respond to changing threat assessments. For example, Sweden has

significantly changed its national threat assessment, and subsequently its approach to societal resilience, following Russia's aggression towards the Crimea and Ukraine in 2014.[89]

Sweden's Total Defence concept is frequently cited as a model for approaching societal resilience.[90] Total Defence in Swedish law is defined as: 'the preparations and planning required to prepare Sweden for war.'[91] The Total Defence laws require a cohesive crisis planning and response framework to be in place, such that Sweden would be able to withstand a security crisis for at least three months.[92] All individuals between 16 and 70 are obliged to contribute to Total Defence, with roles determined based on skills or civilian occupations.[93] The Swedish government is also empowered to compel industry to participate in Total Defence exercises, as well as stockpile or manufacture goods. This latter policy, however, is thought to be unpopular with industry and has not been used in a long time.[94]

The government maintains active, ongoing communication with the entire population regarding their role in societal resilience.[95] This dissemination of information is also intended to spur citizens to participate in Total Defence: the government encourages citizens to learn to provide first aid or get involved with non-profit organisations that play significant roles in voluntary defence.[96] As part of this preparation advice, the Swedish government has issued the general public pamphlets with instructions on actions to take in the event of a crisis.[97] It also has a signal alert system that warns civilians of an emergency via cell phones and other designated means.[98]

In addition to its long tradition of national service, Sweden's dedicated national Civil Contingencies Agency (MSB), is regarded as one of the best civil defence agencies worldwide.[99] As part of its responsibility for tasks related to civil preparation, emergency management and civil defence, MSB carries out contingency planning, supports training, exercises, regulation and education and works closely with municipalities, councils and the private sector.[100] MSB has also overseen the development of preassigned dual roles for civilian positions in government agencies during wartime.[101] In 2019-2020, the MSB together with the armed forces, ran a year-long Total Defence exercise (2019–2020) that drew on a whole-of-society approach

---

[89] Von Sydow (2018).

[90] Von Sydow (2018).

[91] Swedish Defence Commission Secretariat (2017).

[92] Swedish Defence Commission Secretariat (2017).

[93] MSB (2019b).

[94] Internal RAND Europe expert workshop conducted 19 March 2021; Swedish Defence Commission Secretariat (2017).

[95] Swedish Defence Commission Secretariat (2017).

[96] MSB (2019a).

[97] MSB (2019b).

[98] MSB (2018a).

[99] Interviews conducted by RAND Europe with interviewees G and H; Von Sydow (2018).

[100] MSB (2019a).

[101] Internal RAND Europe expert workshop conducted 19 March 2021; Von Sydow (2018).

to conduct exercises ranging from table-top to live-play that included parliament, government agencies, regional administrations, municipalities, industry, and the general public.[102]

Sweden, however, faces a number of inherent challenges. Some of these are the result of reintroducing Total Defence within a modern setting. Previously, Total Defence was in operation during the Cold War. Since then, there has been significant privatisation of key industries and a consequent lack of government control.[103] In addition, where previously Sweden maintained large stockpiles and had limited imports, many supply networks now use a 'just-in-time' approach to gain commercial advantage, and rely on imports for crucial goods like food, fuel, and medicine, leaving Sweden more vulnerable to disruption.[104] Sweden also has a pluralistic authority landscape with control and authority organised across national, regional and local levels rather than vested in central government, which can slow down the speed of crisis responses.[105]

3.3.1. Role of Swedish Defence

Although peacetime conscription was temporarily suspended in 2010, it was reintroduced again in 2017 as part of the increased focus on Total Defence.[106] Therefore, at the conceptual level, defence is central to its approach to societal resilience.

Operationally, too, Sweden is among the countries with a designated reserve force specifically intended to protect Swedish territory and support societal resilience: the Home Guard, which consists of stand-by units whose responsibilities include supporting police, rescue services and other authorities in the event of large-scale accidents, natural disaster or other threats to society.[107] The Home Guard regularly collaborates with allies and partners, such as the United States, to demonstrate its capabilities.[108] Members also wear their uniforms to their civilian jobs once a year to demonstrate their spread throughout society.[109] Finally, the military has joint responsibility for the national cybersecurity centre stood up in 2020 alongside intelligence and crisis management agencies.[110]

At the same time, the central government is still refining the role of Defence in Swedish societal resilience, particularly as it concerns the overlap between its remit and that of MSB.[111] The two frequently work together, for example to run the Total Defence Exercises between 2019 and 2020,[112] but the Swedish central government and military have limited ability to involve themselves in peacetime crisis preparation and prevention, as local authorities retain significant authority short of an act of war.[113] An Inquiry on Civil

---

[102] Wheeler (2020).

[103] Von Sydow (2018).

[104] Von Sydow (2018).

[105] FIIA (2020).

[106] FIIA (2020).

[107] Swedish Armed Forces (2021).

[108] Swedish Armed Forces (2021).

[109] Swedish Armed Forces (2021).

[110] FIIA (2020).

[111] Internal RAND Europe expert workshop conducted 19 March 2021.

[112] Wheeler (2020).

[113] FIIA (2020).

Defence has been set up to address the issue. Currently, the MSB directs civilian efforts for civil defence planning, but the central government cannot dictate actions in the Prepare phase; its role is limited to leading a crisis response.[114] The central government, however, is making changes to better support societal resilience and civil defence: in addition to its Total Defence bill passed in December 2020, and its appointment of an Inquiry on Civil Defence, the central government has instigated a significant increase in spending on Total Defence. The reinvigoration of Total Defence in the 2015 *National Defence Strategy* saw a significant increase in defence spending;[115] several years later, Sweden is still planning to increase its defence spending by more than $3b over the next five years.[116]A list of relevant Swedish practices, that indicate effective integration between civil and defence elements, on-going engagement of the public, and comprehensive threat assessment, and as such could hold lessons for the UK, is presented in Table 3.1 below.

---

[114] Internal RAND Europe expert workshop conducted 19 March 2021.

[115] Von Sydow (2018).

[116] Phillips & Marson (2021).

Table 3.1: Findings from the Sweden case study that might hold lessons for the UK

Phase	Relevant practices
Prepare	Sweden regularly takes stock of the evolving threat landscape and adjusts its approach to societal resilience accordingly, indicating its ability to feed changes in threat assessment into societal resilience planning.[117]
	Sweden's government is working to map national supply chains to identify vulnerabilities and determine where stockpiles might be needed.[118]
	Sweden has a designated Civil Contingencies Agency (MSB), a civilian body responsible for civil preparation. It is used to keeping the public informed and involved in societal resilience measures through active information campaigns and whole-of-society Total Defence exercises, such as those carried out in 2019 and 2020.[119]
	Sweden has legislative processes and administrative mechanisms to enable the direct participation by the private sector in Total Defence planning.[120]
Respond	Sweden has structures to enable mass, all of society mobilisation in the event of a crisis through:
	Reinstatement of conscription.
	Requirement for all individuals between ages 16 and 70 to contribute to Total Defence in a variety of designated roles based on occupation and skill.
	Government power to compel private industry to stockpile or produce certain goods.[121]
	Sweden's part-time Home Guard is a military reserve that includes support to civil authorities in its explicit remit, enabling it to access niche skills otherwise found in the civilian sector.[122]
Recover	Sweden has 65,000 shelters that can house four million people.[123]
	The government took lessons learned from the year-long Total Defence exercise to inform policy changes and adaptations.[124]

Source: GSP.

3.4.   Australia

Another member of Cluster 1, Australia has an SRI score of 0.68 and, similarly to Sweden, has a number of structural characteristics that contribute to its societal resilience, such as comparatively low levels of inequality and corruption, and high levels of supply chain resilience. Australia, however, does not have a long history of state-led focus on resilience like Sweden; it has never had National Service and has conducted

---

[117] Von Sydow (2018).

[118] Internal RAND Europe expert workshop conducted 19 March 2021.

[119] Wheeler (2020).

[120] Interview conducted by RAND Europe with interviewee X; Von Sydow (2018).

[121] Von Sydow (2018).

[122] Swedish Armed Forces (2021).

[123] MSB (2018b).

[124] Wheeler (2020).

limited civil defence and emergency planning over the last century.[125] Commonality, however, with Sweden in terms of resilience can be seen in the way that Australia is adjusting its approach to societal resilience as its threat assessment changes over time. Indeed, recent changes to national threat assessments, in light of technological change, increased strategic competition in the Indo-Pacific, and increased cyber and grey-zone threats, as well as the increasing incidence of extreme weather as a result of climate change, have been the impetus for Australia to seriously consider its civil defence policies and resilience.[126]

Australia is split into three levels of governance: the federal level, the state level, and the local council level. In general, resilience planning and crisis response is led by the states, which have their own forces that operate under separate legislative frameworks.[127] States are legally responsible for emergency management, land use planning, development regulation, and disaster resilience, through emergency services organisations.[128] States can seek assistance from Defence if overwhelmed, but the federal government does not have the power to order the military into states (in this way it is similar to Sweden).[129] A move to strengthen civil defence and resilience has grown in the last decade resulting in the publication of multiple strategy documents. [130] In 2011, the Australian government published a *National Strategy for Disaster Resilience*, which called for greater collaboration between national and local government, businesses, and communities.[131] Other documents have included the 2018 *National Strategy for Disaster Resilience*, the *Disaster Response Plan* (*COMDISPLAN*) and the *Nature Catastrophic Disaster Plan* (*NATCASDISPLAN*).[132] At the federal level, interest is focused upon updated national threat assessments and mitigating the risks from extreme weather due to climate change, driven by the increasing incidence of bushfires, droughts and flooding.[133]

At the same time, Australia's geo-economic and political characteristics also give rise to several challenges to enhancing societal resilience. Like Sweden, it is reliant on imports and, due to its isolated location, has relatively little experience of national security threats. Decentralised authority, like Sweden, could also make it harder to coordinate societal resilience efforts in a crisis.[134]

3.4.1. Role of Australian Defence

Australian Defence has a mandate to assist civilian authorities in catastrophic natural disasters, such as the 2020 and 2009 bushfires, where the danger level was high and local entities alone could not handle the

---

[125] Nicholson et al. (2021).

[126] Nicholson et al. (2021).

[127] Deloitte (2017).

[128] Deloitte (2017).

[129] Nicholson et al. (2021).

[130] Internal RAND expert workshop conducted 21 April 2021.

[131] Council of Australian Governments (2011).

[132] EMA (2017, 2020).

[133] Nicholson et al. (2021).

[134] Internal RAND expert workshop conducted 21 April 2021.

situation.[135] In addition, the government can invoke Defence Force Aid to the Civil Authority (DFACA), through which the armed forces can help civil authorities with law enforcement.[136]

In 2020, Australia published a *Defence Strategic Update* that identifies disaster and national resilience as a priority for Australian Defence and notes that resilience planning needs to be a priority in Defence planning. Yet, this is a relatively new development and there is no tradition of integrating concepts of resilience or whole-of-society mobilisation contained within its Defence planning or doctrine.[137] Some experts also viewed the level of awareness of national security threats to be quite low amongst the Australian public, in comparison to other countries.[138] The document also describes modern deterrence as requiring an '…all of government and society response'.[139] Therefore, Australia will seek to: 'expand Defence's capacity to support civil authorities in response to natural disasters and crises.'[140] These activities include providing support for domestic emergencies, providing cybersecurity, and responding to grey-zone threats.[141]

Table 3.2 below summarises the practices, structures, and measures in the realm of societal resilience that can be drawn from the Australian case study, which the UK could consider in its own approach.

---

[135] Department of Defence (2020b).

[136] Ward (1998).

[137] Internal RAND expert workshop conducted 21 April 2021; Nicholson et al. (2021).

[138] Internal RAND expert workshop conducted 21 April 2021.

[139] Taken from Modern Deterrence video produced by the Center for Strategic & International Studies. See CSIS (2019).

[140] Department of Defence (2020a).

[141] Nicholson et al. (2021).

Table 3.2: Findings from the Australia case study that might hold lessons for the UK

Phase	Relevant practices
Prepare	Strategy documents are updated on a regular basis to respond to dynamic national threat assessments and local risk assessments. Australia has moved quickly to establish structures and institutions to support societal resilience, following its identification as a strategic priority: The government is creating a dedicated national resilience, relief and recovery agency to start in 2021.[142] Prior to operationalising the defence contribution to societal resilience, Australia is ensuring clarity at the strategic level: Australia rewrote its Defence Strategy to expand its ability to respond to domestic crisis.[143] In response to its 2020 Defence Strategic Update, which called for increased modern deterrence, Australia is seeking to expand Defence's capability to support civil authorities.[144] Australia is building up structures to anticipate and manage risk in key areas of vulnerability: Australia's Natural Disaster Risk Reduction Framework identifies pillars for efforts to proactively reduce disaster risk.[145] Australia is creating a climate and disaster risk information service to assist Emergency Management and the new Resilience Agency.[146]
Respond	State emergency management committees coordinate emergency and prevent duplication of effort, while also tailoring emergency management approaches to local circumstances.[147]
Recover	Queensland implemented an $80m infrastructure restoration following cyclones between 2011 – 2013 to repair damage and increase infrastructure resilience to cyclones.[148] 2020 Cybersecurity Strategy committed $1.67b in cyber security over the next ten years and discussed the importance of a 'whole-of-community' effort.[149]

Source: GSP.

3.5. Israel

Israel's score in the SRI (0.57) is impacted significantly by its high level of conflict intensity – more than one standard deviation above average and significantly higher than other countries in its cluster (see Chapter

---

[142] Department of the Prime Minister and Cabinet (2020).

[143] Nicholson et al. (2021).

[144] Department of Defence (2020a).

[145] Royal Commission into National Natural Disaster Arrangements (2020b).

[146] Department of the Prime Minister and Cabinet (2020).

[147] Department of Defence (2020b).

[148] Queensland Government (2020).

[149] Australian Government (2020).

2). It also has slightly above-average scores for inequality. This relatively low score, compared to some of the other case studies, indicates that Israel may not have the structural factors that provide a strong foundation for societal resilience. It is indeed the case that Israel faces a number of challenges due to its location, its domestic political instability, and strained intercommunal relations within the country. Certain areas of the country also face threats from extreme weather and natural disasters such as earthquakes. Significant divisions exist between Arabs and Jews, but also between different groups within the Jewish community.[150] For example, the political and economic life of the country is dominated by Ashkenazi Jews, or Jews of Eastern European descent.[151] In addition, recent years have seen significant debates within the country about the growing size and influence of the Haredi, or Orthodox Jewish, community.[152]

Qualitative studies, however, indicate that Israel is resilient, especially in regions around the Gaza strip. It is frequently used as a case study in academic literature, and several interviewees cited it as an example for resilience with many relevant practices.[153] Israel has compulsory near-universal military service, robust and consistent communication with its population, and a strong industrial base. This discrepancy then raises the question of what causes Israel to perform better than the structural characteristics of societal resilience captured in the index would imply. A comprehensive investigation of this question is beyond the scope of this study, but this case study can offer some insights for consideration, including by the UK. The population plays an active role in Israel's societal resilience. This is particularly true in areas that are in proximity to the Gaza Strip and which face frequent rocket attacks.[154] Nationwide conscription means that a large percentage of the population has military training.[155] This education begins within the school system, educating teenagers to prepare them for their national service. This means that, if needed, Israel can mobilise a significant proportion of its population, including teenagers, to provide support to dedicated emergency services.[156] The Israeli Defence Force (IDF) operates an emergency alert system, and citizens know what they are expected to do in the event of an emergency.[157]

3.5.1. Role of Israeli Defence

Israel's approach to resilience is heavily weighted towards kinetic measures, with the military playing a key role. For example, the National Emergency Management Agency (NEMA), also known by its Hebrew acronym RACHE, sits within the Ministry of Defence (IMOD), as does the Home Front Command (HFC), a military force dedicated to civil defence. Israel's military capabilities are significant: HFC frequently deploys to other countries to assist them in the event of disasters.[158]

---

[150] Pew Forum (2016).

[151] Averbukh (2017).

[152] Kashti (2019).

[153] Interviews conducted by RAND Europe with interviewees F, G and R.

[154] Padan & Elran (2019).

[155] Elran & Sheffer (2016); Law Library of Congress (2020). There are some exceptions to this, for example the ultra-Orthodox Jewish community.

[156] Federation of American Scientists (2000).

[157] Padan & Elran (2019).

[158] IDF (2021).

Public approval of the IDF is significantly higher than that of the political leadership, having fluctuated between 80 and 100 per cent between 2003 and 2020.[159] This is as compared to trust in government which, according to one 2020 poll, was at 25 per cent for Arabs and 29 per cent for Jews.[160] Although further study is required, this may point to the IDF being an apolitical institution, supported by the population regardless of political affiliation. In a highly politically divided society, this indicates the key role of the IDF in supporting societal resilience (see Annex B for more information).

Table 3.3 below lists key findings from Israel's approach to societal resilience, as identified by the GSP study team, on the basis of literature and interviews. A full analysis is included in Annex B.

Table 3.3: Findings from the Israel case study that might hold lessons for the UK

Phase	Relevant Practices
Prepare	Israel integrates near-universal compulsory military service into the formal education system, beginning with secondary education - citizens receive training within the formal education system as teenagers.[161]
	Israel integrates civil and defence structures of societal resilience, with explicit resilience responsibilities assigned the military:
	Israel has a dedicated emergency response agency, the National Emergency Management Agency (NEMA), which sits within the IMOD. NEMA's responsibilities include assessing emergency response readiness, conducting exercises and training, distributing information to the public, and securing Critical National Infrastructure (CNI).[162] Also within the IMOD is the Home Front Command (HFC), which specialises in civilian protection, including search and rescue, and includes district-level teams responsible for continuous coordination with local authorities,[163] as well as specific teams to deal with emergency situations, such as chemical, biological, radiological and nuclear (CBRN) events.[164] The HFC has deployed to assist other countries, including to Mexico in 2017[165] and exercises regularly with the military.
	Preparedness responsibilities assigned to a range of government departments. Within multiple government ministries, including the Ministry of Economy and the Ministry of Health, Israel has departments tasked with stockpiling and contingency planning.[166]
Respond	Israel has defined mechanisms for alerting and communicating with the population during a crisis:
	It clearly prioritised strategic communications during the 2015 attacks from Gaza, dictating a series of four messages to communicate with the public with media support.[167]

---

[159] Hermann et al. (2020).

[160] Hermann et al. (2020).

[161] Rozdilsky (2009).

[162] IMOD (2018).

[163] IDF (2021).

[164] Rozdilsky (2009).

[165] IDF (2021).

[166] Ben-Yehuda (2015).

[167] Elran et al. (2015).

	Israel has a dedicated emergency alert system that goes to the population's mobile phones.[168] Community-led groups have an important role to play. Communities near Gaza have designated Community Emergency and Resilience Teams (CERTs) staffed by volunteers that work closely with local authorities and feed information back to local and national-level responses.[169] There are clear processes for integrating the armed forces in crisis response: NEMA provides situation assessments to IMOD and national government in the event of a crisis, coordinates public distribution of information, and monitors the implementation of policies dictated by the Minister of Defense.[170] Israel can mobilise all age groups (including seniors) if need be to support emergency services during a crisis.[171]
Recover	Studies in Israel suggest that government-provided compensation and fund allocation for reconstruction aids quick recovery and resilience.[172] CERTs coordinate closely with local authorities to provide psychological support to the population in the aftermath of crises.[173] Israel distributes public donations for affected areas to show public support.[174]

Source: GSP.

3.6.   Russia

Russia is part of Cluster 5 and is characterised by low supply chain resilience and below average scores for civic engagement, corruption and democracy. This gives it a lower position on the SRI with a score of 0.37 (see Chapter 2). In addition to these factors, Russia suffers from significant conflict intensity which is often localised and has an average inequality scoring. Anecdotal evidence, however, suggests it may be more resilient than the cluster analysis and Index scoring would suggest.[175]

In terms of experience, Russia has a long history of preparing for emergencies. Throughout the Cold War the state made people aware that a crisis might happen, and according to some reports, this did not change after the Cold War ended – the government has continued to warn its population that the country may face war.[176] During the Soviet era, leaders believed that war was highly likely, and became interested in civil defence as early as the 1920s. Civil defence training programmes drew in the entire population (including

---

[168] Padan & Elran (2019).

[169] Padan & Elran (2019).

[170] IMOD (2018).

[171] Federation of American Scientists (2000).

[172] Elran et al. (2015).

[173] Padan & Elran (2019).

[174] Elran et al. (2015).

[175] Interviews conducted by RAND Europe with interviewee G; Semenov & Bederson (2020); Thornton (2020); Thornton & Miron (2020); Ziemba (2019).

[176] Interview conducted by RAND Europe with interviewee G.

school children), and were intended to familiarise people with what modern weapons and their effects were, as well as teach them how to behave in shelters, first aid, firefighting, and decontamination.[177]

Like other countries in this analysis, Russia has a dedicated civil defence organisation in government – specifically, the Russian Federation State Committee for Civil Defence, Emergencies, and Elimination of Consequences of Natural Disasters (EMERCOM). It is perceived to be well-resourced, has 300,000 personnel as well as modes of land, air and water transport, and is overseen directly by the president.[178] Unlike Sweden, Russia has maintained its civil defence infrastructure since the end of the Cold War including civil defence authorities, equipment and hospital systems. There is also significant integration between all federal and local agencies, a focus on rapid response in civil defence leading to the development of extensive forecasting capabilities and widespread conscription which has been a feature of Russian society since before the Soviet era.[179] Russia has also focussed more recently on developing its cyber offense and defence capabilities.[180]

Russia faces several challenges that impede its ability to be resilient. An inherent fear of the federal authorities, typical of authoritarian and cronyism-based systems, makes crisis management officials within the lower levels of the system reluctant to make decisions, reducing the speed of response.[181] For the same reason, officials are allegedly less likely to report the seriousness of a crisis to the central authorities, or may even deny there is a crisis altogether.[182] This makes it harder for the central authorities to stay on top of an unfolding emergency and more difficult to decide what and how much resource to deploy to affected areas. Low levels of trust in government may also make it more challenging for the government to get the general public to participate during a crisis.[183]

3.6.1.   Role of Russian Defence

Russia has maintained a large military, both in terms of personnel and infrastructure.[184] Though the internal security forces, Rosgvardia, are not technically part of the military, domestic stability and security remain a key part of the military's remit.[185] Rosgvardia was only created in 2016 and maintains strong links with the military; Rosgvardia personnel can also be deployed abroad.[186] It also has a (problematic, from a democratic point of view) mandate to maintain stability that includes civil defence tasks and responding to terrorist threats. The military and Rosgvardia both work with EMERCOM not only to respond to crises, but also to conduct exercises.

---

[177] Gouré (1960).

[178] Roffey (2016).

[179] Roffey (2016).

[180] Bilyana & Cheravitch (2020).

[181] Roffey (2016).

[182] Roffey (2016).

[183] Liik (2020).

[184] Center for Strategic and International Studies (2020).

[185] Radin et al. (2019).

[186] Radin et al. (2019).

Before 2016, responsibility for internal security rested primarily with the Ministry of Internal Affairs; there were, however, also a significant number of internal security forces.[187] These groups remain active despite Rosgvardia's dominance. Russia also has a domestically focused intelligence agency, as well as a Federal Protection Service which compete for resources and influence.[188] Table 3.4 provides a more detailed list of relevant Russian practices.

Table 3.4: Findings from the Russia case study that might hold lessons for the UK

Phase	Relevant practices
Prepare	Russia has a dedicated and well-resourced civil defence ministry, EMERCOM, which reports directly to the president, has its own armed force, and is responsible for the full suite of preparation activities.[189]
	EMERCOM coordinates the Unified Emergency Prevention and Response State System which ensures coordination between federal and local agencies.[190]
	EMERCOM runs educational institutions for civil defence, including regional centres and the Academy of Civil Defence which provides education up to PhD level.[191]
	EMERCOM coordinates horizon scanning input from four separate agencies.[192]
	Methods of mass mobilisation include conscription and societal resilience training exercises.[193]
Respond	The Russian government maintains the power to compel industry to produce certain goods or stockpile them.[194]
	The Russian military is empowered to track and log all transport options throughout the country, including non-military assets.[195]
Recover	Russia still has the Soviet civil defence infrastructure, which may be leveraged to aid in recovery.

Source: GSP.

3.7. Colombia

With an SRI score of 0.35, Colombia is the lowest scoring of the five case studies. Its low score is driven by an extremely poor score for inequality, as well as below-average supply chain resilience, corruption and

---

[187] Radin et al. (2019).

[188] Roffey (2016).

[189] Roffey (2016).

[190] Roffey (2016).

[191] Roffey (2016).

[192] Roffey (2016).

[193] The Moscow Times (2018).

[194] Arms Control Association (2020).

[195] Arms Control Association (2020).

conflict levels. Its low SRI score speaks to a number of persistent structural challenges that Colombia faces. Colombia's ongoing efforts, however, to remedy socioeconomic inequality within the country, as well as actions taken after a 2016 peace treaty ended the decades-long insurgency of the Revolutionary Armed Forces of Colombia (more commonly known by their Spanish acronym, FARC), present some potentially relevant practices for the UK for the Recover phase of societal resilience.

Efforts to remedy long-standing economic divides within the country, particularly between rural and urban areas, have been ongoing, with support from the international community. Such efforts, however, were also a condition of the 2016 peace treaty with FARC.[196] Since the end of the conflict, the government has launched several efforts including the Future Zones programme and the Territory-Focused Development Plan (PDET) targeting particularly disadvantaged areas of the country.[197] The peace treaty also called on the government to expand its presence throughout the country, including into areas currently dominated by armed groups and narco-traffickers.[198] Major cities are also active in increasing their own resilience. Bogota, which is extremely prone to earthquakes, has a number of plans in place to respond to crises stemming from climate change and natural disasters.[199] Non-governmental organisations and the international community have also supported efforts to reinforce physical infrastructure.[200]

Despite these efforts, Colombia continues to face a number of significant challenges, including ongoing conflict, vulnerability to natural disasters, and the instability of neighbouring Venezuela. Armed groups continue to operate around the country, often controlling areas of territory.[201] Many are also involved with drug production to finance their activities, despite decades of government efforts to eradicate coca and poppy plants.[202] The geography of Colombia exacerbates existing problems: many areas of the country are extremely difficult to reach and the impact of natural disasters on small agricultural producers intensifies existing socioeconomic inequality.[203]

3.7.1. Role of Colombian Defence

Colombian defence plays an active role in societal resilience. This is, in part, because in some hard-to-reach or dangerous areas of the country, the military represents the only government presence. For example, the Future Zones programme is entirely implemented by military and police forces.[204] The programme has consequently been criticised for its disproportionate focus on kinetic measures.[205] The military, which includes the National Police, is the only significant source of personnel for responding to natural disasters: Colombia lacks a separate civil defence or civil contingency force. Defence's ability to support societal

---

[196] University of Edinburgh (2016).

[197] Staguhn et al. (2020).

[198] Congressional Research Service (2019).

[199] Mayor de Bogota (2006).

[200] UNDRR (2019).

[201] Human Rights Watch (2020).

[202] International Crisis Group (2021).

[203] FAO (2017).

[204] Trochando Sin Fronteras (2020).

[205] Presidencia de la Republica (2019).

resilience may be hampered by its standing in public opinion: in 2018, trust in government was 28 per cent, the fourth lowest among Latin American countries.[206] Defence has also been implicated in abuses in the past, some of which are now being explored through the transitional justice system.[207] Yet, as the conflict with FARC has wound down, the military has had to reassess the way in which it interacts with local

populations, particularly in areas where they are the only government presence. Table 3.5**Error! Reference source not found.** sets out

relevant practices for the UK.

Table 3.5: Findings from the Colombia case study that might hold lessons for the UK

Phrase	Relevant practices
Prepare	Colombia has dedicated plans for responding to a variety of severe weather and conflict related scenarios, and mitigating impact of climate change (given the magnitude of its perceived impact on the country):
	Major cities have their own risk management plans, such as the district plan for the Prevention and Attention of Emergencies for Bogota.[208]
	Bogota also has a District Disaster Risk and Climate Change Management Plan for 2018-2013, which has food supply chain and health resilience components that specifically discuss climate change and is overseen by the Directorate of Prevention and Emergency Attention.[209]
	Certain disaster-prone areas hold yearly 'prevention week' events where practicing of emergency drills takes place.[210]
Respond	The Colombian Geological Survey office has extensive monitoring capabilities to keep track of natural disasters.[211]
	Colombia has compulsory military service, although there are multiple exemptions, meaning it has considerable manpower to draw upon in a crisis.[212]
Recover	Colombia's recovery practices focus on providing support to rural, remote and disadvantaged areas:
	The Ministry of Agriculture and Rural Development, in cooperation with the UN, established a National Adaptation Plan to help rural areas monitor and adapt agricultural sector to the effects of climate change.[213]
	There is also a Development Programs with a Territories Approach (PDET) program intended to support a community-driven approach to rural development,[214] and

---

[206] OECD (2020).

[207] Staguhn et al. (2020).

[208] Mayor de Bogota (2006).

[209] Mayor de Bogota (2006).

[210] Youkee (2018).

[211] Youkee (2018).

[212] Colombian Ministry of Defence (2021).

[213] FAO (2021).

[214] Staughan & Yayboke (2020).

| | institutional strengthening across the country to mitigate crime and poverty and build trust in government.[215]

Colombia's recovery practices focus on conflict management and reconstruction and crisis mitigation:

The 2019 Future Zones strategy enables military and police to intervene to increase their presence,[216] and provide security and social services in hard-to-reach regions most affected by violence and poverty and where armed groups are active.[217]

As part of the peace negotiations with FARC, the government has promised to formalise land ownership of seven million ha of land by 2026 and is working with international organisations to create a comprehensive land registry.[218]

There is a transitional justice system in place, the Special Jurisdiction for Peace (JEP),[219] as well as a truth commission[220] to help address the lasting impacts of the conflict with FARC.

Non-governmental organisations are working to strengthen urban housing, particularly in seismically sensitive areas.[221] |
|---|---|

Source: GSP.

3.8. Summary

In this chapter, we have briefly examined the role of Defence in the UK's societal resilience structures and approach to societal resilience, examined in more detail in 0. The chapter has also highlighted how the theory surrounding how these mechanisms and interactions work, does not always work well in practice. We have then examined the five case studies (Sweden, Australia, Israel, Russia and Columbia) that were selected through quantitative analysis outlined in Chapter 2, and carried out further qualitative analysis in order to identify potential lessons for the UK. Listed in order of their SRI score, each case study has been assessed by first summarising their key characteristics before going on to detail relevant practises from that country that might inform the UK's approach.

Every country is different, and this is reflected in the unique way that they build societal resilience tailored around their national context, resources and structural challenges. Nonetheless, it is possible to generate insights for the UK from how other countries tackle similar problems and seek to implement different types of initiatives. More detailed background on the reasoning behind selection of case study countries can be found in Annex B. Relevant practices were taken from a combination of the literature review and expert interviews. In line with the conceptual model outlined in Chapter 2, these practices have been broken out into the three phases, Prepare, Respond and Recover.

---

[215] Colombian Government (2021b).

[216] Staughan & Yayboke (2020).

[217] Presidencia de la Republica (2019).

[218] Firchow (2019); Staughan & Yayboke (2020).

[219] Staughan & Yayboke (2020).

[220] Firchow (2019).

[221] Giles (2017).

4. Developing implications and recommendations for UK Defence

The research presented in the preceding chapters was used by the GSP study team to run a series of internal workshops to synthesise data and analysis to help identify a set of proposals for UK Defence to enhance societal resilience. The proposals outlined in this concluding chapter are derived principally from relevant practices and lessons observed in the case study countries, as well as from the additional insights gathered through interviews with UK stakeholders and experts. These proposals represent steps that UK Defence could usefully consider in operationalising and improving its contribution to UK societal resilience in response to the imperatives set out in the *IR* and in the aftermath of the Covid-19 pandemic.

This chapter begins by outlining the overarching proposals that the study team deemed to be relevant to UK Defence. These were deemed relevant because they identified principles and approaches that underpin specific proposals for Defence, as well as those aimed at wider government. These are presented in the second half of this chapter. It is worth noting that in addition to responding to crises within the UK, some or all of the proposals could also apply to assisting partners and allies in enhancing their societal resilience and ability to respond to crises.

Identifying the specific implications for Defence is complicated by two factors. The first is that, as described in Chapter 2, different countries organise authority and resources in different ways. Consequently, tasks that belong with Defence in some of the case study countries in Chapter 3, such as Israel, fall outside of the mandate of UK Defence. Second, the role of Defence in societal resilience in the UK is primarily as a support function, to provide additional capacity to civilian authorities through MACA. As a result, the actions that Defence can take will often be dependent on other government departments (OGDs). Consequently, some of the proposals have been caveated as a need for UK Defence to support OGDs in executing certain tasks, rather than being able to act in isolation.

4.1. Overarching proposals for UK Defence to improve societal resilience

High-priority overarching proposals for UK Defence are presented below and cover five areas:

1. Improve civil-military coordination and integration, including more clearly defined roles and responsibilities.

2. Work to build more effective long-term relationships between Defence and national, regional, and local level organisations to support societal resilience planning.

3. Enhance communication at all levels to strengthen trust and understanding between military, other government departments, civilian agencies and the general public.

4. Exercise routinely in different configurations with various partners at local, national and multinational levels.

5. Explore mechanisms of rapid mass and cross-sector mobilisation.

These suggestions are supported by triangulation across a number of case study practices in conjunction with consistent expert feedback from interviews conducted, and an assessment by the study team that these measures are important as foundations or cornerstones of the wider resilience-building effort. In each case, the rationale for advancing each proposal is included in the table below. While many of these originate in the Prepare phase, we have removed the distinction here to emphasise that they are important overarching aspects to consider.

1. Improve civil-military coordination and integration, including more clearly defined roles and responsibilities.

This should occur in line with norms of civil control, existing societal resilience and MACA and humanitarian assistance and disaster relief (HADR) doctrine. This could include greater use of military liaisons across different government departments to build and formalise long-term relationships and gain experience. Additionally, regular meetings between key Defence headquarters, including MOD MB, the Headquarters of Standing Joint Command (HQ SJC), Front Line Commands (FLCs), PJHQ, DE&S, and appropriate agencies or departments across government may be necessary.

Defence could also initiate a review of the processes for generating and coordinating Defence crisis response plans with the necessary government departments. Information about crisis roles and responsibilities should be made as widely available as possible; this includes crisis roles double-hatted with normal daytime positions.

A part of this proposal also entails examining current Defence resourcing, C2 structures and funding mechanisms for societal resilience activity to determine whether they are fit for purpose. The MOD can consider advocating for a resourcing and funding model that aligns incentives for its participation with the objectives outlined in the national approach to societal resilience. This could include dedicated funding models and charging mechanisms for Defence support to societal resilience tasks, dedicated senior responsible officers (SROs), or networks of liaison officers.

Rationale

- Clear understanding of the purpose of societal resilience efforts, as well as the various institutions and bodies involved, is key for executing all subsequent recommendations.

- Coordination is necessary to enable cooperation and connections during a crisis.

- Civil-defence integration and coordination across central and local government agencies and departments is a recurring theme throughout case studies and stakeholder interviews. Yet, current structures do not necessarily function as planned in practice, so there is a need to assess underlying mechanisms of implementation.

- There is a need to better align mechanisms for accessing support for societal resilience with desired incentives in order to promote interagency coordination and allow whole-of-government to leverage UK Defence resources that might be helpful in responding to crisis.

- UK could look to Sweden as an example, where all civilian roles in government agencies and some critical sectors have designated alternative, crisis responsibilities. There is also current work ongoing in Sweden to better clarify MOD roles and responsibilities.

2. Work to build more effective long-term relationships between Defence and national, regional, and local level organisations to support societal resilience planning.

This can include having clear points of contact for given contingencies - clearly defined and named points of contacts in key positions across government and in LRFs with up-to-date contact lists. This can also include Defence engagement with local civil emergency planning bodies, in part to raise awareness of Defence capabilities available during a crisis and how they can be accessed. This could also include Defence-specific forums to engage communities via mechanisms like a dedicated civilian corp.

Greater mechanisms for sharing good practise across different areas of the country could help facilitate bringing all areas up to a common standard.

Rationale

- This is necessary to enable cooperation and collaboration in the event of a crisis, thereby enabling activities during the Respond phase related to obtaining and maintaining SA, as well as coordinating between different government bodies.

- Israel uses CERTs to continuously collect information and feed it back into both local and national-level responses. Israel's HFC also has district-level teams that have dedicated responsibility for continuous coordination with local authorities.

- Many major Colombian cities have their own risk management plans, such as the district plan for the Prevention and Attention of Emergencies for Bogota.

3. Enhance communication at all levels to strengthen trust and understanding between military, other government departments, civilian agencies and the general public.

Communications is an effective way of demonstrating to the public the societal resilience measures government has in place and build public awareness and confidence, and control the narrative as a crisis unfolds. They can also be used to build mutual trust in the military an essential pre-requisite for effective collaboration once a crisis occurs. Communications could also be used to inform the public of any role they might be expected or able to play in the event of crisis, or of the utility of stockpiling supplies in the event of emergency. Within government, it is also important to clearly communicate what capabilities UK Defence can and cannot provide in an emergency to manage expectations.

Rationale

- It is important to raise public awareness of and increase public trust in government by demonstrating that government is addressing these issues.

- Sweden's MSB has a website geared towards the public that provides information about how to prepare for an emergency, including advice for stockpiling supplies for 72 hours.

- Whilst the UK military has enjoyed increased levels of awareness and support among the general public in recent years, due in part to high profile operations in Iraq and

> Afghanistan, this awareness is inevitably waning as these operations have ended. Maintaining the military's positive profile among the public is an important aspect of messaging and helping to integrate the military into civilian preparation when a crisis occurs.
>
> - During the 2015 conflict with Gaza, the Israeli government coordinated messaging across its departments and with media.

4. Exercise routinely in different configurations with various partners at local, national and multinational levels.

Exercising across government, other civil agencies and industry will help to understand interrelationships and cascade effects, build awareness at national and local level. Exercising with international partners and allies provides opportunities to share good practices and improve interoperability, as well as demonstrating capability in a non-escalatory manner.

> **Rationale**
>
> - These steps may help increase the deterrence effect with potential adversaries - deterrents only work if they're effectively communicated. Exercises also help one to think through unintended, unanticipated consequences.
>
> - This proposal may also help to raise awareness among the population.
>
> - In 2019-2020, the MSB together with the armed forces, ran a year-long Total Defence exercise (2019–2020) that drew on a whole-of-society approach to conduct exercises ranging from table-top to live-play that included parliament, government agencies, regional administrations, municipalities, industry and the general public.

5. Explore mechanisms of rapid mass and cross-sector mobilisation.

There is a need to think about how the UK can do this without resorting to conscription, which may be unpalatable. Keeping in mind that the UK already has a reserve force, this could also include partnerships with non-governmental organisations who might be able to attract different demographics or have pre-existing networks. The UK could also consider enabling activation of volunteers through new and emerging technologies such as apps on phones. It could also explore ways of alerting civilians with certain skills, as basic first aid training. In the UK context, Defence could explore partnerships with existing volunteer databases such as the British Red Cross, that could be activated in an emergency. Reviewing whether the statutory and policy tools used for mobilising military reserves at speed are fit for purpose should also be considered.

Another part of this is assessing Defence relationships with industry to ensure adequate capacity and response times, as well as the ability to mobilise the necessary resource at speed. To this end, Defence could assess current relationships with industry to ensure adequate capacity and response times to meet societal resilience needs. This includes statutory tools to leverage Defence industrial capacity and manufacturing capability, improving contracting mechanisms (i.e. Key Resilience Indicators in Typhoon Total Availability eNterprise contract, the Defence Cyber Protection Partnership (DCPP) and Cyber Essentials, or similar interests), and forging ties between CNI providers and Defence. Use of open, modular systems architectures, Industry 4.0, and rapid prototyping may support creation of resource at short notice. Discussions could also include any need for stockpiling or protecting domestic industrial capacity, as laid out in the *Defence*

and Security Industrial Strategy (*DSIS*), and maintaining a national database of capabilities or building relationships with industry to understand their needs and access their specialist skills and capabilities.

Rationale

- Many case study countries use conscription to access large numbers of semi-trained personnel quickly, such as Israel, Russia and Sweden. Israel can mobilise teenagers to assist emergency services in the event of a crisis due to the training they all receive in school.

- During the Australian brushfires (June 2019 to May 2020) a range of grassroots initiatives emerged to respond to the disasters, as well as raise awareness and funds. Enabled by the use of social media and mobile technologies in particular, many of these initiatives immediately reached global dimensions. Nationwide rallies also represented part of the social response to actions taken by the Australian government.

- Sweden and Russia both have statutory authority to mobilise industry to produce or stockpile goods for national defence. Israel may or may not have this authority, but shares a uniquely close relationship with its defence industry.

As well as these high priority proposals, several more specific lessons for UK Defence and wider government were identified that are worthy of consideration, but that are, potentially, less impactful than the overarching proposals above.

4.2.   Specific proposals for UK Defence and wider government

This section presents more targeted recommendations that capture ancillary actions that could support the over-arching efforts. These have been organised around the three phases of the analytical model in Chapter 2 to help focus where they might be implemented: **Prepare**, **Respond** and **Recover**. As a reminder these are shown again in Figure 4.1, and have been broken out further into sub-phases. While these phases will proceed in order, they may overlap, particularly if there is more than one crisis occurring at the same time or in sequence. Multiple crises could be unfolding in a cascade effect leading to concurrent events and different phases of the conceptual model occurring concurrently. This requires a flexible mindset that is able to see phases not as sequential, but as occurring repeatedly and overlapping as different events occur.

Thinking in this way will help mitigate against the additional resource that would be required to mount simultaneous responses, which might require the same people and equipment. Being alive to how a potential adversary might seek to exploit multiple events is also important. Different parts of government may also be involved in different phases at the same time. Similarly, it is important to remember that societal resilience is an ongoing, cyclical process: actions in each phase enable and support tasks in the subsequent phases. For example, 'lessons identified' processes from the Recover phase must feed into and impact the way in which tasks within Prepare are performed in order to continue to adapt to new threats and improve existing processes.

Figure 4.1: Phases of Societal Resilience

Source: GSP.

Prepare

Foresee: Assess horizon scanning and early warning capabilities, as well as their links with central and local government, for the purposes of strengthening societal resilience

Having an effective horizon scanning and early warning capability is necessary to enable the earliest possible response and ensure it is as proactive possible.[222] Existing capabilities should be reviewed against the specific needs of societal resilience and types and levels of threat. This could include enhanced weather forecasting, involving the latest technology and modelling alongside more focused intelligence gathering. It could also include mechanisms for the sharing of intelligence across government (both national and local), as well as for linking in with the early warning systems that belong to partners and allies. Creating a dedicated horizon-scanning agency for societal resilience may be another option or simply assigning responsibilities and cohering these more effectively. The case studies provide several examples to draw lessons from. Russia's EMERCOM receives input from four horizon scanning agencies.[223] Israel's NEMA has a dedicated horizon-scanning capability.[224] The Colombian Geological Survey office has extensive monitoring capabilities to keep track of natural disasters.[225] Israel and Sweden both work closely with the US to facilitate intelligence sharing as well. In the UK and Defence context, an example could include strengthening early warning capabilities at the local level, such as the RAFRLO alert system.[226]

Foresee: Map vulnerabilities in infrastructure and supply chains and mitigate these as required

This is important because, in an increasingly interconnected world with global supply chains dependent on technology, there is greater risk to CNI.[227] These vulnerabilities need to be understood as they cannot be considered in isolation, and with greater networking brought about by the Internet, cyber security is a growing concern. This requires a greater level of understanding of where these vulnerabilities and their interdependencies are so that more robust defence measures can be implemented.[228] Threat from state actors means it is no longer sufficient to shore up only those places that are most at risk from various factors (i.e. floods). Now, everything is vulnerable. This should include identifying potential single points of failure, the need for additional capacity and places where redundancy or alternative capabilities are required. It should also include an assessment of critical national infrastructure and possible cascade effects.[229] This is also particularly vital for communications systems that might be moved in the case of a crisis and could involve activity such as developing redundant Command, Control, Communications and Information (C3I) and reversionary modes to build communications resilience, and ongoing threat assessment of space, cyber and electronic warfare (EW) capabilities.[230] This mapping should encompass both civilian and MOD-specific infrastructure and should consider any need for pre-positioning of material

---

[222] Interview conducted by RAND Europe with interviewee B.

[223] Roffey (2016).

[224] IMOD (2018).

[225] Youkee (2018).

[226] Interviews conducted by RAND Europe with interviewees U and V.

[227] Interview conducted by RAND Europe with interviewee B.

[228] Interviews conducted by RAND Europe with interviewees K and M.

[229] Interview conducted by RAND Europe with interviewee B.

[230] Interview conducted by RAND Europe with interviewee K.

and stockpiling both for UK Defence. Sweden and Australia are both currently in the process of mapping infrastructure and supply chains to determine vulnerabilities. Sweden in particular has identified 'just-in-time' acquisition as a key threat to potential societal resilience.[231] Both countries have identified a high reliance on imports as a vulnerability.

Foresee: Ensure current threat assessment measures and metrics are fit for purpose in supporting societal resilience and feed into Defence and wider government planning

This is needed because changing threat assessments can help to identify potential future crises and inform decisions about necessary resource and planning.[232] Metrics should provide a comprehensive evaluation of the threat, including cascade effects. This could include greater use of Red Teaming, crowd sourcing and artificial intelligence (AI)/machine learning (ML). Sweden changed its threat assessment following Russia's invasion of Crimea in 2014 and incorporated that into defence planning.[233] Australia changed its threat assessments based on an increased frequency of natural disasters and has similarly acted on this altered assessment.

Educate: Help facilitate greater public access to relevant societal resilience training

This is important to raise awareness, enable the population to provide support and, therefore, increase the number of possible volunteers. Educating people on how to prepare for a crisis will improve societal resilience. This can include public information campaigns or use of online and synthetic training packages. It could also explore ways of equipping civilians with the necessary skills to be more self-sufficient, such as basic first aid training. Education also has a role to play in deterrence, since a vigilant and observant public are more likely to ask questions and report the early signs of a societal event occurring whether by natural disaster or malign actor. Public vigilance in the eyes of potential terrorist attacks is a case in point here. From a UK Defence perspective, it should also go hand in hand with raising the general profile of the military so that the general public understands Defence's role in the event of a societal resilience crisis.[234] This will help to build trust between the military and general public, increase awareness of what capabilities the military can provide and aid integration.

Respond

Understand: Use appropriate intelligence and information resources to establish and maintain better situational awareness in order to determine and communicate appropriate courses of action.

This could include leveraging resources such as Defence intelligence, reconnaissance and surveillance (ISR) assets (for UK Defence specifically or wider government), strengthening established links with intelligence gathering agencies, and networks of contacts and liaison officers that are already established across government and at local level. This could also involve connecting with international partners and allies'

---

[231] Von Sydow (2018).

[232] Interview conducted by RAND Europe with interviewee B.

[233] Von Sydow (2018).

[234] Interviews conducted by RAND Europe with interviewees M and N.

intelligence apparatuses and surveillance resources. Ongoing assessment and mitigation of threats to space, cyber and EW should be prioritised as essential enablers to maintaining SA, as well as information and decision advantage, during a crisis. This should also encompass ensuring that all plans are effectively communicated; this includes clear roles and responsibilities for all parties involved in addressing the situation, as well as aims for strategic communications. This could also involve pre-existing plans or scenarios, such as emergency response plans or Graduated Response Plans (GRPs). UK Defence could also consider investing in use of AI/ML tools to aid speed of decision-making in a complex and rapidly evolving crisis.

Inform: Support civilian agencies and the general public in identifying and combating dis- and misinformation in real time.

This is important in order to avoid undermining government advice or allowing adversaries to maliciously interfere with key communications. Actions towards this recommendation can be done by reviewing the UK government's newly created disinformation unit to assess whether societal resilience is specifically part of its scope. This could also include using social media to counter dis-information campaigns such as those relating to COVID-19. Additionally, ensuring a unified message from government could also help to reduce the impact of disinformation by saturating media channels with single targeted messages.

Sweden proactively informs its population of the kinds of messages that the government will never issue, such as surrendering to a foreign invader.[235] Many countries including Russia and Israel include responsibility for mis- and disinformation within the remit of their military.

Inform: Ensure mechanisms for C4ISR and information sharing across all levels of government are adequate and can be leveraged effectively

This is important to facilitate redundant communications between all levels of government to alert Defence of any need, coordinate response, and adjust as the crisis unfolds. Given interrelationships between communications networks and other infrastructure, redundancy in communications or reversionary modes in the event of degraded communications are key. This is particularly the case for connections between local and national government, and includes the ability to share information from all areas through central control points such as a Situation Centre (highlighted in the *IR*) and COBR, with adequate equipment and redundancy to enable information sharing across various mediums. This could also include two-way information flows that integrate with Local Resilience Forums (LRFs) and other local agencies. Alternatively, it could include provisions for the use of a mission command approach with devolved decision-making in the event of degraded command and control, helping to prepare civilians for possibility of communications blackouts, redundant C3I and reversionary modes to build communications resilience, and ongoing threat assessment of space, cyber and EW capabilities. Finally, this includes maintaining accurate and up-to-date lists of key Defence points of contact for crisis response and contingencies that are communicated across Whitehall and LRFs.[236] Defence should seek access to corresponding contact lists in other government departments and LRFs.

---

[235] MSB (2019b).

[236] Interviews conducted by RAND Europe with interviewees M and V.

Sweden's MSB has a website that alerts citizens if communications for emergency services are being prioritised and i.e. phone calls may not get through. Swedish government therefore also has systems in place that enable them to prioritise emergency calls.

Mobilise: Ensure mechanisms to mobilise all necessary personnel, equipment and niche capabilities at speed using available legislative mechanisms

This may be a key area for Defence to add value given the unique types of equipment they already have. Logistics will be a key component of any effective response - personnel may not be useful without the necessary equipment and resource and Defence has a number of niche capabilities. The need to acquire materiel for unforeseen situations makes this important to consider in advance and may require a degree of additional investment in redundancy and stockpiling of equipment and stores in preparation for a crisis. This also plays to the earlier point that resilience costs and that if multiple crises are occurring concurrently, having the capacity and reserves to have overlapping responses is important. Defence also has an ability to house certain capabilities.

Assessing the availability and need for essential equipment to provide basic services such as power generation, water provision and communication/connectivity, the availability of logistics, lift assets and infrastructure, and the use of different contracting methods such as enabling contracts, means that more investment should be made to have this equipment available on standby or easily accessed from industry at short notice. Some skills may only be available through the military, such as CBRN or bomb disposal, and so can be more efficiently enabled through MACA. Where it is not cost effective to keep specialist skills in house, greater use of reserves or contractors to house niche skills and capabilities on a longer-term basis should be considered. A holistic approach to this could be considered taking a whole of government and Defence approach when deciding where to locate particular skilled personnel and equipment. Human-machine teaming and unmanned vehicles can also be leveraged to support the creation of mass at speed or to access hard-to-reach or dangerous locations.

Russia and Sweden have the ability to compel industry to manufacture goods through statutory provision. While Israel may or may not have such provisions, government and defence industry share close ties to facilitate this. Russia's military has the ability to track non-military transportation assets to be used in crisis.[237] Russia's EMERCOM includes a designated search and rescue team.[238] Israel's HFC/IMOD has designated teams for addressing CBRN attacks, as well as Search and Rescue (SAR) requirements. [239]

Recover

Throughout interviews, case studies and the literature review, the study team noted that there was significantly less information available for this phase of resilience. Given the importance of this phase in maintaining societal resilience over time, this may indicate an overall gap that needs addressing. Without this phase, societal resilience will gradually degrade as it is exposed to crises and shocks. Further, approaches

---

[237] Arms Control Association (2020).

[238] Roffey (2016).

[239] Rozdilsky (2009).

to societal resilience will be unable to adapt to incorporate dynamic threats and best practices, or to prevent repetition of mistakes.

Reset: Ensure immediate safety of civilian population

This is important because it facilitates quicker recovery overall and releases Defence personnel, capabilities and equipment to return to other tasks. This recommendation could include actions to ensure the ability to move civilians to alternate safe accommodation if unable to return to their homes, such as creation of a network of permanent or temporary shelters, or appropriating additional capacity from other areas. Defence should identify additional capabilities required to support return or relocation of affected population such as shelter construction, transportation and decontamination and seek to restore essential services as quickly as possible.

Sweden has 65,000 shelters able to house four million people. Russia reportedly has significant physical redundancy in its military medical infrastructure, which could enable it to house affected populations at short notice.[240] The UK could consider whether Defence has a role in the stockpiling of a national reserve of shelters.

Reset: Return Defence personnel and equipment to pre-crisis or other appropriate locations

The speedy return of personnel an equipment in this way enables defence to be ready for future contingencies or assist with parallel concerns. Actions involved in this recommendation could include actions is to enable forces to be on standby for any further contingencies. Also, a consideration of whether the UK and Defence should invest in additional capacity for capabilities is needed, to build further resilience, so that standby periods can be sustained longer term on a Force Readiness Cycle. This could include planned duplication of capabilities to allow for overlap in the way described in previous sections where multiple crises might cascade leading to the need to respond simultaneously. The military Internet of Things (IoT) could enable tracking of equipment for rapid recovery. Inexpensive disposable or attritable equipment may also be useful to speed up this process.

Regenerate: Provide mental and emotional support to responders and those members of general public affected

This is important for the maintenance of psychological resilience, preventing future crises, and contributes to overall recovery. Associated actions could include assessing and boosting the ability to provide psychological support, such as Trauma Risk Management (TRiM) and PTSD teams, at scale in affected areas. This might also include deploying support teams to areas of need or use of technology to treat remotely. Israeli Resilience Centres (RCs) collaborate with local councils to provide psychological treatment.[241]

Regenerate: Provide affected areas with necessary support and resources

This enhances resilience and contributes to overall recovery. Given that the SRI identified socioeconomic equality as an important contributor to societal resilience, this is particularly important, as areas affected by crisis are likely to be disadvantaged compared to the rest of the country.

---

[240] Interview conducted by RAND Europe with interviewee G.

[241] Padan & Elran (2019).

Providing areas with necessary support and resources should first include remediating affected sites occupied by personnel and equipment to return them to acceptable condition. This will help maintain UK Defence's positive reputation in the eyes of the general public ensuring mutual trust and confidence is maintained. This then may involve developing interagency recovery plans with designated areas of responsibility. Tax breaks and other incentives to help drive private sector investment in recovery could also be considered. Finally, sustained military presence may be needed for a longer period to aid recovery. This task could also include exploration of online and social media mechanisms for mobilising public fundraising to support reconstruction of affected areas.

Studies in Israel suggest government provided compensation and funds for reconstruction in affected areas speeds up the process of recovery and resilience of communities.[242] During the Australian bushfires, celebrities and the general public were able to raise considerable sums of money for affected communities through the use of social media.[243] UK Defence could either look into using these mechanisms itself or encourage notable individuals or organisations to leverage these tools.

Regenerate: Reconstitute Defence personnel, equipment and capabilities to the extent possible through recovery, repair and replacement

This is necessary to enable response to further contingencies and maintain a strong level of societal resilience. To achieve this, UK Defence could assess personnel, equipment and capabilities to identify deficiencies or explore new approaches to rapid acquisition, including novel contracting mechanisms, to allow additional capability in case of unforeseen events. It also includes replacing existing infrastructure that has been damaged with infrastructure able to withstand future threats. Leveraging modular open systems architectures and rapid prototyping, could help to shorten manufacturing times. Military IoT could also help to track logistics and assets in real time (i.e. for preventative maintenance). Defence could consider greater use of additive manufacturing to speed up equipment replacement and reduce dependency on supply chains or use of warehousing. Defence could also consider mothballing equipment into long term storage ready for the next crisis rather than purchasing new equipment in an emergency at considerable expense. This includes restoring both physical and relational networks. It could also include confirming that contacts established or used during the crisis are still in position and updating contact lists to account for any new connections made.

Innovate: Implement dedicated 'lessons identified' capture and feed into new processes, mechanisms, and concepts

This is a critical component of ensuring a more effective response to future crises and contingencies. To this end, Defence should assess existing identification and learning mechanisms to determine good practice. Interagency and cross-Whitehall processes for sharing lessons identified, such as the Emergency Planning College (EPC) lessons-learned database should also be established. Defence could also bring in academic institutions for impartial and independent evaluation, and specialist input into lessons identified efforts across partners and allies. It will be important to support this effort with knowledge-sharing mechanisms and processes, such as archiving relevant data and communications,

---

[242] Interview conducted by RAND Europe with interviewee F; Kimhi et al. (2020).

[243] Retter et al. (2021).

including those from non-traditional sources such as WhatsApp. A critical component of this recommendation, however, is ensuring that consolidated lessons are available and translated into innovative ideas that can then be fed back into the Prepare phase, so that each iteration of the cycle is updated based on these lessons. It is important to ensure that the review processes are directly fed into improving crisis preparation and can also be fed into training and response planning.

One example from the case studies includes Sweden's designated 'lessons-learned' function as part of its Total Defence Exercises. In the UK context, existing processes for sharing lessons identified, such as the RAFRLO network system, may be useful.[244] The Emergency Planning College also already maintains case study materials, including a Disaster Database with information about more than 4,000 disasters, and publishes 'Lessons Digests' that distil multi-agency lessons identified from the management of past disasters. Increasing awareness and dissemination of this existing resource could be part of implementing this recommendation.

4.3.   Summary and areas for further study

This chapter combined the analyses in the previous chapters, to advance a set of proposals that UK Defence could consider as it seeks to contribute to the *IR* imperative of prioritising societal resilience. These proposals aim at helping UK Defence consider how it can conceptualise and operationalise societal resilience in terms of its specific remit, as well as how it can shape the way that societal resilience is conceptualised and operationalised across all of government. The proposals have been drawn from consistent themes emerging across a range of case studies, as well as stakeholder interviews.

The GSP team filtered these into a set of overarching proposals that would be within the capability of Defence to address and promote, and a further set of more specific recommendations that are also aimed at all of government and would thus be only partially influenced by Defence. The overarching recommendations are focused on improving civil-military coordination and integration of activities in the realm of societal resilience, building functional relationships between Defence and local and regional organisations in particular, effectively communicating with the public, and exploring mechanisms for mass and cross-sector mobilisation in the event of a crisis or shock event.

4.3.1.   Beyond the recommendations outlined above, this study also highlights several potential areas for further study

It is important to note that given the scope of this project and its research design, the proposals do not explicitly distinguish between physical and psychological elements of societal resilience, as instead they focus on anticipating, mitigating, and recovering from a crises and attacks in a general and cross-cutting way. Further study of the differences and similarities between the impact of natural disasters and malign attacks on societal resilience is therefore needed to understand this area better. The proposals outlined above also do not directly target the structural elements identified as part of the quantitative aspect of this study – that is, level of corruption, supply chain resilience, and conflict intensity. As discussed, the SRI developed as part of this study has a number of limitations and further analysis is needed to isolate the structural factors

---

[244] Interviews conducted by RAND Europe with interviewees U and V.

that impact resilience and understand the nature of these relationships, before interventions can be discussed. With this in mind, some additional pathways for further study are proposed below:

- **Gaming:** Using gaming to exercise and stress-test cross-government co-operation could prove useful in identifying weak points in the system and critical vulnerabilities requiring attention.

- **Assumptions-based planning (ABP):** This could be used along with other techniques such as Three Horizons (3H), Robust Decision Making (RDM) or Decision Making under Deep Uncertainty (DMDU) methods and tools to further stress test the UK's resilience and crisis response planning.

- **Scenario analysis:** This could be used to consider a wide range of possible threats and responses.

- **Horizon scanning:** Further work in this area could help detect possible emerging threats and/or technologies and solutions for addressing them, reinforcing the process of innovation. Use of technology to enable all aspects of societal resilience preparation and response could include better early warning systems, communication and more innovative forms of training.

- **Deep dives:** Focussed studies could be carried out into particular areas of interest such as mobilisation of military personnel, including reserves, and how this could be made more responsive through improved policy and legislation. It could also be used to examine areas like conscription/national service to see if a version of this in the form of mandatory public service could help provide an assured pool of trained personnel at scale across the general population available to augment Defence when required.

References

Arms Control Association. 2020. 'Russia's Military Doctrine.' Armscontrol.org, May 2000. As of 21 June 2021:
> https://www.armscontrol.org/act/2000-05/russias-military-doctrine

Australian Government. 2020. *Australia's Cyber Security Strategy 2020.* Barton, A.C.T.: Commonwealth of Australia. As of 21 June 2021:
> https://www.homeaffairs.gov.au/cyber-security-subsite/files/cyber-security-strategy-2020.pdf

Averbukh, Lidia. 2017. 'Israel on the Road to the Orient? The Cultural and Political Rise of the Mizrahim.' *SWP Comments* 9. As of 21 June 2021:
> https://www.swp-berlin.org/fileadmin/contents/products/comments/2017C09_avk.pdf

BBC. 2021. 'Israel's Netanyahu enters plea in court in corruption trial.' BBC.co.uk, 8 February. As of 21 June 2021:
> https://www.bbc.co.uk/news/world-middle-east-55949391

Ben-Yehuda, Tzach. 2015. 'An Emergency Food Authority: The Case of Israel and a Comparative Survey.' Knesset.gov.il, 12 August 2015. As of 21 June 2021:
> https://m.knesset.gov.il/EN/activity/mmm/me03612.pdf

Bergström, Johan. 2018. 'An archaeology of societal resilience.' *Safety Science* 110 (C): 31-38. As of 21 June 2021:
> https://www.sciencedirect.com/science/article/pii/S0925753517301893

Bilyana, Lilly, & Joe Cheravitch. 2020. 'The Past, Present, and Future of Russia's Cyber Strategy and Forces.' In *2020 12th International Conference on Cyber Conflict*, edited by T. Jančárková, L. Lindsröm, M. Signoretti, I. Tolga & G. Visky, 129-155. Tallinn: NATO CCDCOE Publications. As of 21 June 2021:
> https://www.ccdcoe.org/uploads/2020/05/CyCon_2020_8_Lilly_Cheravitch.pdf

Bitzinger, Richard A., & Nicu Popescu, eds. 2017. *Defence industries in Russia and China: players and strategies.* EU Institute for Security Studies Reports 38. Paris: EU Institute for Security Studies. As of 21 June 2021:
> https://www.iss.europa.eu/sites/default/files/EUISSFiles/Report_38_Defence-industries-in-Russia-and-China.pdf

Braw, Elizabeth. 2020. 'The Case for Joint Military–Industry Greyzone Exercises.' Royal United Services Institute for Defence and Security Studies, Briefing Papers 28. London: RUSI. As of 21 June 2021:

https://rusi.org/publication/briefing-papers/joint-military-industry-greyzone-exercises

Bushfire and Natural Hazards CRC. 2020. 'A new measure of disaster resilience for Australian communities.' Phys.org, 29 July 2020. As of 21 June 2021:
https://phys.org/news/2020-07-disaster-resilience-australian.html

Cabinet Office. 2004. *The Lead Government Department and its role – Guidance and Best Practice*. London: The Cabinet Office. As of 21 June 2021:
https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/207227/the_lead_Government_department_and_its_role_-_guidance_and_best_practice.pdf

———. 2013a. Emergency Response and Recovery: Non statutory guidance accompanying the Civil Contingencies Act 2004. London: The Cabinet Office. As of 21 June 2021:
https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/253488/Emergency_Response_and_Recovery_5th_edition_October_2013.pdf

———. 2013b. 'Preparation and planning for emergencies: responsibilities of responder agencies and others.' Gov.uk, 20 February 2013. As of 21 Junes 2021:
https://www.gov.uk/guidance/preparation-and-planning-for-emergencies-responsibilities-of-responder-agencies-and-others

———. 2013c. *Responding to Emergencies: The UK Central Government Response. Concept of Operations*. London: The Cabinet Office. As of 21 June 2021:
https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/192425/CONOPs_incl_revised_chapter_24_Apr-13.pdf

———. 2013d. *The role of Local Resilience Forums: A reference document. The Civil Contingencies Act (2004), its associated Regulations (2005) and guidance, the National Resilience Capabilities Programme and emergency response and recovery.* London: The Cabinet Office. As of 21 June 2021:
https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/62277/The_role_of_Local_Resilience_Forums-_A_reference_document_v2_July_2013.pdf

———. 2014. 'Resilience in society: infrastructure, communities and businesses.' Gov.uk, 10 December 2014. As of 21 June 2021:
https://www.gov.uk/guidance/resilience-in-society-infrastructure-communities-and-businesses

———. 2018. *Public Summary of Sector Security and Resilience Plans*. London: The Cabinet Office. As of 21 June 2021:
https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/786206/20190215_PublicSummaryOfSectorSecurityAndResiliencePlans2018.pdf

———. 2021. 'Local resilience forums: contact details.' Gov.uk, 17 February 2021. As of 21 June 2021:
https://www.gov.uk/guidance/local-resilience-forums-contact-details

Center for Strategic and International Studies. 2020. 'The best or worst of both worlds?' Csis.org, 23 September 2020. As of 21 June 2021:
https://www.csis.org/blogs/post-soviet-post/best-or-worst-both-worlds

Centre for the Protection of National Infrastructure (CPNI). 2021. 'Critical National Infrastructure.' Cpni.gov.uk, 20 April 2021. As of 24 June 2021:
https://www.cpni.gov.uk/critical-national-infrastructure-0

Clark, David, & Patrick Regan. 2016. 'Mass mobilization protest data.' Harvard Dataverse V5. doi: 10.7910/DVN/HTTWYL

Colombian Government. 2021a. 'Unidad para la atención y reparación integral a las victimas.' Gov.co. As of 21 June 2021:
https://www.unidadvictimas.gov.co/es/registro-unico-de-victimas-ruv/37394

———. 2021b. 'PDET.' Gov.co. As of 21 June 2021:
https://www.renovacionterritorio.gov.co/especiales/especial_PDET/

Colombian Ministry of Defence. 2021. 'Servicio Militar.' Gov.co. As of 21 June 2021:

https://www.policia.gov.co/incorporacion/servicio-militar

Congressional Research Service. 2019. *Colombia: Background and U.S. Relations*. Washington, D.C.: Congressional Research Service. R43813. As of 21 June 2021:
https://fas.org/sgp/crs/row/R43813.pdf

Council of Australian Governments. 2011. National Strategy for Disaster Resilience. Barton, A.C.T.: Commonwealth of Australia. As of 21 June 2021:
https://knowledge.aidr.org.au/media/2153/nationalstrategyfordisasterresilience.pdf

CPNI (Centre for the Protection of National Infrastructure). 2021. 'Home'. CPNI.gov.uk. As of 21 June 2021:
https://www.cpni.gov.uk/

CSIS (Center for Strategic & International Studies). 2019. 'European Defence and Security.' Csis.org, 2019. As of 21 June 2021:
https://www.csis.org/programs/europe-russia-and-eurasia-program/european-security-politics-and-economics/european-defense

Deloitte. 2017. 'Building Australia's resilience to natural disasters 2017.' Deloitte.com, 2017. As of 21 June 2021:
https://www2.deloitte.com/au/en/pages/economics/articles/building-australias-natural-disaster-resilience.html

Department for Digital, Culture, Media & Sport. 2020. 'The NIS Regulations 2018.' Gov.uk, 15 September 2020. As of 21 June 2021:
https://www.gov.uk/government/collections/nis-directive-and-nis-regulations-2018

Department of Defence. 2020a. *2020 Defence Strategic Update*. Barton, A.C.T.: Commonwealth of Australia. As of 23 April 2021:
https://www.defence.gov.au/StrategicUpdate-2020/docs/2020_Defence_Strategic_Update.pdf

———. 2020b. 'Defence Assistance to the Civil Community (DACC).' Defence.gov.au, 2020. As of 21 June 2021:
https://www1.defence.gov.au/programs-initiatives/support-australian-community

Department of Home Affairs. 2018. *Australian Disaster Preparedness Framework*. Canberra, A.C.T.: Department of Home Affairs. As of 21 June 2021:
https://www.homeaffairs.gov.au/emergency/files/australian-disaster-preparedness-framework.pdf

Department of Peace and Conflict Research. 2021. 'Uppsala Conflict Data Program: 2015 – 2019.' Ucdp.uu.se. As of 21 June 2021:
https://ucdp.uu.se/

Department of the Prime Minister and Cabinet. 2020. *A national approach to national disasters*. Barton, A.C.T.: Commonwealth of Australia. As of 21 Junes 2021:
https://www.pmc.gov.au/sites/default/files/publications/national-approach-national-disasters.pdf

———. 2021. *Protecting and promoting critical technologies*. Barton, A.C.T.: Commonwealth of Australia. As of 21 June 2021:
https://pmc.gov.au/sites/default/files/publications/protecting-and-promoting-critical-tech.pdf

Drazanova, Lenka. 2019. 'Historical Index of Ethnic Fractionalization Dataset (HIEF).' Harvard Dataverse V5. doi: 10.7910/DVN/4JQRCL

Economist Intelligence Unit. 2020. 'Democracy Index 2020: In sickness and in health?' *The Economist*, 2020. As of 21 June 2021:
https://www.eiu.com/n/campaigns/democracy-index-2020/

Edelman. 2021. 'Trust Barometer Australia.' Edelman.com.au, 19 February 2021. As of 21 June 2021:
https://www.edelman.com.au/trust-barometer-2021-australia

Elran, Meir. 2017. 'Societal Resilience in Israel. How Communities Succeed Despite Terrorism.' *Foreign Affairs*, 23 March 2017. As of 21 June 2021:
https://www.foreignaffairs.com/articles/israel/2017-03-23/societal-resilience-israel

Elran, Meir, & Gabi Sheffer, eds. 2016. *Military Service in Israel: Challenges and Ramifications*. Memorandum 159. Tel Aviv: Institute for National Security Studies. As of 21 June 2021:
https://ethz.ch/content/dam/ethz/special-interest/gess/cis/center-for-securities-studies/resources/docs/INSS%20memo159.pdf

Elran, Meir, Zipi Israeli, Carmit Padan & Alex Altshuler. 2015. 'Social Resilience in the Jewish Communities around the Gaza Strip Envelope during and after Operation Protective Edge.' *Military & Strategic Affairs* 7 (2): 5-31. As of 21 June 2021:
https://www.inss.org.il/wp-content/uploads/systemfiles/MASA7-2Eng%20Final_Elran%20et%20al.pdf

Elran, Meir, Carmit Padan, Pnina Sharvit Baruch, Sasson Hada, Zipi Israeli, Shmuel Even & Yehuda Ben Meir. 2020. 'Israeli Society: Challenges to Societal Resilience.' In *Strategic Survey for Israel 2019 – 2020*, edited by Itali Brun, & Itai Shapira, 44-48. Tel Aviv: Institute for National Security Studies. As of 21 June 2021:
https://www.inss.org.il/publication/israeli-society-challenges-to-societal-resilience/

EMA (Emergency Management Australia). 2017. *NATCATDISPLAN. National Catastrophic Natural Disasters Plan*. Canberra: A.C.T.: Department of Home Affairs. As of 21 June 2021:
https://naturaldisaster.royalcommission.gov.au/system/files/exhibit/HAF.0003.0001.0478.pdf

———. 2020a. *COMDISPLAN 2020: Australian Government Disaster Response Plan*. Canberra, A.C.T.: Department of Home Affairs. As of 21 June 2021:
https://www.homeaffairs.gov.au/emergency/files/plan-disaster-response.pdf

Emergency Planning College. 2021. 'Library and Information Centre'. Epcresilience.com. As of 21 June 2021:
https://www.epcresilience.com/insight/resources/library-information-centre

European Union. 2016. 'Directive (EU) 2016/1148 of the European Parliament and of the Council of 6 July 2016 concerning measures for a high common level of security of network and information systems across the Union.' *Official Journal of the European Union* L194/1, 19 July 2016. As of 21 June 2021:
https://eur-lex.europa.eu/eli/dir/2016/1148/oj

FAO (Food and Agriculture Organization). 2017. Colombia: Programa de Resiliencia, 2017-2020. Rome: Food and Agriculture Organisation of the United Nations. As of 21 June 2021:
http://www.fao.org/3/i7584s/i7584s.pdf

———. 2021. 'Colombia.' Fao.org. As of 21 June 2021:
http://www.fao.org/in-action/naps/partner-countries/colombia/en/

Federation of American Scientists. 2000. 'Homefront Command.' Fas.org/WMD Around the World, 24 May 2000. As of 21 June 2021:
https://fas.org/nuke/guide/israel/agency/homefront.htm

Felter, Claire, & Danielle Renwick. 2017. 'Colombia's Civil Conflict.' Cfr.org, 11 January 2017. As of 21 June 2021:
https://www.cfr.org/backgrounder/colombias-civil-conflict

Fiala, Otto. 2019. 'Resistance Operating Concept.' Special Operations Command Europe SOCEUR. As of 24 June 2021:
https://www.diva-portal.org/smash/get/diva2:1392106/FULLTEXT01.pdf

Fiedrich, Frank. 2016. 'Integrated Emergency Management System.' In *Encyclopedia of Natural Hazards*, edited by P. T. Bobrowsky. Dordrecht: Springer.
doi: 10.1007/978-1-4020-4399-4_197

FIIA (Foreign Policy Institute). 2020. 'Rebuilding Sweden's crisis preparedness: Lack of clarity impedes implementation.' Fiia.fi, 20 May 2020. As of 21 June 2021:
https://www.fiia.fi/julkaisu/rebuilding-swedens-crisis-preparedness?read

Firchow, Pamina. 2019. 'Colombia's long-term peace may depend on support for the Truth Commission.' *The Washington Post*, 4 February 2019. As of 21 June 2021:
https://www.washingtonpost.com/news/monkey-cage/wp/2019/02/04/colombias-long-term-peace-may-depend-on-support-for-the-truth-commission/

Flanagan, Stephen, Jan Osburg, Anika Binnendijk, Marta Keep & Andew Radin. 2019. 'Deterring Russian Aggression in the Baltic States Through Resilience and Resistance.' Santa Monica, CA: RAND Corporation. As of 24 June 2021:
https://www.rand.org/pubs/research_reports/RR2779.html

FM Global. 2021. 'Resilience Index Data.' Fmglobal.com. As of 21 June 2021:
https://www.fmglobal.com/research-and-resources/tools-and-resources/resilienceindex/explore-the-data/?&vd=1

Gallup. 2016. 2016 *Global Civic Engagement Report*. Washington, D.C.: Gallup. As of 21 June 2021:
https://www.gallup.com/195686/2016-global-civic-engagement-report.aspx

Giles, Chrissie. 2017. 'What would an earthquake-proof city look like?' *The Guardian*, 11 December 2017. As of 21 June 2021:
https://www.theguardian.com/cities/2017/dec/11/earthquake-proof-city-christchurch-japan-colombia-ecuador

Global Food Security Index. 2020. 'Country rankings 2020.' Foodsecurityindex.eiu.com. As of 21 June 2021:
https://foodsecurityindex.eiu.com/index

Gouré, Leon. 1960. *Soviet Civil Defence.* Santa Monica, Calif.: RAND Corporation. P-1887. As of 21 June 2021:
https://www.rand.org/pubs/papers/P1887.html

Gruber, Barbara. 2016. *Going Side by Side: Defence and Resilience in Swedish Security Policy*. Working Paper, Öesterreichisches Institut für Internationale Politik 88. Vienna: Öesterreichisches Institut für Internationale Politik. As of 21 June 2021:
https://nbn-resolving.org/urn:nbn:de:0168-ssoar-58209-9

Hanai, Nissim. 2015. 'Transformations in the Israeli Defense Development and Production System.' Idf.il, 2015. As of 21 June 2021:
https://www.idf.il/en/minisites/dado-center/vol-6-force-design-a/transformations-in-the-israeli-defense-development-and-production-system/

Harris, Toby. 2019. 'Modern deterrence and Societal Resilience.' Rusi.org/Commentary, 19 January 2019. As of 21 June 2021:
https://rusi.org/commentary/modern-deterrence-and-societal-resilience

Helm, Patrick. 2014. 'Risk and resilience: strategies for security.' *Civil Engineering and Environmental Systems* 32 (1-2): 100-118, doi: 10.1080/10286608.2015.1023793

Hermann, Tamar, Or Anabi, Ayelet Rubabshi-Shitrit, Avraham Ritov & Ella Heller. 2020. *The Israeli Democracy Index: 2020*. Jerusalem: The Israel Democracy Institute. As of 21 June 2021:
https://en.idi.org.il/media/15562/the-israeli-democracy-index-2020-en.pdf

HM Government. 2015. *National Security Strategy and Strategic Defence and Security Review 2015*. London: HM Government. As of 21 June 2021:
https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/478933/52309_Cm_9161_NSS_SD_Review_web_only.pdf

———. 2019. *Community Resilience Development Framework*. London: HM Government. As of 21 June 2021:

https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/828813/20190902-Community_Resilience_Development_Framework_Final.pdf

———. 2020. *National Risk Register 2020*. London: HM Government. As of 21 June 2021:

https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/952959/6.6920_CO_CCS_s_National_Risk_Register_2020_11-1-21-FINAL.pdf

———. 2021. *Global Britain in a Competitive Age. The Integrated Review of Security, Defence, Development and Foreign Policy*. London: HM Government. As of 21 June 2021:

https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/975077/Global_Britain_in_a_Competitive_Age-_the_Integrated_Review_of_Security__Defence__Development_and_Foreign_Policy.pdf

Human Rights Watch. 2020. 'Colombia: Events of 2019.' Hrw.org/World Report 2020. As of 21 June 2021:

https://www.hrw.org/world-report/2020/country-chapters/colombia

ICRC (International Committee of the Red Cross). 2019. 'Colombia: Five armed conflicts – What's happening?' Icrc.org, 30 January 2019. As of 21 June 2021:

https://www.icrc.org/en/document/colombia-five-armed-conflicts-whats-happening

———. 2020. 'The difficult reality of the armed conflict in Colombia.' Icrc.org, 4 March 2020. As of 21 June 2021:

https://www.icrc.org/en/document/difficult-reality-armed-conflict-colombia

IDF (Israeli Defense Force). 2021. 'Home Front Command.' *Idf.il*. As of 21 June 2021:

https://www.idf.il/en/minisites/home-front-command/

IMOD (Israeli Ministry of Defense). 2018. 'National Emergency Management Authority (NEMA).' English.mod.gov.il, 2018. As of 21 June 2021:

https://english.mod.gov.il/Departments/Pages/NationalEmergencyManagementAuthority.aspx#:~:text=National%20Emergency%20Management%20Authority%20(NEMA),-%D7%AA%D7%9E%D7%95%D7%A0%D7%94%20%D7%A8%D7%90%D7%A9%D7%99%D7%AA&text=The%20authority%20was%20established%20in,situations%20in%20the%20civil%20sphere

Internal Displacement Monitoring Centre. 2019. 'Global Internal Displacement Database.' Internal-displacement.org. As of 21 June 2021:

https://www.internal-displacement.org/database/displacement-data

International Crisis Group. 2017. 'Colombia's Armed Groups Battle for the Spoils of Peace.' Crisisgroup.org, 2017. As of 21 June 2021:

https://www.crisisgroup.org/latin-america-caribbean/andes/colombia/63-colombias-armed-groups-battle-spoils-peace

———. 2021. 'Deeply Rooted: Coca Eradication and Violence in Colombia.' Crisigroup.org. As of 21 June 2021:

https://www.crisisgroup.org/latin-america-caribbean/andes/colombia/87-deeply-rooted-coca-eradication-and-violence-colombia

Index Mundi. 2020. 'Australia Demographics Profile.' Indexmundi.com, 2020. As of 21 June 2021: https://www.indexmundi.com/australia/demographics_profile.html

Israeli Government. 2020. 'Israel National Cyber Directorate.' Gov.il/en, 2020. As of 21 June 2021: https://www.gov.il/en/departments/about/newabout

Jackson, Nicole. 2019. 'Deterrence, Resilience and Hybrid Wars: The Case of Canada and NATO.' *Journal of Military and Strategic Studies* 19 (4). As of 24 June 2021: https://jmss.org/article/view/68870

JESIP (Joint Emergency Services Interoperability Principles). 2021. 'Working with Military.' Jesip.org.uk. As of 21 June 2021: https://www.jesip.org.uk/working-with-military

Juncos, Ana. 2016. 'Resilience as the new EU foreign policy paradigm: a pragmatist turn?' *European Security* 26 (1): 1-18. doi: 10.1080/09662839.2016.1247809

Kashti, Or. 2019. 'Israel's Attorney-General is Allowing the Gender-segregation Tsunami to Sweep Over.' *Haaretz*, 18 August 2019. As of 21 June 2021: https://www.haaretz.com/israel-news/.premium-israel-s-attorney-general-is-letting-the-gender-segregation-tsnumai-sweep-over-1.7692848

Kimhi, Shaul, Hadas Marciano, Yohanan Eshel & Bruria Adini. 2020. 'Community and national resilience and their predictors in face of terror.' *International Journal of Disaster Risk Reduction* 50: 101746. doi: 10.1016/j.ijdrr.2020.101746

Law Library of Congress. 2020. *Israel: Military Draft Law and Enforcement*. Washington, D.C.: Law Library of Congress. As of 21 June 2021: https://www.loc.gov/law/help/military-draft/israel-military-draft.pdf

Liik, Kadri. 2020. 'Russia's relative resilience: Why Putin feels vindicated by the pandemic.' European Council on Foreign Relations, Policy Brief. Ecfr.eu, 17 December 2020. As of 21 June 2021: https://ecfr.eu/publication/russias-relative-resilience-why-putin-feels-vindicated-by-the-pandemic/

Local Government Association. 2018. *The life cycle of an emergency Learning from recent experience*. London: Local Government Association. As of 21 June 2021: https://www.local.gov.uk/sites/default/files/documents/10.27%20Lifecycle%20of%20an%20emergency_02_1.pdf

Maldonado, Andrés Ucrós. (2017). 'What Is the Colombian Peace Process Teaching the World?' *New England Journal of Public Policy* 29 (1): Article 9. As of 21 June 2021: http://scholarworks.umb.edu/nejpp/vol29/iss1/9

Mayor de Bogotá. 2006. *Decreto 423 de 2006*. Unisdr.org, 11 October 2006. As of 21 June 2021: https://www.unisdr.org/campaign/resilientcities/uploads/city/attachments/2519-9854.pdf

MOD (Ministry of Defence). 2016. '2015 to 2020 government policy: Military Aid to the Civil Authorities for activities in the UK.' Gov.uk/Defence and armed forces, 4 August 2016. As of 21 June 2021:

https://www.gov.uk/government/publications/2015-to-2020-government-policy-military-aid-to-the-civil-authorities-for-activities-in-the-uk/2015-to-2020-government-policy-military-aid-to-the-civil-authorities-for-activities-in-the-uk

———. 2017. *UK Operations: the Defence Contribution to Resilience and Security.* Joint Doctrine Publication 02. London: Ministry of Defence. As of 21 June 2021:
https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/591639/20170207_JDP02_Resilience_web.pdf

———. 2020. *Introducing The Integrated Operating Concept.* London: Ministry of Defence. As of 21 June 2021:
https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/922969/20200930_-_Introducing_the_Integrated_Operating_Concept.pdf

MSB (Swedish Civil Contingencies Agency). 2018a. *If Crisis or War Comes: Important information for the population of Sweden.* Stockholm: Swedish Civil Contingencies Agency. As of 21 June 2021:
https://www.dinsakerhet.se/siteassets/dinsakerhet.se/broschyren-om-krisen-eller-kriget-kommer/om-krisen-eller-kriget-kommer---engelska.pdf

———. 2018b. 'Skydd vid krig.' Dinsakerhet.se, 2 May 2018. As of 21 June 2021:
https://www.dinsakerhet.se/kris-och-krig/om-det-blir-krig/skydd-vid-krig/

———. 2018c. 'Varningssystem vid krigsfara och krig.' Dinsakerhet.se, 2 May 2018. As of 21 June 2021:
https://www.dinsakerhet.se/kris-och-krig/om-det-blir-krig/varningssystem-vid-krigsfara-och-krig/

———. 2019a. 'Our Mission'. MSB.se, 2019. As of 21 June 2021:
https://www.msb.se/en/about-msb/our-mission/

———. 2019b. 'Vad innebär totalförsvarsplikt?' Dinsakerhet.se, 14 November 2019. As of 23 April 2021:
https://www.dinsakerhet.se/totalforsvarsplikt

NATO (North Atlantic Treaty Organization). 2016. 'Commitment to enhance resilience: Issued by the Heads of State and Government participating in the meeting of the North Atlantic Council in Warsaw, 8-9 July 2016.' Nato.int, 8 July 2016. As of 21 June 2021:
https://www.nato.int/cps/en/natohq/official_texts_133180.htm?selectedLocale=en

National Cyber Security Index. 2020. 'National Cyber Security Index.' Ncsi.ega.ee. As of 21 June 2021:
https://ncsi.ega.ee/ncsi-index/

Nicholson, Joanne, Peter Dortmans, Marigold Black, Marta Kepe, Sarah Grand-Clement, Erik Silfversten, James Black, Theodora Ogden, Livia Dewaele & Pau Alonso Garcia-Bode. 2021. *Defence Mobilisation Planning Comparative Study: An Examination of Overseas Planning.* Santa Monica, Calif.: RAND Corporation. RRA1179. As of 21 June 2021:
https://www.rand.org/pubs/research_reports/RRA1179-1.html

OECD (Organisation for Economic Cooperation and Development). 2020a. 'Country Fact Sheet: Colombia.' Oecd.org, 2020. As of 21 June 2021:
https://www.oecd.org/gov/gov-at-a-glance-lac-country-factsheet-2020-colombia.pdf

———. 2020b. 'Gross domestic product.' Oecd.org/Statistics, 2020. As of 21 June 2021:
https://stats.oecd.org/index.aspx?queryid=60702

One Earth Future. 2021. 'REIGN Dataset: International Elections and Leaders.'
Oefdatascience.github.io. As of 21 June 2021:
https://oefdatascience.github.io/REIGN.github.io/

Padan, Carmit, & Meir Elran. 2019. *The "Gaza Envelope" Communities: A Case Study of Societal Resilience in Israel (2006 – 2016)*. Memorandum 188. Tel Aviv: Institute for National Security Studies. As of 21 June 2021:
https://www.inss.org.il/wp-content/uploads/2019/02/Memo188_e.pdf

Pew Forum. 2016. 'Israel's Religiously Divided Society.' Pewforum.org, 8 March 2016. As of 21 June 2021:
https://www.pewforum.org/2016/03/08/israels-religiously-divided-society/

Phillips, Michael M., & James Marson. 2021. 'Russian Aggression Spurs Neighbors to Rebuild Defenses.' *The Wall Street Journal*, 5 January 2021. As of 21 June 2021:
https://www.wsj.com/articles/russian-aggression-spurs-neighbors-to-rebuild-defenses-11609859853

Presidencia de la Republica. 2019. 'En Tumaco, el Presidente Duque lanco Zonas Futuro, estrategia integral para impulsar el Desarrollo en los territorios más afectados por la violencia y la pobreza.' Gov.co/Presidencia, 8 August 2019. As of 21 June 2021:
https://id.presidencia.gov.co/Paginas/prensa/2019/190808-Tumaco-Presidente-Duque-lanzo-Zonas-Futuro-estrategia-integral-impulsar-desarrollo-territorios-afectados-violencia.aspx

Queensland Government. (2020). *Resilient Queensland in Action 2020: Progress Update*. Brisbane: Queensland Government. As of 21 June 2021:
https://www.qra.qld.gov.au/sites/default/files/2020-02/0501_Resilient%20Queensland%20in%20Action_V22_LR_February2020.pdf

Radin, Andrew, Lynn E. Davis, Edward Geist, Eugeniu Han, Dara Massicot, Matthew Povlock, Clint Reach, Scott Boston, Samuel Charap, William Mackenzie, Katya Migacheva, Trevor Johnston & Austin Long. 2019. *The Future of the Russian Military: Russia's ground combat capabilities and implications for U.S.-Russia competition.* Santa Monica, Calif.: RAND Corporation. RR-3099-A. As of 21 June 2021:
https://www.rand.org/pubs/research_reports/RR3099.html

Regjeringskansliet. 2017. 'A National Cyber Security Strategy.' Gov.se, 22 June. As of 21 June 2021:
https://www.government.se/4ada5d/contentassets/d87287e088834d9e8c08f28d0b9dda5b/a-national-cyber-security-strategy-skr.-201617213#:~:text=The%20cyber%20security%20strategy%20is,%3A140%2C%20Committee%20Report%202008%2F

———. 2019. 'Regeringen genomför åtgärder för stärkt informations- och cybersäkerhet.' Gov.se, 27 September 2019. As of 21 June 2021:
https://www.regeringen.se/pressmeddelanden/2019/09/regeringen-genomfor-atgarder-for-starkt-informations--och-cybersakerhet/

Retter, Lucia, Anna Knack, Zudik Hernandez, Ruth Harris, Ben Caves, Martin Robson & Neil Adger. 2021. *Crisis Response in a Changing Climate: Implications of Climate Change for UK Defence Logistics in Humanitarian Assistance and Disaster Relief (HADR) and Military Aid to Civil Authorities (MACA) Operations*. Santa Monica, Calif.: RAND Corporation. RR-A1024-1. As of 21 June 2021:

https://www.rand.org/pubs/research_reports/RRA1024-1.html

Roffey, Roger. 2016. *Russia's EMERCOM: Managing emergencies and political credibility*. Stockholm: Försvarsdepartementet/Ministry of Defence. As of 21 June 2021:

https://www.foi.se/rest-api/report/FOI-R--4269--SE

Royal Commission into National Natural Disaster Arrangements. 2020a. 'Royal Commission into National Natural Disaster Arrangements Report'. Canberra, A.C.T.: Commonwealth of Australia. As of 21 June 2021:

https://naturaldisaster.royalcommission.gov.au/system/files/2020-11/Royal%20Commission%20into%20National%20Natural%20Disaster%20Arrangements%20-%20Report%20%20%5Baccessible%5D.pdf

———. 2020b. *Draft Propositions: Counsel Assisting*. Canberra, A.C.T.: Commonwealth of Australia. As of 21 June 2021:

https://naturaldisaster.royalcommission.gov.au/system/files/2020-09/Draft%20Propositions%20from%20Counsel%20Assisting.pdf

———. 2021. 'About the Royal Commission.' Royalcommission.gov.au. As of 21 June 2021:

https://naturaldisaster.royalcommission.gov.au/about

Rozdilsky, Jack L. 2009. 'Emergency Management in Israel: Context and Characteristics.' Fema.gov. As of 21 June 2021:

https://training.fema.gov/hiedu/downloads/compemmgmtbookproject/comparative%20em%20book%20-%20em%20in%20israel-%20context%20and%20characteristics.pdf

Russell, Alex. 2019. 'Promoting Recovery and Resilience During Conflict in Colombia.' UCDavis.edu/News, 6 May 2019. As of 21 June 2021:

https://basis.ucdavis.edu/news/promoting-recovery-and-resilience-during-conflict-colombia

Second Line of Defence. 2020. 'Norway Releases its Long Term Defence Plan, 2020: Resilience as a Core Defense Capability.' Sldinfo.com, 20 April 2020. As of 21 June 2021:

https://sldinfo.com/2020/04/norway-releases-its-long-term-defence-plan-2020-resilience-as-a-core-defense-capability/

Semenov, Andrei & Vsevolod Bederson. 2020. 'Organizational Resilience: Russian Civil Society in the Times of COVID-19.' PONARS Eurasia, 20 July 2020. As of 24 June 2021:

https://www.ponarseurasia.org/organizational-resilience-russian-civil-society-in-the-times-of-covid-19/

Sfetsos, Athanasios, Theodoris Katopodis, Anastasia Eleftheriadou, George Eftychidis, Ilias Gkotsis, George Leventakis, Ralf Hedel, Stefan Hamman, Louisa M. Shakou, Cleo Varianou Mikellidou, George Boustras, Catherine Freissinet, Jean Lecroart, Midori Million, Tariq Hisham, Chaminda

Pathirage, Nenad Petrovic & Alen Stranjik. 2017. 'How interconnected critical infrastructure can support societal resilience under future climate: the EU-CIRCLE approach.' In *Resilience: The 2nd International Workshop on Modelling of Physical, Economic and Social Systems for Resilience Assessment*, 161-172. Luxembourg: Publications Office of the European Union. As of 21 June 2021:
https://core.ac.uk/download/pdf/146996827.pdf#page=163

Shea, Jamie. 2016. 'Resilience: a core element of collective defence.' *NATO Review*, 30 March 2016. As of 21 June 2020:
https://www.nato.int/docu/review/articles/2016/03/30/resilience-a-core-element-of-collective-defence/index.html

Singh, Maanvi. 2021. '"California and Texas are warnings": blackouts show US deeply unprepared for the climate crisis.' *The Guardian*, 19 February 2021. As of 21 June 2021:
https://www.theguardian.com/environment/2021/feb/19/power-outages-texas-california-climate-crisis

Staguhn, Janina, Erol Yayboke & Melissa Dalton. 2020. 'Colombia at a Stabilization Crossroads.' *CSIS Briefs*, 5 March 2020. As of 21 June 2021:
https://csis-website-prod.s3.amazonaws.com/s3fs-public/publication/200305_StaguhnYaybokeDalton_ColombiaStabilization_FINAL.pdf?MYEJZG489XhAM3sZ3yDkO5ZI43NA4sK_

Statista. 2020. 'Share of people with very/rather large trust in the government in Sweden from 2009 to 2019.' Statista.com, 15 March 2020. As of 21 June 2021:
https://www.statista.com/statistics/901376/share-of-people-trusting-the-government-in-sweden/

Stratchan, Hew, & Ruth Harris. (2020). *The Utility of Military Force and Public Understanding in Today's Britain*. Santa Monica, Calif.: RAND Corporation. RR-A213-1. As of 21 June 2021:
www.rand.org/pubs/research_reports/RRA213-1.html

Swedish Armed Forces. 2021. 'Home Guard: Society's Soldiers.' Forsvarsmakten.se. As of 21 June 2021:
https://www.forsvarsmakten.se/en/about/organisation/home-guard/

Swedish Defence Commission Secretariat. (2017). 'Resilience The total defence concept and the development of civil defence 2021-2025.' Regeringen.se, 20 December 2017. As of 21 June 2021:
https://www.regeringen.se/4afeb9/globalassets/regeringen/dokument/forsvarsdepartementet/forsvarsberedningen/resilience---report-summary---20171220ny.pdf

Swedish Ministry of Defence. 2020. *Main elements of the Government bill Totalförsvaret 2021–2025*. Stockholm: Ministry of Defence. As of 21 June 2021:
https://www.government.se/49648a/globalassets/government/dokument/forsvarsdepartementet/ip-2021-2025/main-elements-of-the-government-bill-totalforsvaret-20212025.pdf

The Moscow Times. 2018. 'Russia Launches Exercises to Test Population's Readiness for "External Aggression".' *The Moscow Times*, 1 October 2018. As of 21 June 2021:
https://www.themoscowtimes.com/2018/10/01/russia-launches-exercises-to-test-populations-readiness-for-external-aggression-a63042

Thornton, Rod. 2020. 'What Covid-19 reveals about the UK's capacity to deal with the changing character of warfare.' Kcl.ac.uk, 12 May 2020. As of 21 June 2021: https://www.kcl.ac.uk/covid-19-and-why-state-resilience-in-the-united-kingdom-needs-to-be-strengthened-the-link-to-the-changing-character-of-war-and-lessons-from-russia

Thornton, Rod & Marina Miron. 2020. 'Homeland Resilience Weakness in the UK: Defence's lack of preparation for a CBRN event.' *Wavell Room*, 29 November 2020. As of 24 June 2021: https://wavellroom.com/2020/11/29/homeland-resilience-weakness-in-the-uk-defences-lack-of-preparation

Times of Israel Staff. 2020. '6 facilities said hit in Iran's cyberattack on Israel's water system in April.' *The Times of Israel,* 19 May 2020. As of 21 June 2021: https://www.timesofisrael.com/6-facilities-said-hit-in-irans-cyberattack-on-israels-water-system-in-april/

———. 2020. 'Corruption Perceptions Index.' Transparency.org, 2020. As of 21 June 2021: https://www.transparency.org/en/cpi/2020/index/nzl

Trochando Sin Fronteras. 2020. 'Zonas Futuro, intervención para militarizar los territorios.' Trochandosinfronteras.info, 26 October 2020. As of 21 June 2021: https://trochandosinfronteras.info/zonas-futuro/

UNDRR (UN Office for Disaster Risk Reduction). 2019. 'Bogota/Columbia.' Unisdr.org, 2019. As of 21 June 2021: https://www.unisdr.org/campaign/resilientcities/cities/colombia/colombia/bogota

University of Edinburgh. 2016. 'Final Agreement to End the Armed Conflict and Build a Stable and Lasting Peace.' Peaceagreements.org, 24 November 2016. As of 21 June 2021: https://www.peaceagreements.org/view/1845

University of Maryland. 2021. 'Global Terrorism Database.' Umd.edu. As of 21 June 2021: https://www.start.umd.edu/gtd/

Von Sydow, Bjorn. 2018. 'Resilience: Planning for Sweden's "Total Defence".' *NATO Review*, 4 April 2018. As of 21 June 2021: https://www.nato.int/docu/review/articles/2018/04/04/resilience-planning-for-swedens-total-defence/index.html

Ward, Elizabeth. 1998. *Call Out the Troops: an examination of the legal basis for Australian Defence Force involvement in 'non-defence' matters.* Parliamentary Library Research Paper 8. Canberra, A.C.T.: Commonwealth of Australia.

Wheeler, Gerhard. 2020. 'Northern Composure: Initial Observations from Sweden's Total Defence 2020 Exercise.' Rusi.org/Commentary, 3 September 2020. As of 21 June 2021: https://rusi.org/commentary/northern-composure-initial-observations-swedens-total-defence-2020-exercise

World Bank. 2021a. 'Gini index (World Bank estimate).' Worldbank.org. As of 21 June 2021: https://data.worldbank.org/indicator/SI.POV.GINI

———. 2021b. 'Unemployment, total (% of total labour force) (modelled ILO estimate).' Worldbank.org. As of 21 June 2021:
https://data.worldbank.org/indicator/SL.UEM.TOTL.ZS

World Economic Forum. 2018. 'Global Competitiveness Ranking 2017 – 2018: Organized Crime'. Weforum.org/Reports, 2018. As of 21 June 2021:
http://reports.weforum.org/global-competitiveness-index-2017-2018/competitiveness-rankings/#series=EOSQ035

World Heritage Encyclopaedia. 2001. 'Civil Contingencies Secretariat.' *World Heritage Encyclopaedia*. As of 21 June 2021:
http://www.self.gutenberg.org/articles/Civil_Contingencies_Secretariat

Youkee, Mat. 2018. 'Quakes, mudslides, an active volcano: inside the world's riskiest city.' *The Guardian*, 8 November 2018. As of 21 June 2021:
https://www.theguardian.com/cities/2018/nov/08/earthquakes-mudslides-active-volcano-worlds-riskiest-city-manizales-colombia

Ziemba, Rachel. 2019. 'Russia's Resiliency Toolkit.' Center for New American Security, 24 January 2019. As of 24 June 2021:
https://www.cnas.org/publications/commentary/russias-resiliency-toolkit

Annex A. Methodology

This annex provides additional explanation of both the qualitative and quantitative analytical techniques employed as part of the research methodology for this study. This builds on the overview in Chapter 1.

As outlined in Chapter 1, the study employed a mixed-methods approach across four work packages:

WP1: Project scoping

WP2: Comparative case studies

WP3: Lessons for the UK and partners

WP4: Reporting

A description of each work package is presented below.

A.1. WP1: Project scoping

Following the kick-off meeting, the study team conducted initial stakeholder engagement with relevant cross-government stakeholders to understand different perspectives on the nature and challenges to societal resilience for the UK. Based on these activities, the team agreed with the DCDC a working definition of societal resilience and any other key terms needed for the purpose of guiding and bounding subsequent WPs.

Subsequently, the study team conducted an initial review of academic and 'grey' literature. This literature review identified potential variables typically associated with societal resilience (e.g. levels of social cohesion, corruption, etc.) to inform the selection of case studies in WP2. The team identified a series of proposed open data sources that were used to represent these variables, which included a combination of: existing indices; datasets pertaining to factors such as political violence or terrorism and economic performance; and structured expert judgements captured in a numeric format. This was captured in a data extraction template.

Using this longlist of potential variables, a shortlist was developed by the team using selection criteria predicated on the quality, completeness, reliability and recency of the available datasets, along with their perceived relevance based on the literature review findings. This shortlist was then revised after consultation with DCDC, SONAC and other relevant stakeholders across government. This led to the removal of those variables that were not deemed to be relevant or of sufficient quality, as listed in Table A.1.

This resulted in a final shortlist of variables used for modelling and generation of the SRI in WP2. These were separated into two groups: variables deemed to be potential causes of, and those thought likely to be indicators of, societal resilience. These are listed in Table A.2.

Table A.1: Potential variables considered, but not included

Metric	Justification for exclusion
Average age	Not deemed sufficiently relevant for inclusion
Country age	Not deemed sufficiently relevant for inclusion
Cyber-attacks	No data available on cyber-attacks at a country level
Efficiency of judicial systems	Poor data availability
Employment precarity	Insufficient data available
Gross Domestic Product (GDP) per capita	Not deemed sufficiently relevant for inclusion
Government spending	Not deemed sufficiently relevant for inclusion
Homicide rate	Not deemed sufficiently relevant for inclusion
Internally displaced persons (IDPs) resulting from all causes	Significant co-correlation with conflict intensity meant that this variable provided less information for the modelling than IDPs from disasters only
International Migrant Stock	Overlap with ethnic fractionalisation
Languages	Overlap with ethnic fractionalisation; data available is of poor quality
Life expectancy	Not deemed sufficiently relevant for inclusion
Literacy rate	Not deemed sufficiently relevant for inclusion
Military service	This variable is binary; it also leaves out broader forms of civic engagement
Neonatal mortality	Not deemed sufficiently relevant for inclusion
Number of land borders	Not deemed sufficiently relevant for inclusion
% of deaths due to communicable disease	Data deemed to be too unreliable
% of women in labour force	Not deemed sufficiently relevant for inclusion
Population	Not deemed sufficiently relevant for inclusion
Press freedom	Not deemed sufficiently relevant for inclusion
Religious fractionalisation	Overlap with ethnic fractionalisation
Rule of law	Not deemed sufficiently relevant for inclusion
Standard and Poor's (S&P) rating	Poor coverage; also deemed to be less relevant than other factors
Territorial disputes	Inadequate data structure; considered in qualitative research instead
Youth unemployment	Data too patchy and reduced size of the dataset too much

Source: GSP.

Table A.2: Variables used to investigate societal resilience

Variable	Justification for inclusion	Type	Source
Civic engagement	Includes a wider set of engagement types than military service and covers a good range of countries	Cause	Global Civic Engagement Report
Conflict intensity	Potential cause and effect of poor resilience; high-quality data available	Cause	Uppsala Conflict Data Program dataset
Corruption	High corruption could interfere with government response to shocks. Data of high quality and covers good rage of countries	Cause	Corruption Perceptions Index
Coup attempts	Potential outcome of poor resilience; high quality data available	Indicator	REIGN
CPI	Used as a proxy for a cyber-attacks variable, which was not available	Indicator	National Cyber Security Index
Democracy	Thought to be a possibly relevant factor, data readily available and with full coverage	Cause	Democracy Index
Ethnic fractionalisation	Data readily available and of good quality. Literature suggests this could be a variable of interest	Cause	Historical Index of Ethnic Fractionalization
Food security	Significant co-correlation with supply chain resilience, but testing indicated this did not impact modelling results significantly so both were included	Cause	Global Food Security Index
Inequality (GINI)	Literature suggests inequality may be major driver of instability; data readily available for GINI coefficient	Cause	GINI Index (World Bank estimate)
IDPs resulting from disaster	Added valuable new information over total IDP numbers	Indicator	Internal Displacement Monitoring Centre
Mass protests	Potential outcome of poor resilience; violent protests only used to avoid e.g. pro-government demonstrations and look only at 'negative' events	Indicator	Mass Mobilization Protest Data
Organised crime	Possible outcome of poor societal resilience	Indicator	World Economic Forum
Supply chain resilience	Identified as possible major driver of overall societal resilience; data available has acceptable range	Cause	FM Global Resilience Index
Terrorism	Potential outcome of poor resilience; high quality data available	Indicator	GTD
Unemployment rate	Youth unemployment could be major driver of instability; general unemployment used as a proxy	Cause	Unemployment, total (% of total labour force)

Source: GSP.

A.2. WP2: Comparative Case Studies

Following completion of WP1, the study team conducted a clustering analysis to help categorise countries into different groups based on various characteristics relevant to how they might deal with societal resilience. The causal variables used in this analysis were normalised using a standard scaler such that they all had a

mean of 0 and a variance of 1, allowing them all to be used comparably regardless of the unit in which they were originally measured. These normalised variables were then used as the input for a Gaussian Mixture Model (GMM). The optimal number of clusters – in terms of the ability to clearly differentiate between groups – was found to be six. [245] All the clustering analysis was carried out in Python using the 'numpy', 'pandas', and 'sklearn' libraries. A list of these variables along with the sources used is included in this annex.

GMM was identified as the optimal approach due to a number of advantages it has over simpler approaches such as k-means or spectral clustering. First and foremost, those other approaches are probabilistic. This means that where k-means or spectral clustering would simply tell you what cluster a point was in, a GMM can estimate the probability of a point being in each possible cluster. This allows for an improved understanding of 'edge cases', which may be hard to categorise using simpler approaches. Second, where algorithms such as k-means can only produce spherical clusters (which are typically a poor approximation for real-world data), a GMM can be stretched in any dimension as needed to accurately reflect the underlying data.

To visualise these clusters, a technique called primary component analysis (PCA) was used. PCA ingests multi-dimensional data and reduces it down to a more manageable number of dimensions while retaining as much information as possible. In this case, the team reduced the dataset to two dimensions so that it could be plotted on a page to illustrate clusters ('Principle Component 1' and 'Principle Component 2'). The PCA in this analysis was carried out using the 'sklearn' library in Python. These two axes are largely meaningless (they each consist of linear combinations of the original nine variables and so cannot be easily interpreted), but they allow visualisation of the clusters in two dimensions as in Figure A.1.

Figure A.1: Results of cluster analysis

Source: GSP.

---

[245] The optimal number of clusters was selected using the Akaike Information Criterion for the GMM. This is a commonly used method to identify the optimal number of clusters for such an analysis.

These characteristics can also be viewed graphically using violin and bee swarm plots, as in Figure A.2.

Figure A.2: Violin and bee swarm plots for cluster analysis
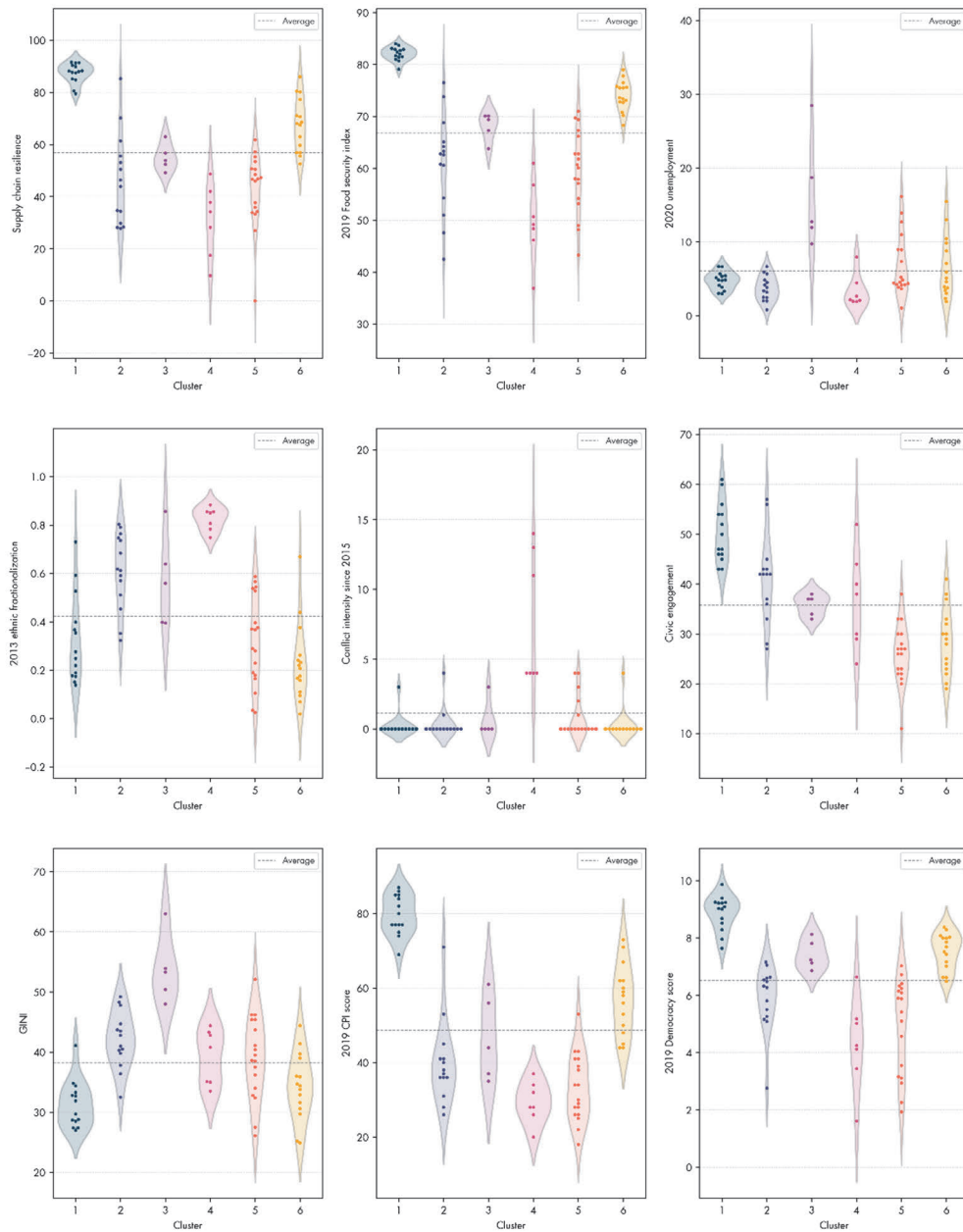
Source: GSP.

Through this analysis, the team was able to highlight different shared characteristics within each cluster:

- **Cluster 1:** Consisting of many Western European and Anglophone countries, this cluster is distinguished by higher food security, supply chain resilience, civic engagement and democracy indices, as well as low levels of corruption and inequality.

- **Cluster 2:** These countries, which are geographically diverse, are characterised by highly variable supply chain resilience and food security, as well as worse-than-average corruption and societal

inequality. They are more ethnically diverse and usually have high levels of civic engagement and very low unemployment rates.

- **Cluster 3:** This cluster, the smallest of the six, includes countries that score above average for democracy, but struggle with high unemployment rates and economic inequality.

- **Cluster 4:** The most notable characteristic of countries in this cluster is the presence of significant conflict. They all have poor food security and supply chain resilience. Finally, all have extreme ethnic fractionalisation compared to other countries.

- **Cluster 5:** This cluster is primarily middle-income countries with wide geographic variation. Distinguishing features include below-average supply chain resilience and civic engagement, as well as relatively low scores for corruption and democracy.

- **Cluster 6:** While it shares many characteristics with Cluster 1, these countries tend to score slightly lower on supply chain resilience, corruption, democracy and food security. Also of note are their low ethnic fractionalisation scores, indicating countries more homogenous than the global average.

The list of countries in each cluster can be viewed in Table A.3: Results of cluster analysis Table A.3 below.

Table A.3: Results of cluster analysis

Cluster	Countries
1	Australia, Austria, Belgium, Canada, Denmark, Finland, Germany, Ireland, Netherlands, Norway, Sweden, Switzerland, UK, US
2	Benin, Dominican Republic, Ghana, Guatemala, Indonesia, Malawi, Malaysia, Panama, Peru, Senegal, Sri Lanka, Tanzania, Thailand, UAE
3	Botswana, Brazil, Colombia, Costa Rica, South Africa
4	Chad, Ethiopia, Kenya, Nigeria, Pakistan, Philippines, Uganda
5	Bangladesh, Bulgaria, China, Ecuador, El Salvador, Haiti, Honduras, Kazakhstan, Mexico, Morocco, Nicaragua, Paraguay, Russia, Rwanda, Serbia, Tajikistan, Tunisia, Ukraine
6	Argentina, Chile, Czech Republic, Greece, Hungary, Israel, Italy, Japan, South Korea, Poland, Portugal, Romania, Slovakia, Spain, Uruguay

Source: GSP.

In consultation with the DCDC and MOD, this clustering helped to select the following case studies:

- Australia
- Colombia
- Israel
- Russia
- Sweden

It is important to note that, while the selection of case studies used the cluster analysis as a reference point, this was not the only factor. Selection criteria also included countries of particular interest to the UK MOD. Despite not choosing case studies from Clusters 2 or 4, these countries and their characteristics were discussed at a high level in Chapter 2 of the core report.

Next, the GSP team conducted desk-based research to understand the context, nature, structure, processes and capabilities of different national approaches to promoting societal resilience. This included mapping the relevant stakeholders and strategy, policy and legislation in each nation, along with any information in the public domain on the extent to which national approaches to societal resilience have evolved over time and/or been tested (successfully or otherwise) through exercises or real-world crisis situations. This drew on a literature review of academic, 'grey' and official government sources, along with a limited number of key informant interviews (conducted via phone or video teleconference (VTC)) where data gaps are identified.

In parallel, using the data extracted for both causal and indicator variables identified in WP1, the study team generated the SRI. These insights were used to summarise the societal resilience properties of each cluster of countries and establish – so far as was feasible given the available data – which approaches tend to be the most successful at generating societal resilience. The Index was generated using a specific type of structural equation model, a Multiple Indicator Multiple Cause (MIMIC) model. A MIMIC model involves one latent variable (defined here as Societal Resilience) along with the causal and indicator variables listed in Table A.2. As in the clustering analysis, all the variables were normalised with a standard scaler. They were then used to specify the MIMIC model shown in Figure A.3.

Figure A.3: MIMIC model of societal resilience

Source: GSP.

The least statistically significant variable was then removed, and the model re-specified without it. This was repeated until a model was obtained in which all variables were significant at the $p<0.1$ threshold. The coefficients and key diagnostic statistics of the original (1) and final (2) models are shown in Figure A.4.

Figure A.4: MIMIC model specifications

Variable	Model Specification 1	Model Specification 2
Causes		
Inequality	0.121**	0.097**
Supply Chain Resilience	−0.151	−0.194**
Unemployment	0.011	
Ethnic Fractionalisation	−0.034	
Food Security	−0.085	
Democracy	−0.067	
Corruption	−0.107	−0.169**
Conflict Intensity	0.065*	0.088**
Civic Engagement	0.109**	0.083**
Indicators		
Conflict Intensity	0.611**	0.652**
Disaster Displacement (fixed)	1	1
Cyber Security	−1.793***	−1.702***
Organised Crime	−1.540***	−1.676***
Terrorism	0.663**	0.844**
Coup Attempts	0.097	
Violent Protests	0.555*	0.574*
Goodness-of-Fit Statistics		
Degrees of freedom	97	38
Chi-square	264.44	185.85
RMSEA	0.155	0.232
AIC	38.8	28.9

*, **, and *** indicate significance at the 10, 5, and 1% levels

Source: GSP.

The relationships identified by the finalised MIMIC model were used to calculate values for the latent societal resilience variable. These were used as the basis for an SRI, which scores and ranks countries based on their underlying societal resilience. This analysis was carried out using the 'numpy', 'pandas', 'sklearn', and 'semopy' libraries in Python. The full table of this index is available below in Table A.4.[246]

Table A.4: SRI ranking

Rank	Country	SRI	Rank	Country	SRI
0	Finland	0.863	37	Argentina	0.484
1	Denmark	0.856	38	Costa Rica	0.470
2	Sweden	0.839	39	Ukraine	0.440
3	Japan	0.830	40	Botswana	0.434
4	Norway	0.826	41	Ecuador	0.416

---

[246] The limited number of countries available in this ranking is based on countries included in all of the datasets.

5	Austria	0.814	42	Thailand	0.407
6	Netherlands	0.812	43	Senegal	0.397
7	Switzerland	0.808	44	Mexico	0.395
8	Belgium	0.797	45	Indonesia	0.386
9	Germany	0.791	46	Peru	0.375
10	United Arab Emirates	0.754	47	El Salvador	0.373
11	United Kingdom	0.748	48	Russian Federation	0.371
12	Czech Republic	0.742	49	Tajikistan	0.370
13	Canada	0.734	50	South Africa	0.364
14	Korea, Rep.	0.719	51	Ghana	0.363
15	Spain	0.715	52	Sri Lanka	0.354
16	Poland	0.702	53	Colombia	0.352
17	Ireland	0.694	54	Bangladesh	0.351
18	Portugal	0.692	55	Panama	0.350
19	Australia	0.680	56	Tanzania	0.348
20	Slovak Republic	0.669	57	Brazil	0.346
21	Hungary	0.631	58	Benin	0.328
22	Italy	0.625	59	Dominican Republic	0.324
23	Greece	0.601	60	Paraguay	0.306
24	Chile	0.597	61	Ethiopia	0.270
25	China	0.597	62	Honduras	0.257
26	Uruguay	0.595	63	Kenya	0.251
27	United States	0.572	64	Malawi	0.250
28	Israel	0.569	65	Nicaragua	0.229
29	Kazakhstan	0.547	66	Guatemala	0.203
30	Malaysia	0.544	67	Pakistan	0.191
31	Romania	0.540	68	Uganda	0.177
32	Bulgaria	0.536	69	Nigeria	0.154
33	Tunisia	0.514	70	Chad	0.132

34	Serbia	0.510		71	Philippines	0.125
35	Morocco	0.500		72	Haiti	0.106
36	Rwanda	0.486				

Source: GSP.

The output of this WP was a full write-up of the process by which case studies were selected, the justification for each case study, and a description of some of their key characteristics. This was submitted to the DCDC and SONAC as an interim deliverable and integrated into this final report in Chapter 3 and this annex.

A.3.   WP3: Lessons for the UK and partners

Using the outputs of WP1 and WP2, the study team conducted internal workshops to compare the UK context with each of the case study nations, and to consider potential barriers or enablers to implementing similar models of societal resilience – or importing elements thereof – in the UK. This analysis sought to understand, in both qualitative and quantitative terms, features of the UK context that might influence how transferrable lessons are from other international approaches to the UK's own unique setting.

The team combined this analysis with a final round of desk-based research, interviews, and another internal workshop to identify and prioritise implications for Defence, in terms of promoting societal resilience within a wider cross-government approach. This research also considered the type of support that the UK can offer to other partner nations (e.g. in terms of capacity building) who may also be seeking to enhance their own societal resilience to address threats above and below the threshold of open armed conflict.

The output of this WP was a set of proposals, as integrated into Chapter 4 of this report.

A.4.   WP4: Reporting

As the final activity, the team synthesised all outputs from preceding WPs and produced this report as the formal deliverable for the study. The team also prepared a presentation to DCDC and MOD stakeholders, as well as the National Preparedness Commission, to help disseminate key findings.

Role of stakeholder engagement

Throughout WP2 and WP3, the study team conducted a series of semi-structured interviews to capture the perspectives of relevant experts and stakeholders. These took place between January and April 2021. Prior to each of the interviews, participants were sent the list of proposed questions as identified through WP1. Interviewees came from both the public and private sectors, as well as academia, and had experience interacting with different parts of government. The purpose of interviews was to:

Understand different perspectives on the nature and challenges to societal resilience for the UK and other countries.

Fill data gaps in literature review findings or quantitative analysis where identified.

The interviewees were initially identified through the networks of both DCDC and the study team. Several were also identified during desk research due to their prominence in the field, or through a 'snowballing

technique', in which interviewees recommended other potential participants from their own networks. The interviews were designed to be semi-structured, allowing researchers to both explore specific questions of relevance to the project, as well as asking follow-up questions to better understand individual areas of expertise. An interview protocol was used to conduct the interviews, which were held via video call given constraints imposed by the COVID-19 pandemic. This interview protocol is outlined below in Table A.5, with a full list of interviewees and internal expert workshops in Table A.6 and Table A.7 respectively.

Table A.5: Interview protocol

How would you define societal resilience?
How does the Ministry of Defence define societal resilience? Is this definition uniform across different parts of government?   What do you think are the key elements or factors that determine societal resilience?   How do different conceptions of societal resilience affect policy development?
What countries have good models for societal resilience planning, including UK allies, partners, and adversaries?
Broadly speaking, are there certain kinds of approaches or models that countries use?   What is good about their approach / model? What characterises 'good practice' / best practice?   What kinds of policy levers does their approach use?   How transferrable are these lessons / best practices to the UK's context, taking into account different policy, social and cultural factors?   What aspects of their approach / model might be applicable in the UK, given policy, social and cultural considerations?   What might make their model inappropriate for application in the UK?
What UK government practices or initiatives exist related to societal resilience? How effective have they been?
What lessons has the UK learned in recent years (i.e. from its experiences with Brexit planning, COVID pandemic, flooding)?   How have these experiences highlighted what the UK does well?   How have these experiences highlighted what the UK does not do well?
What common challenges do countries face in fostering societal resilience?
What unique challenges does the UK face in fostering societal resilience?
What are some of the UK's key vulnerabilities that affect its ability to be resilient? How might some of these vulnerabilities be addressed?   How might our adversaries try to exploit those vulnerabilities?   What are the UK's key strengths that make it more able to maintain resilience in the face of shocks, attacks or threats?
How might insights into measures for enhancing societal resilience be used by the UK to support its international partners and allies?
How might the UK be able to support partners and allies who already emphasise societal resilience (i.e. Scandinavia, Baltic States)?   How might the UK better support partners and allies with lower levels of societal resilience (i.e. Balkan States)?
What are the implications of societal resilience for UK Defence, including its contribution to cross-government efforts to enhance societal resilience through Fusion Doctrine?

Source: GSP.

Table A.6: List of interviewees

Interviewee	Affiliation	Date (2021)
Wg Cdr David Warren	Air 11 GP-UKOps SO1	8 March
David Wright FREng	National Preparedness Commission; National Grid	8 April
Maj Drew Houston	DCDC Concepts Team	2 February
Dr Edith Wilkinson	Cranfield University	23 February
Elisabeth Braw	American Enterprise Institute	18 March
Gregoire Delabernardie	Ministry of Defence	16 February
Sir Ian Andrews	Vice-Chair, National Preparedness Commission	30 March
Dr Jolien van Breen	Universiteit Leiden	8 February
Dr Kees Boersma	Vrije Universiteit Amsterdam	15 February
Dr Meir Elran	Institute for National Security Studies, Israel	8 February
Prof Patrick Porter	University of Birmingham	29 March
Lt Gen Richard Nugee	MOD Climate Change Senior Responsible Owner	16 February
Dr Rod Thornton	King's College London	26 February
Dr Samir Puri	International Institute for Strategic Studies – Singapore	3 February
Wg Cdr Shaun Ryles	Air-Ops-A5 RAFRLO Lon and SE	17 March
Simon Lewis	National Preparedness Commission; British Red Cross	19 April
Stephen Baker	National Preparedness Commission; East Suffolk Council	12 April
Lord Toby Harris	Chair, National Preparedness Commission	29 March
Veronica Wardman	Dstl Novel Tech Group	15 March
Vicky Reeds	MOD Security Policy and Operations – Security & Resilience	3 February

Source: GSP.

Table A.7: List of internal expert workshops

Participants of internal expert workshop	Date (2021)
One expert from RAND Europe specialising in Swedish Defence Policy	19 March
Two experts from RAND Australia specialising in Australian Defence and Security	21 April

Source: GSP.

Annex B. Case Studies

This study for the DCDC examined five case studies, drawing out different approaches and best practices to see whether they might be applicable to the UK context. This annex details the justification for the selection of each of the five case studies, followed by a more detailed context on the country's approach to and structure for societal resilience.

B.1.   Selected case studies and justification

Australia was selected as a representative example of countries in Cluster 1. Further, it is a Five Eyes country, which is of particular interest to the UK MOD. Australia, especially, has struggled to address a number of significant challenges, such as the 2019–2020 wildfires. These challenges are part of the reason why Australia has recently been involved in significant efforts to consider its approach to societal resilience. This has included developing its own disaster resilience index, consisting of social, economic and institutional factors and the recent Royal Commission into National Natural Disaster Arrangements, which issued its recommendations in late 2020.[247] Given that they are both in Cluster 1, and are both Five Eyes, the Organisation for Economic Cooperation and Development (OECD) and G20 members, the UK and Australia share many commonalities that may increase the relevance of Australian best practices for the UK. Australia's geographic location in the Indo Asia-Pacific, a region of increasing strategic interest to the UK, also make it a good candidate for a case study.

As a member of the smallest cluster, Cluster 3, **Colombia** has a combination of characteristics that make it unique from other countries, and therefore of particular interest to the study. Based on analysis by Aleph Insights, its history of low-level, long-term conflict and persistent economic inequality has not prevented it from retaining a relatively high democracy rating. Interest in these characteristics was expressed in initial consultations with the National Preparedness Commission (NPC). Its selection also provided an example from Latin America, in an effort to make these case studies more geographically representative. Finally, all parties felt that it would benefit the study to examine a country that analysis indicated was less resilient.

Israel has long been a country of interest for those who study societal resilience and is therefore featured in a great deal of the literature as an exemplar of resilience. Israel is in the relatively unique position for countries in Clusters 1 and 6 of being involved in a long-term low-level conflict on its own soil, while still maintaining relatively high scores in democracy and supply chain resilience. Due to this, Israel is in the

---

[247] Bushfire and Natural Hazards CRC (2020); Royal Commission into National Natural Disaster Arrangements (2020a).

unique position of being able to trial new approaches to enhance societal resilience and receive real-time feedback.[248] While Israel shares a number of common interests with the UK, as well as the similarities highlighted by their clusters, its policies and conceptions around societal resilience differ significantly from the UK. A frequently occurring example of this in the literature on societal resilience is Israel's policy of nearly universal conscription. For these reasons, Israel seemed like the appropriate choice for Cluster 6.

Sources suggest that **Russia's** government has been relatively proactive in addressing its own societal resilience, in cooperation with defence.[249] For example, at the start of the COVID-19 pandemic, several thousand Russian troops aided civilian authorities in responding. In addition to the military, there are several organisations with internal security roles, including the National Guard, tasked with functions as varied as riot control and provision of basic utilities.[250] There are, however, also reasons to question Russian societal resilience, namely the below-average civic engagement and supply chain resilience that characterise Cluster 5. In addition, from the beginning of the project, DCDC had expressed an interest in looking, not only at UK allies and partners, but at its potential adversaries as well. Russia fits this description, while being more representative of Cluster 5 overall.[251]

As a member of Cluster 1, **Sweden** enables the project team to examine an example of a non-Anglophone country that shares similar high-level characteristics. Examining two countries from Cluster 1 also enables the team to better explore how variation might occur within clusters, despite them having apparently similar characteristics. In addition, Sweden is often presented as a paradigm for societal resilience, as are its recent large-scale Total Defence 2020 exercises.[252] One specific example of this is that Sweden has taken proactive steps to incorporate resilience into its security and defence policies.[253] Finally, including Sweden also addresses the preference that the DCDC has expressed from early in the project: that one of the case studies might be a Scandinavian country, given their location on the European frontier with Russia. Selecting Sweden as a case study will allow the project to incorporate insights into a country that might perceive itself to be under threat in a way that other countries in Cluster 1 are not.

B.2. Sweden

Of the case studies, Sweden scores the highest on the index (third overall with a score of 0.84). This score is driven by Sweden's above average scores in almost all variables: it has low inequality, little corruption, no conflict, and resilience supply chains.[254] This indicates that **Sweden has multiple structural factors that contribute significantly to high societal resilience**. While these factors are not entirely independent of government control, they are also not explicitly part of societal resilience policy. Another factor outside the

---

[248] Padan & Elran (2019).

[249] Thornton (2020).

[250] Thornton (2020).

[251] According to the cluster analysis, China emerged as somewhat of an outlier in Cluster 5, while Russia was more representative of the group's average, and therefore more suited for examining the cluster as a whole.

[252] Wheeler (2020).

[253] Gruber (2016).

[254] For a more detailed discussion of Sweden's score in the societal resilience, see the Summary of this report.

control of government is Sweden's location: it has long been concerned about aggression from neighbouring Russia. Indeed, Russia's actions in the Ukraine drove Sweden to reassess the threat level facing the country and overhaul their societal resilience policies in 2014.[255]

B.2.1. Background

From the 1950s to the end of the Cold War, Sweden had a well-developed Total Defence concept, which entailed all of the activities required to prepare Sweden for war, including both military and civilian defence. Sweden had the world's fourth largest air force and extensive stockpiling of items like food, fuel, and cash.[256] The impetus for Total Defence was that Sweden was a small, neutral country with limited resources. To make up for the lack of resources, all of society was involved in the effort to resist the very real threat from the USSR (similar to Israel and its Arab neighbours).[257]

After the end of the Cold War, Total Defence planning came to an end, and Sweden instead prioritised expeditionary capabilities. From 1999 and throughout the 2000s, there was no systematic civilian planning for a crisis or war. Compulsory military service became voluntary in 2010. Emergency stockpiles were sold, donated and destroyed. [258]

Yet, following the annexation of Crimea and military intervention in Ukraine by Russia in 2014, Sweden revised the threat level facing the country to a higher level. It passed a Defence Bill in 2015 that aimed to improve deterrence and preparedness to meet the new, more threatening security environment. As part of the bill, military spending was increased, limited compulsory military service was reinstated, and Total Defence was restarted.[259]

Sweden set up a Defence Commission in January 2017 to clarify the strategic direction of the country for 2021-2025. It published a report entitled *Resilience – the total defence concept and the development of civil defence 2021-2025* in December 2017, which set out plans for a reformulated Total Defence strategy.[260] These recommendations were adopted by the Swedish parliament in December 2020.[261] The key objectives of Total Defence for 2021-2025 are that the country should be able to resist disturbances to society for three months.[262] As part of this, individuals have the responsibility to take care of themselves. For example, they should have sufficient basic provisions to survive and know their roles and responsibilities in a crisis.[263] Also, Sweden should be able to withstand interruptions to its supply chain, so there should be plans in place to ensure access to food, water, fuel, and medicine.[264] Finally, there will be a new structure for coordination

---

[255] Von Sydow (2018).

[256] FIIA (2020).

[257] Internal RAND Europe expert workshop conducted 19 March 2021.

[258] FIIA (2020).

[259] Von Sydow (2018).

[260] Von Sydow (2018).

[261] Swedish Ministry of Defence (2020).

[262] Swedish Ministry of Defence (2020).

[263] Swedish Ministry of Defence (2020).

[264] Swedish Ministry of Defence (2020).

of civil defence, that will bring together central, regional, and local levels, and will also help to develop psychological defences.[265]

Sweden is not a centrally governed country. Individual government agencies oversee operational aspects and local authorities have significant power. This means that coordination between agencies is crucial and changes cannot simply be decreed from the central government. The provision for a new civil defence coordination body in the 2020 Total Defence bill aims to address the coordination issues.[266]

B.2.2.   Relevant practices

Sweden has frequently been cited by experts as a model country for societal resilience. Its year-long Total Defence exercises (2019-2020) drew on a whole-of-society approach to conduct exercises ranging from table-top to live-play that included parliament, government agencies, regional administrations, municipalities, the private sector, and the general public. These exercises were led by Sweden's dedicated societal resilience organisation, the Civil Contingencies Agency (MSB), in conjunction with the armed forces.

The MSB is a dedicated national civilian body responsible for civil preparation, emergency management and civil defence. It supports training, exercises, regulation and education, and works closely with municipalities, councils and the private sector.[267] The MSB is regarded as one of the best civil defence agencies worldwide.[268] Among other activities, it has overseen the development of dual roles, where civilian roles in government agencies have a war designation: if war breaks out, the civilian adopts a designated alternate wartime role.[269]

The government maintains **active, ongoing communication with the population regarding their role in societal resilience**.[270] It has issued instructions to the public in the form of a pamphlet, 'If Crisis or War Comes', YouTube videos, a podcast entitled 'If the Crisis Comes', and a dedicated website, which is run by the MSB. For example, the website provides checklists of what to pack in a crisis.[271] As part of this preparation advice, the Swedish government has an alert signal that would alert civilians of an emergency via their cell phones and other designated alert signals.[272] The Swedish government has also explicitly told citizens that it will never surrender to a foreign power in the event an aggressor tries to spread disinformation.[273] This spread of information is also intended to spur citizens to participate in Total Defence: 'If Crisis or War Comes' encourages citizens to learn to provide first aid or get involved with non-profit organisations that play significant roles in voluntary defence.[274]

---

[265] Swedish Ministry of Defence (2020).

[266] Swedish Ministry of Defence (2020).

[267] MSB (2019a).

[268] Interviews conducted by RAND Europe with interviewees G and H.

[269] Internal RAND Europe expert workshop conducted 19 March 2021; Von Sydow (2018).

[270] Swedish Defence Commission Secretariat (2017).

[271] MSB (2019b).

[272] MSB (2018a).

[273] MSB (2019a).

[274] MSB (2018a).

This **transparency and proactive information sharing** has been suggested as one of the reasons trust in government in Sweden is high.[275] For example, one study showed that between 2009 and 2019, on average, 40 per cent of Swedes had either very or rather large trust in the government, significantly higher than the proportion in the UK.[276]

Figure B.1: Public preparedness tips from 'If Crisis or War Comes'

Home preparedness tips

Your prerequisites and needs vary, for example, depending on whether you live in the countryside or in a built-up area, in a house or in an apartment. Here are some general home preparedness tips. Use that which is appropriate for you and those close to you. It is a good idea to share certain things and borrow from one another.

Food

It is important to have extra food at home that provides sufficient calories. Use non-perishable food that can be prepared quickly, requires little water or can be eaten without preparation.

- [ ] potatoes, cabbage, carrots, eggs
- [ ] bread with a long shelf-life, e.g. tortillas, hard bread, crackers, rusks
- [ ] cheese spread, soft whey cheese and other spreads in tubes
- [ ] oat milk, soy milk, milk powder
- [ ] cooking oil, hard cheese
- [ ] quick-cook pasta, rice, grains, instant mashed potatoes
- [ ] precooked lentils, beans, vegetables, hummus in tins
- [ ] chopped tomatoes to, for example, cook pasta in
- [ ] tins of bolognese sauce, makerel, sardines, ravioli, salmon balls, boiled meat, soup
- [ ] fruit purée, jam, marmelade
- [ ] prepared blueberry and rosehip soup, juice or another drink that can be stored at room temperature
- [ ] coffee, tea, chocolate, energy bars, honey, almonds, nuts, nut butter, seeds.

Water

Clean drinking water is vital. Allow for at least three litres per adult per day. If you are uncertain about its quality, you need to be able to boil the water.

If the toilet is not working, you can take strong plastic bags and place them in the toilet bowl. Good hand hygiene is important for avoiding infection.

- [ ] bottles
- [ ] buckets with lids
- [ ] Plastic bottles to freeze water in (do not fill to the top as the bottle will crack if you do)
- [ ] mineral water
- [ ] jerry cans, ideally with a tap, to collect water in. You can also have a couple of clean jerry cans that are filled with water as a reserve. These are to be stored in a cool, dark place.

Learn more about home preparedness at dinsäkerhet.se

Warmth

If the electricity goes off at a cold time of the year, your home will quickly become cold. Gather together in one room, hang blankets over the windows, cover the floor with rugs and build a den under a table to keep warm. Think about the risk of fire. Extinguish all candles and alternative heating sources before you go to sleep. Air the room regularly to let in oxygen.

- [ ] woolen clothes
- [ ] warm all-weather outdoor clothing
- [ ] hats, gloves, scarves
- [ ] blankets
- [ ] sleeping mats
- [ ] sleeping bags
- [ ] candles
- [ ] tea lights
- [ ] matches or fire-lighter
- [ ] alternative heat sources, e.g. LPG heaters, paraffin heaters.

Other

- [ ] spirit stove and fuel
- [ ] torch, head torch
- [ ] batteries

Communications

In the event of a serious incident, you need to be able to receive important information from the authorities, primarily Sveriges Radio's radio station P4. You also need to be able to follow how the media are reporting events, remain in contact with relatives and friends and be able to reach the emergency services in the event of an emergency.

- [ ] a radio powered by batteries, solar cells or winding
- [ ] a car radio
- [ ] a list of important telephone numbers on paper
- [ ] extra batteries/power bank for devices such as mobile phones
- [ ] mobile phone charger that works in the car.
- [ ] cash in small denominations
- [ ] medicine cabinet and extra medicines
- [ ] wet wipes
- [ ] hand sanitiser
- [ ] nappies and menstrual products
- [ ] paper printouts of information such as insurance policies, bank details, registration certificates
- [ ] fuel in the tank.

Source: Swedish Civil Contingencies Agency (MSB).

Sweden also **compels public participation in societal resilience** to a significant extent. The country reinstated partial conscription in 2015 as part of reinvigorating the Total Defence concept: all citizens are eligible to serve in the military at 18.[277] Individuals between 16 and 70 are obliged to contribute to Total Defence, with roles determined based on their skills or civilian occupations.[278] Government employees also have an assigned alternate role, designated by MSB, in the event of wartime.[279]

Industry is also compelled to participate: **companies are required to participate in Total Defence planning,** and are proactively identified and contacted by both local government and the MSB to this end.[280] The Swedish national government also retains the legal power to compel industry to either manufacture or

---

[275] Internal RAND Europe expert workshop conducted 19 March 2021.

[276] Statista (2020).

[277] MSB (2019b).

[278] MSB (2019b).

[279] MSB (2019b).

[280] Internal RAND Europe expert workshop conducted 19 March 2021.

stockpile certain goods; it has, however, not used this power since the end of the Cold War and there is a wide sense that their use would be extremely unpopular with industry.[281] The government has expressed concerns about the increasing practice of 'just-in-time' supply chains, which reduce stockpiles and potentially endanger access to goods, particularly those manufactured outside of the country.[282]

Sweden clearly distinguishes where responsibilities are divided between local and national government in the event of a crisis. The public have been informed of who is in charge of managing a crisis – municipalities are responsible for ensuring care for the elderly, schooling, water supply and emergency services during a crisis.[283] Cities have also run campaigns, such as the '72 Hours' campaign, which states that citizens should be self-sufficient in terms of food and energy for 72 hours.[284]

Sweden is implementing policy based on lessons identified in its Total Defence exercises. For example, one of the lessons from the Total Defence exercise was that communication was an issue, because there were likely to be sustained disinformation campaigns. In response, the government is considering the establishment of a psychological defence agency. [285]

Sweden has been making significant investments in critical infrastructure in recent years. The Swedish Government is currently mapping national supply chains and stockpiles.[286] Previous efforts identified cyber security as a key area of concern given the ongoing threat of cyber-attacks and the digitalisation of key national infrastructure (e.g. the electricity grid, transport and finance), which are all vulnerable. The country released a cyber security strategy in 2016, which it followed-up with key investments in cyber security, including awareness, education and training.[287] A national cyber security centre, jointly run by the armed forces, intelligence agencies, and crisis management agencies, was established in 2020.[288]

There have also been efforts to deliberately **create redundancy in key areas**. For example, Sweden currently has 65,000 shelters available to its population in the event of an emergency.[289] The shelters can house an estimated four million people, more than one-third of the country's population.[290]

B.2.3. Challenges

Restarting Total Defence poses several challenges, as Sweden has changed considerably since the policy was last in operation. For example, a number of public services have since been privatised; there has been widespread adoption of 'just-in-time' supply chains; services and infrastructure like the electricity grid, transport, and finance have been digitalised; and cyberattacks have become an ongoing threat.[291]

---

[281] Internal RAND Europe expert workshop conducted 19 March 2021.

[282] Von Sydow (2018).

[283] MSB (2019b).

[284] Bergström (2018).

[285] Wheeler (2020).

[286] Internal RAND Europe expert workshop conducted 19 March 2021.

[287] Regjeringskansliet (2017).

[288] Internal RAND Europe expert workshop conducted 19 March 2021.

[289] MSB (2018b).

[290] MSB (2018b).

[291] Von Sydow (2018).

Sweden has a pluralistic authority landscape organised into national, regional, and local levels, which complicates crisis management structures. The national government can issue directives, but it cannot impinge on regional authorities' responsibilities (e.g. application of the law).[292] The MSB, for example, oversees crisis preparedness nationally, but it is limited to coordinating various local actors; this is said to pose a challenge should Sweden face a broad crisis. It has also proven complicated to build back national Total Defence systems likes stockpiles. [293]

Sweden continues to be highly reliant on imports, especially pharmaceuticals – a reliance that was highlighted during the COVID-19 pandemic.[294]

B.3. Australia

B.3.1. Background

Australia does not have a long history of state-led focus on resilience. It has never had National Service and it has conducted limited civil defence and emergency planning over the last century.[295]

Australia is split into three levels of governance: the federal level, the state level, and the local council level. In general, resilience planning and crisis response is led by the states, which have their own forces that operate under separate legislative frameworks e.g. state police that are separate from the federal police. In the event that states are overwhelmed, they can seek assistance from Defence or from the federal government. The federal government does not have the power to order the military into states (in this way it is similar to Sweden).[296]

A move to strengthen civil defence and resilience has grown in the last decade, resulting in the publication of multiple strategy documents in 2020 that aim to support resilience in key areas such as cyber, environment, and Defence. [297] The increased interest in resilience comes from several states responding to increased risks from natural hazards as a result of climate change. At the federal level, the interest comes from updated national threat assessments. Federal authorities also cite the risks from extreme weather due to climate change, as well as higher levels of threat as a result of technological change, increased strategic competition in the Indo-Pacific, and increased grey-zone threats including cyber threats.[298]

The Australian government published a *National Strategy for Disaster Resilience* in 2011, which called for greater collaboration between national and local government, businesses, and communities. It focused on natural disasters. It also identified fundamental characteristics of resilient communities: functioning well under stress, successful adaptation, self-reliance, and social capability. To achieve this, it suggested conducting risk assessments across social, economic, built and natural environments, implementing

---

[292] FIIA (2020).

[293] FIIA (2020).

[294] FIIA (2020).

[295] Nicholson et al. (2021).

[296] Internal RAND expert workshop conducted 21 April 2021.

[297] Internal RAND expert workshop conducted 21 April 2021.

[298] Nicholson et al. (2021).

consistent methodologies to improve risk management planning, and building strong networks across sectors and regions.[299]

States are legally responsible for emergency management, land use planning, development regulation and disaster resilience, through emergency services organisations. According to the 2011 *National Strategy for Disaster Resilience*, it is the role of states to: (1) understand risks and provide information on hazard and vulnerabilities; (2) educate their constituencies about risk via emergency services; and (3) create an institutional, market and regulatory environment that promotes resilience within the community and by the private sector.[300]

Australia published a Defence Strategic Update in 2020 that identifies disaster and national resilience as a priority for Australian Defence and notes that resilience planning needs to be a priority in Defence planning.[301] Australian Defence already has a mandate to assist civilian authorities in catastrophic natural disasters, such as the 2009 and 2020 bushfires, where the danger level was high and local entities alone could not handle the situation. The capabilities that Defence brings to natural disaster assistance is air- and sealift, land transport, engineering, medical support, and communications.[302]

Australia has a small industrial base. The Defence industry is dominated by large multinational companies. The country is highly dependent on imports. For instance, it imports over 90 per cent of its medicines.[303]

Trust in government is relatively high. Between 2012 and 2021, the percentage of the population who trusted the government fluctuated between 32 per cent (2013) and 61 per cent (2021).[304]

Australia is a relatively homogeneous country. The migration rate is 8.1 migrants per 1000 (2020).[305]

B.3.2. Relevant practices

The Australian government has a central, civil emergency planning department, called Emergency Management Australia, which is part of the Department of Home Affairs. It coordinates between federal agencies. It has different types of emergency response plans that it can activate, including the *Disaster Response Plan* (*COMDISPLAN*),[306] to provide non-financial assistance to affected areas, and the *Nature Catastrophic Disaster Plan* (*NATCASDISPLAN*), in case of natural disasters.[307]

The Australian government is bringing forward legislation to give the national government the legal power to declare a national emergency, to ensure a more coherent and pre-emptive response to crises. The Australian government is also establishing a national resilience, relief and recovery agency that will start by

---

[299] Council of Australian Governments (2011).

[300] Deloitte (2017).

[301] Nicholson et al. (2021).

[302] EMA (2017, 2020).

[303] Nicholson et al. (2021).

[304] Edelman (2021).

[305] Index Mundi (2020).

[306] EMA (2020).

[307] EMA (2017).

1 July 2021, and be tasked with building national resilience and better prepare for future natural disasters.[308] These two actions are being implemented following the recommendations made by the Royal Commission into National Natural Disaster Arrangements, which was established in 2020 to examine the response to the 2019/2020 bushfires.[309]

The Australian government has also promised that it will establish 'Resilience Services', which is a climate and disaster risk information service that will assist Emergency Management Australia and the new national resilience, relief and recovery agency. Resilience Services will draw together and analyse large amounts of data from around the country.[310]

Australian Defence supports civilian governments in need of assistance through the Defence Assistance to the Civil Community (DACC) initiative. Through DACC, Defence assists state and territory governments in situations where their resources are insufficient, including in emergencies like bushfires, cyclones, floods, and pandemics, or non-emergency situations like large public events. There are different categories of help, including: (1) localised, short-term emergency responses; (2) large scale and/or non-localised emergency responses; (3) post-disaster recovery support; (4) local, small-scale non-emergency support; (5) general, significant non-emergency support; and (6) assistance to law enforcement – no use of force (including no intrusive or coercive acts).[311] In this way, Defence can contribute to several phases of supporting community resilience (e.g. during an emergency, or afterwards), and for different types of situation (e.g. emergency versus non-emergency).

All jurisdictions have a state emergency management committee, which coordinates emergency services with other agencies.[312] The state-wide approach to emergency planning and resilience has successfully ensured coordination and the prevention of duplication of effort, whilst also ensuring emergency management is tailored to the area.[313]

Australia has started to focus on cybersecurity. It published a national Cyber Security Strategy in 2020, which states that cyber threat mitigation in Australia requires a 'whole-of community effort'.[314] It commits $1.67b in cyber security over the next ten years.[315]

The federal government is promoting and protecting critical technologies, because critical technologies are key to 'resilience in crisis situations'.[316] As part of this, they have set up a Critical Technologies Policy Coordination Office in PM&C, which will coordinate policy across government and provide strategic foresight capability to government.[317]

---

[308] Department of the Prime Minister and Cabinet (2020).

[309] Royal Commission into National Natural Disaster Arrangements (2021).

[310] Department of the Prime Minister and Cabinet (2020).

[311] Department of Defence (2020b).

[312] Deloitte (2017).

[313] Deloitte (2017).

[314] Department of Home Affairs (2018).

[315] Australian Government (2020).

[316] Department of the Prime Minister and Cabinet (2021).

[317] Department of the Prime Minister and Cabinet (2021).

Individual states and cities have taken responsibility for improving their resilience. For example, the states of Queensland and Victoria have established Inspectors-General for Emergency Management (IGEMs). They monitor the capacity and performance of the emergency management sector in their states.[318] The state of Queensland published a strategy, the *Queensland Strategy for Disaster Resilience* (*QSDR*), which is being implemented through the *Resilient Queensland 2018 – 2021* plan. It aims to understand the potential risks Queensland faces, to work together to manage those risks, to reduce the likelihood of identified risks taking place, and improve preparation, response, and recovery from disasters.[319]

B.3.3.   Challenges

Australia is reliant on imports in key sectors and has in the past not prioritised sovereign-based industries, leaving it vulnerable to shortages of resources needed to sustain society and wartime operations.[320]

Australia has not yet considered psychological defence or resilience as part of its strategic thinking.[321]

Australia has relatively little experience of national security threats, due to its isolated location.[322] However, the emergence of grey-zone warfare and cyber-attacks in recent years have increased the threat level. Due to its lack of experience, Australia may struggle to mobilise society to be resilient in the face of certain types of crisis. For example, Australia has increased societal engagement following cyber-attacks, environmental threats like the bushfires in 2020, and the Covid-19 pandemic. It does not, however, have any concepts of resilience or whole-of-society mobilisation included in its Defence planning and doctrine.[323]

There is relatively little awareness among the population of national security issues, due to a lack of national service and lack of military engagement with civilian affairs like social cohesion and support for societal resilience.[324]

B.4.   Israel

B.4.1.   Background

Since it became a nation-state in 1948, Israel has faced an ongoing series of wars, Palestinian uprisings, armed conflicts, and terrorist attacks. The frequency of conflict has meant that Israel's emergency management has mainly been military-centric. Initially, as Israel faced attacks from its neighbours in 1948 and 1949, there was no separation between military and civil defence.[325]

---

[318] Department of Defence (2020b).

[319] Queensland Government (2020).

[320] Nicholson et al. (2021).

[321] Nicholson et al. (2021).

[322] Nicholson et al. (2021).

[323] Nicholson et al. (2021).

[324] Nicholson et al. (2021).

[325] Rozdilsky (2009).

Civil defence was separated from the main IDF to become a separate unit in 1951 under the Civil Defence Law, although it remains under the control of the Israeli Ministry of Defence (IMOD). It is known as the Home Front Command, and has two core strategies: sheltering under attack, and advanced planning so that citizens know in advance what to do in an emergency.[326] The Home Front Command has five specific units that deal with emergency situations. These are: Atomic, Biological, Chemical (ABC) Warfare Battalions; Extrication Battalions; a National Search and Rescue Unit; Search and Rescue Companies; and a Casualties and Wounded Identification Unit.[327]

More frequent terrorist attacks on civilians from 2000 onwards led to a development of 'civil defence' to consider 'resilience', which involved a new focus on psychological defence, rather than just physical safety.[328] Israel adopted several new policies involving psychological resilience, in addition to its existing civil defence strategies. One policy led to the establishment of regional Resilience Centres (RCs) manned by social workers. Another led to the establishment of local emergency teams (known as CERTs), staffed by volunteers.[329] It should be noted that these systems are not national, and currently only exist in regions that share a border with Gaza.[330] Israel also established a National Emergency Authority (NEMA), also known by its Hebrew acronym RACHEL, within the Israeli Ministry of Defence in 2007.[331] Its role includes the creation of interagency response plans. It aims to put a greater emphasis on emergency management than was previously the case in Israel.[332]

Most Israeli citizens have direct experience of civil defence of the homeland, both through the regular conflicts and violence the country faces, and also through the emphasis placed on civil defence in schools and through national military service.[333]

Israel has substantial domestic Defence production capabilities. It is also one of the world's biggest weapons exporters. Initially, Defence companies in Israel were set up first as government departments to supply the IDF, then as government companies, and in the late 1990s and 2000s parts of the companies were privatised. These include Israel Aircraft Industries (IAI), the Authority for the Development of Armaments (RAFAEL) and Israel Military Industries (IMI).[334] The Israeli Defence industry is now almost entirely separate from the government, but maintains close ties with it. It is unclear whether the Israeli government has legal mechanisms at its disposal similar to the Defense Production Act (DPA) in the US.

Israel also has emergency response divisions within several of its other ministries. The Emergency Food Supply Division within the Ministry of Economy with responsibility for ensuring a supply of products in the event of an emergency.[335] Within this division are four sub-divisions, including the Chief General

---

[326] Rozdilsky (2009).

[327] Rozdilsky (2009).

[328] Elran (2017).

[329] Elran (2017).

[330] Elran (2017).

[331] IMOD (2018).

[332] Rozdilsky (2009).

[333] Rozdilsky (2009).

[334] Hanai (2015).

[335] Ben-Yehuda (2015).

Economy Authority, which advises civilians about appropriate individual stockpiling, and the Chief Food Authority, which does contingency planning, including recommendations for stockpiling certain key food items.[336] Within the Ministry of Health is an Emergency Department which maintains a reserve of imported medical products for emergency situations.[337]

Trust in government is relatively high. In 2020, 29 per cent of Jews and 25 per cent of Arabs said they had very much or quite a lot of trust in government.[338] The value has fluctuated between 25 and 60 per cent between 2003 and 2020. **Trust in the armed forces is extremely high**: trust in the IDF was 82 per cent across the population in 2020 and has fluctuated between 80 and 100 per cent between 2003 and 2020.[339]

B.4.2.   Relevant practices

Widespread conscription prepares civilians to resist an attack and contribute to civil defence. Besides some exempt groups like ultra-Orthodox Jews, all Israeli citizens reaching the age of 18 must complete national service. The length of national service is 32 months for men between ages 18 and 26, and 24 months for women in the same age group.[340] A total of 14,000 people take part in national service annually.[341]

The military is actively engaged in assisting with civil defence. It participates in civil defence through the Home Front Command, including helping with planning, preparation, and operational aspects of a crisis. This ensures communication and operations networks between the civilian and military sides are already in place before a crisis occurs, allowing a faster and more coordinated response when a crisis does occur.[342] An example of military involvement in civil defence is that the IDF operates early warning sirens, which the entire population receives on their mobile phones. The expected response to this is that everyone must immediately seek shelter.[343]

Israel has increasingly developed psychological and social support to increase the population's resilience. In each of the Gaza border communities, there is a Community Emergency and Resilience Team (CERT). It aims to support communities during emergencies and is staffed by volunteers who have had basic training. It also provides medical, psychological and social assistance to the local community. The central government and local authorities are jointly in charge of setting up and maintaining CERTs. CERTs gather information about the local community both in peace and crisis situations, which means that they can always provide an up-to-date report of the situation on the ground.[344] Another form of community support are RCs, NGOs that focus on enhancement of preparedness for emergencies, reinforcement of community resilience and

---

[336] Ben-Yehuda (2015).

[337] Ben-Yehuda (2015).

[338] Hermann, et al. (2020).

[339] Hermann, et al. (2020).

[340] Law Library of Congress (2020).

[341] Elran & Sheffer (2016).

[342] Padan & Elran (2019).

[343] Padan & Elran (2019).

[344] Padan & Elran (2019).

individual treatment for anxiety victims. They provide access to therapists, nurses and social workers for the local community. They work with regional councils to prepare them for emergencies.[345]

Israel has been improving its cyber resilience: in 2015, Israel set up a National Cyber Directorate. One of its aims is to contribute to resilience by preparing the private sector and the public to protect themselves from cyber threats through training, raising awareness, and distributing best practices.[346] This is in part a response to growing Iranian aggression, allegedly targeting Israeli infrastructure through cyber-attacks.[347]

B.4.3.   Challenges

One main challenge in Israel is the political instability it has experienced since 2019: there has been an unprecedented electoral impasse, with four elections in two years by March 2021. The stalemate has led to divisive political discourse, which undermines societal cohesion and resilience.[348] The political situation is further exacerbated by persistent allegations of corruption against the former President Binyamin Netanyahu and his wife, some of which have resulted in ongoing court cases.[349]

Israel's tense Jewish-Arab relations also pose a challenge. There continues to be hostility amongst the Jewish community towards the Arab community in Israel, compounded by hostile political rhetoric; Arab Israeli leaders employ equally harsh rhetoric.[350]

Significant divisions also exist between different groups within the Jewish community.[351] For example, the political and economic life of the country is dominated by Ashkenazi Jews, or Jews of Eastern European descent.[352] In addition, recent years have seen significant debates within the country about the growing size and influence of the Haredi, or Orthodox Jewish, community.[353]

Resilience-enhancing measures have not been put in place at a national level. Much of the resilience-enhancing infrastructure is only located in communities that have been historically more prone to attack, such as the Gaza border communities;[354] this could be an issue if the country faces a national crisis.

Israel is primarily focused on kinetic threats, and therefore adopts a 'resistance to war' posture, rather than a broader resilience-focused posture. Due to the ongoing security challenges that Israel faces, it perceives resilience as being 'resistance to war' or resisting kinetic threats.[355] This means there has been less focus on other kinds of threats, such as natural disasters. For example, Israel initially had a high infection- and death-rate in the Covid-19 pandemic, but performed very well in its vaccination programme, perhaps

---

[345] Padan & Elran (2019).

[346] Israeli Government (2020).

[347] Times of Israel Staff (2020).

[348] Elran et al. (2020).

[349] BBC (2021).

[350] Elran et al. (2020).

[351] Pew Forum (2016).

[352] Averbukh (2017).

[353] Kashti (2019).

[354] Interview conducted by RAND Europe with interviewee F.

[355] Interview conducted by RAND Europe with interviewee F.

because vaccination is an active process that fits with Israel's 'resistance to war', or kinetic, approach to crises.[356]

B.5. Russia

B.5.1. Background

Russia has decades of experience of preparing for emergencies. Throughout the Cold War the state made people aware that a crisis might happen, and this did not change after the Cold War ended – the government has continued to warn its population that the country may face war.[357]

During the Soviet era, leaders believed that war was highly likely, and became interested in civil defence as early as the 1920s. They instituted extensive civil defence training programmes, which saw 137 million people receive a 28-hour civil defence course. Training was intended to familiarise people with what modern weapons were and what their effects were, teach them how to behave in shelters, first aid, firefighting and decontamination.[358]

Civil defence was directed through the Ministry of Internal Affairs, which developed operational systems and conducted research, that was then implemented by staff at regional, district, and city levels. Each city had 11 different civil defence services, including medical, shelter, and decontamination, each of which had its own permanent civil defence staff.[359] There were also volunteer Self-Defence Groups made up of 48 people per 500 residents, which included medical, shelter and firefighting teams.[360]

After the collapse of the Soviet Union, the entire Soviet-era civil defence apparatus was transferred to the Russian Federation State Committee for Civil Defence, Emergencies and Elimination of Consequences of Natural Disasters (EMERCOM) in 1991.[361] 23,000 military personnel were transferred to the Civil Defence Forces of the EMERCOM Committee.[362] In 1994, EMERCOM was given the status of Ministry. It is also known as the Ministry of Extraordinary Situations. EMERCOM is responsible for coordinating civil emergency planning, search and rescue operations and evacuations. A National Crisis Management Centre was set up as part of EMERCOM in 2008.[363]

A national structure for coordinating emergency situations, the Unified Emergency Prevention and Response State System in Russia (RSChS), was set up in 1992.[364] Its role is to monitor situations, train specialists in predication and response, educate the public, develop preventive measures to reduce risks, and

---

[356] Interview conducted by RAND Europe with interviewee F.

[357] Interview conducted by RAND Europe with interviewee G.

[358] Gouré (1960).

[359] Gouré (1960).

[360] Gouré (1960).

[361] Roffey (2016).

[362] Roffey (2016).

[363] Roffey (2016).

[364] Roffey (2016).

improve the management of prediction and response to emergencies.[365] A National Defence Management Centre was also set up in 2014. The Centre coordinates with the Ministry of Defence, the Ministry of Internal Affairs, the General Staff, EMERCOM's National Crisis Management Centre, and others, to ensure an integrated and coordinated Defence system[366]

Russia places a lot of importance on its defence industry. The development of the defence-industrial complex, with a view to maintaining defence sufficiency, has been identified as one of the most important priorities of Russia's state policy for the future.[367] Russian military doctrine states that stockpiling of resources and maintenance of reserves are key aspects of civil defence. It also states that during peacetime, the country must ensure civil defence and critical infrastructure are maintained to ensure readiness for attack.[368]

Russia has a large minority population: in its most recent census (2010), ethnic Russians made up 80 per cent of the population. The remaining 20 per cent, or 26 million people, were part of more than 100 ethnic groups, making it highly ethnically diverse. Minority ethnic groups include Armenians, Azerbaijanis, Chechens, Georgians, Germans, Jews, Latvians, Lithuanians, Tajiks, Tatars, Ukrainians and Uzbeks.[369]

B.5.2. Relevant practices

Russia has a dedicated civil defence ministry. EMERCOM is large and well-resourced. It has 300,000 staff and 85 main offices across the country. It is one of nine 'power ministries' that is directly overseen by the president. It has its own armed force, which is allegedly the third largest of all the ministries,[370] although no recent figures are available.

Russia has maintained its civil defence infrastructure since the end of the Cold War. This includes civil defence authorities, equipment, and hospital systems. For example, it has maintained sparce capacity in the health system, which proved essential in the pandemic, and contributes to Russia's resilience.[371] Russia has 818 hospital beds per 100,000 people, comparable to Germany, and higher than the UK. Similarly, ambulance call-out rates in Russia are three times higher than average OECD countries, which means that it was already used to functioning at a large scale before the pandemic.[372]

There is a significant focus on integration between all of the federal and local agencies. This is seen for instance in the Unified Emergency Prevention and Response State System, a system that is coordinated by EMERCOM and ensures that federal and local agencies coordinate their actions to prevent and eliminate

---

[365] Roffey (2016).

[366] Roffey (2016).

[367] Bitzinger & Popescu (2017).

[368] Arms Control Association (2021).

[369] Bitzinger & Popescu (2017).

[370] Roffey (2016).

[371] Liik (2020).

[372] Liik (2020).

emergencies. EMERCOM oversees the federal and macro-regional levels. Regional and local levels have their own Civil Defence and Emergency and Disaster Management Centres.[373]

There is a significant, nationwide civil defence effort coordinated by EMERCOM. It runs several key civil defence institutions, including: (1) the Academy of Civil Defence, which gives specialised education up to PhD level; (2) centres of education for civil defence in regions across the country; the National Crisis Management Centre; (3) regional centres for civil defence; (4) military rescue units; and (5) Search and Rescue Units.[374]

There is a focus on rapid response in Russian civil defence, which has led to the development of extensive forecasting capabilities. For example, the National Crisis Management Centre oversees several monitoring centres, including: (1) the All-Russian Emergency Monitoring and Forecasting Centre (Antistikhiya); (2) the Unified Information System on Sea (ESIMO); (3) the All-Russian Comprehensive Informing and Warning System (OKSION); and (4) the Centre for Situational and Mathematical Modelling of Technological Emergencies and Catastrophes of the All-Russian Scientific-Research Institute for Fire Defence.[375]

Russia has had widespread conscription since before the Soviet era. Conscription teaches key defence skills, meaning many Russian citizens have some defence skills.[376] Of the one million-strong Russian armed forces, 260,000 are conscripts.[377]

Russia has been focusing on both cyber offense and defence. In the Military Doctrines of 2000 and then 2010, information warfare is defined as an area where Russia must develop forces and means to resist. Russia does not have an explicit cybersecurity doctrine and its formal documents only focus on a defensive posture. A RAND analysis, however, of Russian doctrine, speeches by Russian elites and military academic literature suggests that there is an active interest in offensive cyber capabilities.[378]

B.5.3. Challenges

Allegedly, crisis management officials at lower levels in the system are reluctant to make decisions, as they fear being reprimanded by the federal authorities. This can lead to slower responses, as local authorities wait for central guidance. There is also a lack of clear division between the responsibilities at federal and local levels in the case of an emergency.[379]

Another issue is that **officials allegedly do not report how serious a crisis is to the central authorities,** or sometimes entirely deny that there is a crisis at all, for fear of consequences from the federal authorities.

---

[373] Roffey (2016).

[374] Roffey (2016).

[375] Roffey (2016).

[376] Interviews conducted by RAND Europe with interviewee G.

[377] Center for Strategic and International Studies (2020).

[378] Bilyana & Cheravitch (2020).

[379] Roffey (2016).

This makes it difficult for central authorities to decide what and how much resource to deploy to an affected area.[380]

Russian leaders fear social unrest.[381] Low levels of trust in government may make it challenging for the government to receive the societal participation that it requires during a crisis.[382]

There are also **issues with the resilience of the medical system**: while Russia may have a lot of hospital beds, it does not have sufficient medical staff to treat patients in those beds, especially in rural areas. There is also a funding issue for the medical system, which receives 3.5 per cent of GDP, compared to 6-10 per cent in EU countries.[383]

B.6.   Colombia

B.6.1.   Background

Colombia has had history of violent internal conflict throughout most of the 20th century and into the 21st century. Marxist guerrilla groups began forming and attacking the state in the late 1950s. Drug production greatly expanded in the same period, with guerrilla groups soon becoming involved and funding their activities.[384] Two of the largest groups were the Revolutionary Armed Forces of Colombia (FARC) and the National Liberation Army (ELN). Armed groups became increasingly violent over the course of the 1960s, 1970s and 1980s, which had the effect of creating armed self-defence groups that sought to protect their communities from armed groups. Many of these groups ultimately became right wing paramilitaries who clashed with FARC and ELN, but also preyed on the local population.[385]

The human impact of these conflicts has been considerable. The government registered around 9.1 million victims of forced displacement, murder, torture, sexual violence, among many other human rights violations.[386] Civil conflict in Colombia has left over 220,000 dead during the last five decades, as well as millions of internally displaced people that fled their homes to escape the violence.[387] Throughout the conflict, violence permeated every level of society: presidential candidates, judges, city mayors, farmers and city workers were murdered. Political and social instability were endemic.[388]

The United States (US) has a long history of supporting Colombia's military and government, initially as part of anti-Communist efforts during the Cold War, and then as part of the so-called 'War on Drugs'. Between 2000 and 2017, the US provided $11.2b in foreign assistance, of which 20 per cent was funded

---

[380] Roffey (2016).

[381] Interviews conducted by RAND Europe with interviewee G.

[382] Liik (2020).

[383] Liik (2020).

[384] Staguhn et al. (2020).

[385] Congressional Research Service (2019).

[386] Colombian Government (2021a).

[387] Felter & Renwick (2017).

[388] Maldonado (2017).

by the US Department of Defense.[389] Much of this funding went to support an aggressive security strategy, Plan Colombia, in an attempt to eradicate coca and poppy fields and interdict the flow of drugs north across the US border.[390]

Recent years have included significant progress towards ending the conflict. Despite multiple failed attempts at peace talks, the Colombian government and the leaders of the Revolutionary Armed Forces (widely known by their Spanish acronym, FARC) succeeded in 2016, resulting in a decrease in violence. As per the terms of the agreement, the FARC handed over weapons to the UN, while the government agreed to 'change conditions that have led to the persistence of violence across the country' including questions around land ownership, inequality between rural and urban populations, underdevelopment of rural areas and exclusion of minorities.[391] The peace agreement also committed the government to expand its presence across the country in order to enable provision of social services and development efforts particularly towards excluded rural areas.[392]

Yet, although the FARC has largely followed the peace agreement, it has left a power vacuum in Colombia. Colombia's rough and mountainous terrain not only puts it at risk of natural disasters, such as mud slides and earthquakes, but also means that there are areas of the country where the national government has no presence. In many other areas, the military or police are the sole representatives of the national government, as they are the only organisation with the resource and ability to reach such remote and isolated areas.

In the face of state inability, other armed groups and narco-traffickers have taken control of many areas, particularly in hard-to-reach rural areas.[393] Estimates suggest that there are five ongoing armed conflicts in Colombia, which include a mix of old and new groups.[394] These are exacerbated by problems in neighbouring Venezuela, which means groups can retreat across the border and regroups with impunity.

B.6.2.   Relevant practices

There are policies in place to support agriculture where small agricultural producers have been affected by conflict and severe weather through land losses and the displacement of small agricultural producers.[395] The government has worked with international institutions, such as the Food and Agriculture Organization of the United Nations (FAO), to set goals for stability in areas that have experienced the greatest difficulty during this period and are in need of resilience and stability.[396] The Ministry of Agriculture and Rural Development, in cooperation with the UN, also established a National Adaptation Plan to help rural areas monitor and adapt the agricultural sector to the effects of climate change.[397]

---

[389] Congressional Research Service (2019).

[390] Congressional Research Service (2019).

[391] University of Edinburgh (2016).

[392] University of Edinburgh (2016).

[393] Congressional Research Service (2019).

[394] ICRC (2019).

[395] FAO (2017).

[396] FAO (2017).

[397] FAO (2021).

The Colombian government has devoted resource to monitor ongoing weather and seismic activity. **The Colombian Geological Survey office has extensive monitoring capabilities** to predict natural disasters, which helps communities to anticipate, prepare for, and monitor severe weather.[398]

The government provides support for rural areas, as they have been disproportionately affected by conflict. For example, the Colombian government established a National Land Agency (ANT) in 2015 to help ensure access to land for poor farmers and to formalise ownership for those without documentation.[399] These efforts to promote socioeconomic inclusion are part of the proactive approach the government has taken in recent years.[400] It has promised to formalise land ownership of seven million ha of land by 2026.[401]

The government has implemented policies in an effort to try to remediate the country's severe socioeconomic inequality, particularly its rural – urban divide. One example of this is the Territory-Focused Development Plan (PDETs).[402] The PDET programme is intended to support a community-driven approach to support development and foster stronger institutions in certain regions of the country.[403] Another programme is the Zonas Futuro programme. It deploys the army, navy and police to designated 'Future Zones', hard-to-reach areas of the country that are currently home to armed groups, with high rates of crime and armed violence, in an effort to improve security and provide social services in these zones.[404] There is, however. significant debate about the efficacy of sending the military, and the government has been criticised for overly emphasising the security element of the programme.[405]

The government is seeking to bring about a sense of justice and fairness, to help address the lasting impacts of the conflict with FARC. In 2011, the Colombian government created a reparations program for victims of violence that stemmed from this conflict.[406] In recent years, the government has also established a transitional justice system, the Special Jurisdiction for Peace (JEP),[407] as well as a truth commission.[408]

Cities have created plans for the prevention and risk management of threats that include natural disasters, extreme weather events, as well as issues that stem from the urban development of the city.[409] For example, Bogotá has a plan for the Prevention and Attention of Emergencies for Bogotá D.C., whose aim is to support the resilience of people, organisations, infrastructure and ecosystems.[410] It also has a District Disaster Risk and Climate Change Management Plan, which has food supply chain and health resilience components

---

[398] Youkee (2018).

[399] Russell (2019).

[400] Russell (2019).

[401] Staguhn et al. (2020).

[402] Colombian Government (2021b).

[403] Staguhn et al. (2020).

[404] Trochando Sin Fronteras (2020).

[405] Presidencia de la Republica (2019).

[406] FAO (2017).

[407] Staguhn et al. (2020).

[408] Firchow (2019).

[409] UNDRR (2019).

[410] Mayor de Bogota (2006).

that specifically target the effects of climate change.[411] Certain disaster-prone areas also hold yearly 'prevention week' practicing emergency drills.[412]

Colombia has compulsory national service, meaning it has a lot of readily available manpower. National service helps to make the Colombian armed forces the third largest in the Americas, with a total of 293,200 troops.[413]

B.6.3.   Challenges

The conflict in Colombia has left **millions of people displaced and has led to their loss of ownership or control of 1.2m ha of land**, worth around $976b in 2006, with an estimated $3.3b income loss.[414] Social networks that previously existed in the rural areas were damaged as a result of the ongoing conflict, which has led farmers to work only in their own land, affecting the productivity of agriculture and the economy as a whole.

Another challenge for Colombia is **ongoing weak economic growth and inequality**, caused by unequal access to natural resources, especially land, lack of access to education, limited jobs and weak governance.[415]

Armed groups continue to operate around the country. They benefit in part from Colombia's history of violence: there are parts of the country that have almost never been under state control, due to decades of civil war, followed by the widespread presence of armed groups. In parts of the country, armed groups take on certain functions of the state such as protection, which delegitimises the state.[416] There has also been increasing fragmentation of armed groups since the disappearance of the FARC, which has led to further fighting as multiple groups fight each other for control of territory.[417] Further, the porous border with Venezuela provides groups with the opportunity to move across and regroup outside of Colombian jurisdiction.

Armed groups continue to be closely involved with drug production, which provides funding for their activities and incentivises them to continue.[418] It also makes it difficult to eradicate the drug trade from the country. In poor, rural parts of the country, local populations have benefitted from drug production, because armed groups, who pay farmers for their coca crops, are more helpful to farmers than the state is. The state, on the other hand, has been actively engaged in coca eradication for decades, but has failed to provide local populations with viable alternative ways of surviving.[419]

Resilience against natural disasters and extreme weather events is another challenge for Colombia, which is susceptible to extreme weather. In Bogotá, earthquakes are the most likely and dangerous risk facing the

---

[411] Mayor de Bogota (2006).

[412] Youkee (2018).

[413] Colombian Ministry of Defence (2021).

[414] UNDRR (2019).

[415] ICRC (2020).

[416] International Crisis Group (2017).

[417] Human Rights Watch (2020).

[418] International Crisis Group (2021).

[419] International Crisis Group (2021).

city.[420] Volcanoes are also a significant concern: Colombia has a number of active volcanoes. **The nation's agriculture is also exposed to this extreme weather, which threatens food security.**[421]

Colombia has suffered from the instability of neighbouring Venezuela, where armed groups operate, and where conditions have led to over one million refugees crossing the border into Colombia.[422]

There is a general lack of trust among the population in the police and military: in 2018, trust in government was 28 per cent, the fourth lowest among Latin American countries.[423]

---

[420] UNDRR (2019).

[421] Russell (2019).

[422] Staguhn et al. (2020).

[423] OECD (2020).

Annex C. UK Societal Resilience Structures

This annex provides an overview of the structures and practices that contribute to building societal resilience in the UK. It presents the key organisations at each of the three stages of emergency management, Prepare, Respond and Recover, and considers the national, sub-national, and local levels.

This understanding of the UK context provided the baseline for comparison for the quantitative analysis of causal and indicator variables and measures of resilience in the report and was used to generate insights into relevant practices from other countries.

C.1. Existing structures and practices

C.1.1. Societal resilience in the UK context is driven by civilian authorities, with UK Defence in a supporting role

The UK approach to resilience is based on Integrated Emergency Management (IEM), an all-hazard approach to disaster management based on six key steps: anticipation, assessment, prevention, preparation, response and recovery.[424] The Civil Contingencies Act (CCA) of 2004 drew on IEM, stating that it should be part of the duty of local responders to prepare for, respond to and recover from emergencies.[425] The CCA established a framework of roles for local emergency planning and response and updated emergency legislative powers.[426] In the UK, civil protection is primarily the remit of civilian government organisations. At the national level, overall responsibility for civil protection lies with the Home Secretary, supported by the Cabinet Office's Civil Contingencies Secretariat (CCS). At the local level, civil protection is the mandate of Local Resilience Forums (LRFs), multi-agency partnerships that were established through the CCA composed of members of the emergency services, local authorities, some National Health Service (NHS) agencies, the Environment Agency and others.[427]

---

[424] Fiedrich (2016). It originates from the US Federal Emergency Management Agency in the early 1980s.

[425] Cabinet Office (2013a).

[426] Cabinet Office (2013b).

[427] Cabinet Office (2021).

Box 2: Key government actors for maintaining societal resilience

The CCS sits within the Cabinet Office and, since 2001, has overseen cross-government resilience planning and response. It is responsible for actions across all phases of societal resilience. The **Home Office** holds overall responsibility for civil protection in the UK. It has a minimal role in planning (the Prepare phase). **Lead government departments coordinate central government emergency planning and response for sectors where they have day-to-day policy oversight.**

The **Ministry of Housing, Community, and Local Government – Resilience and Emergencies Division (MHCLG-RED)** is the body within MHCLG responsible for sub-national coordination of emergency response in the UK. This includes coordination between different Local Resilience Forums (LRFs) and between the LRFs and the central government. **LRFs** are multi-agency partnerships intended to coordinate between these agencies (which include the emergency services, local authorities, and some NHS agencies) in a local context.

Source: GSP.

The 2021 *IR* built on these established resilience mechanisms. It identified building societal resilience as one of the government's key priorities and announced the development of a comprehensive national resilience strategy in 2021. It announced plans to improve government communications on preparedness, strengthen the role of LRFs, and impose consistent standards across Critical National Infrastructure (CNI) sectors in keeping with the 2018 Network and Information Systems (NIS) Directive.[428]

The delegation of responsibility among key civilian organisations at national, sub-national, and local levels are outlined in this annex and in Figure C.1 below.

Figure C.1: Levels of responsibility for societal resilience

Source: GSP analysis adapted from MOD (2017).

C.1.2.   Organisations involved in the Prepare phase

National level: At the national level, the Home Secretary is responsible for civil protection in the UK, and the **Home Office** is the lead government department (LGD) in planning for terrorist-related emergencies in

---

[428] Department of Digital, Culture, Media & Sport (2020); HM Government (2021).

the UK.[429] The Home Office was responsible for emergency preparedness planning through its Emergency Planning Division until 2001.[430] Following emergencies, however, such as fuel strikes, flooding, foot and mouth disease and 9/11, the UK government established a **CCS** in the Cabinet Office in 2001 to take responsibility for activities in the Prepare phase.[431]

The CCS is the emergency management agency in the UK at a national level. It is involved in every phase of the emergency response. In terms of Prepare, one of its core aims is to build resilience to disasters, through planning and coordinating across government.[432] An important organisation that is part of the CCS and contributes to resilience planning is the **Emergency Planning College (EPC)**. It provides training, exercises, and advice on resilience to both the public and private sector. The EPC helps support national doctrine and standards, maintains case study materials and a Disaster Database with information about more than 4,000 disasters, and publishes 'Lessons Digests' that distil multi-agency lessons identified from the management of past disasters.[433]

The CCS also maintains an updated list of **LGDs** and the critical sectors that the LGDs support.[434] It commissions LGDs to produce annual Sector Security and Resilience Plans for the critical sectors that they support, which include risk assessments and plans for maintaining security and resilience in those critical sectors.[435] LGDs are mainly involved in the Respond phase of an emergency, although they also complete risk assessments as part of emergency preparation. An LGD is appointed when an emergency has national implications and cannot be dealt with exclusively at the local level.[436]

Sub-national level: Coordination at a sub-national level, in all three of the Prepare, Respond, and Recover phases, is carried out by the **MHCLG-RED**. The MHCLG-RED both facilitates collaboration between different LRFs around the UK, and coordinates between the local and national level.[437] It supports large-scale planning and exercises that involve both LRFs and central government. Each LRF has its own named Resilience Adviser from MHCLG-RED, with whom it works closely.[438]

Local level: In most cases, emergencies in the UK are dealt with first at the local level: most operations receive no input from sub-national and national levels.[439] Responsibility for coordinated preparation at the local level lies with **LRFs**. LRFs are based on local police areas and bring together key responders as identified in the CCA 2004. Core members (known as Category 1) of LRFs are the emergency services, local authorities, some NHS bodies, and the Environment Agency, while secondary members (identified as

---

429 Cabinet Office (2013c).

430 World Heritage Encyclopaedia (2001).

431 World Heritage Encyclopaedia (2001).

432 World Heritage Encyclopaedia (2001).

433 Emergency Planning College (2021).

434 Cabinet Office (2014).

435 Cabinet Office (2018).

436 Cabinet Office (2013d).

437 Cabinet Office (2013b).

438 Cabinet Office (2013b).

439 Cabinet Office (2013a).

Category 2) include the Health and Safety Executive, and representatives from critical sectors such as telecommunications, water, ports and rail. The military also participates. [440]

As part of the Prepare phase, LRFs develop resilience knowledge and attend exercises and training within the LRF, and with other (especially neighbouring) LRFs. LRFs are required to have generic emergency response plans and a single person who has the contact details of the rest of the Strategic Coordinating Group (SGC), such that an SCG meeting can be convened within one hour during working hours, or two hours outside of working hours. LRFs should also have protocols in place that allow them to share information easily within the LRF and also with other LRFs and sub-national coordinating bodies. [441]

C.1.3.   Organisations involved in the Respond phase

National level: In the 'Respond' phase, the CCS informs relevant ministers and senior officials, provides information about possible scenarios and immediate needs, provides structures and data flows for managing the response, and, if relevant, supports the LGD in charge of the response. [442] The LGD in a given emergency is the department that has day-to-day policy oversight of the affected sector. [443] During the Respond phase, LGDs are responsible for conducting situation assessments, ministerial briefings, media strategy and providing support to local responders. [444] There are three levels of response by LGDs:

Level 1, a significant emergency with a small impact, where a narrow focus is required. In these situations, a Lead Department Minister runs the crisis from their own facilities.

Level 2, a serious emergency or disaster, which has a wide and/or prolonged impact. Wider government resources may be needed (beyond the LGD), in which case the issue will be coordinated by the LGD from COBR.

Level 3, a catastrophic incident and/or where emergency powers are invoked, where there is a widespread impact that requires immediate central government involvement. The Prime Minister and COBR take the lead. [445]

The other lead national-level organisation is **COBR,** a senior decision-making body that is activated during major national emergencies. [446] Its meetings are held in secure rooms and include the Prime Minister, intelligence officials, officials from the MOD and the Home Office, other senior ministers, and some LGD representatives. [447]

Sub-national level: At the sub-national level, the MHCLG-RED will use its established networks to facilitate multi-LRF communication and coordination during the Respond phase. In addition to the MHCLG-RED, during the Respond phase of an emergency a Government Liaison Team (GLT) is

---

[440] Cabinet Office (2013a).

[441] Cabinet Office (2013a).

[442] World Heritage Encyclopaedia (2001).

[443] Cabinet Office (2014).

[444] Ministry of Defence (2017).

[445] Cabinet Office (2014).

[446] Ministry of Defence (2017).

[447] World Heritage Encyclopaedia (2001).

dispatched to coordinate between the national and local level. The GLT is the main channel of communication between COBR and the **SCG** in LRFs (these are discussed in greater detail below).[448]

Local level: Each LRF has a SCG, a Gold-level Command Group, that provides strategic direction during the Respond phase. It agrees priorities during the incident, decides what actions should be implemented at the tactical level, and coordinates with government coordination bodies and central government where necessary.[449] The LRF format varies in devolved territories: Scotland has similar bodies called Scottish Emergencies Coordinating Committees; Wales has a Wales Resilience Forum that brings local responders and central government together; and Northern Ireland has a single, central Civil Contingencies Group.[450]

C.1.4. Organisations involved in the Recover phase

National level: As is the case for the Prepare and Respond phases, organisations and individuals at the national level will only become involved in the Recover phase if the emergency situation is such that it could not be dealt with at the local level. The organisations involved in the Recover phase will form a **Recovery Group** (together with devolved administrations, should the incident have occurred in Scotland, Wales, or Northern Ireland).[451] The make-up of the group varies depending on the nature of the incident, but usually involves an **LGD for Recovery** as the co-ordinator for recovery. The LGD for Recovery can be different from the LGD for Response, in which case the two should liaise closely in the Respond phase. The CCS also usually participates in the Recovery Group.[452]

The LGD for Recovery acts as a focal point for communication between various government and local agencies, agrees clear aims for the recovery process, creates brief situation reports to be published on the UK Resilience pages of the Cabinet Office, and makes executive decisions in the recovery effort.[453]

Sub-national level: MHCLG-RED will coordinate between the national Recovery Group and LRFs, if the scale of the emergency requires national intervention in addition to local intervention.

Local level: LRFs are often the main actors in the Recover phase. Some of their main objectives are to: (1) conduct an impact assessment as soon as possible after the incident, considering the impact on residents, businesses, infrastructure, the environment, etc; (2) to create and implement a recovery action plan to restore utilities and transport networks, support businesses, and restore affected areas to an agreed standard; and (3) to coordinate public and media communications.[454]

---

[448] Cabinet Office (2013d).

[449] Cabinet Office (2013d).

[450] Cabinet Office (2013d).

[451] Cabinet Office (2013c).

[452] Cabinet Office (2013c).

[453] Cabinet Office (2013c).

[454] Cabinet Office (2013d).