




# Introduction to the Resilient Basing Enhancement Workbook



**Joint Air Power  
Competence Centre**

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This paper is a product of the Joint Air Power Competence Centre (JAPCC). It does not represent the opinions or policies of the North Atlantic Treaty Organisation (NATO) and is designed to provide an independent overview, analysis and food for thought regarding possible ways ahead on this subject.

Comments and queries on this document should be directed to the AOS Branch ([aos@japcc.org](mailto:aos@japcc.org)), JAPCC, von-Seydlitz-Kaserne, Römerstraße 140, D-47546 Kalkar. Please visit our website [www.japcc.org](http://www.japcc.org) for the latest information on JAPCC, or e-mail us at [contact@japcc.org](mailto:contact@japcc.org).

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#### **Publication purpose**

This document explains the grounds for a resilience initiative and has been developed to function as a handrail when using the related workbook. It is available in hard copy or via [www.japcc.org](http://www.japcc.org).

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**FROM:**

**The Assistant Director of the Joint Air Power Competence Centre (JAPCC)**

**SUBJECT:**

**Introduction to the Resilient Basing Enhancement Workbook**

**DISTRIBUTION:**

**ALL NATO Commands and Nations (on request)**

Resilience is a national responsibility and simultaneously a collective commitment anchored in Article 3 of the NATO Treaty. During the Madrid Summit in June 2022, the NAC reemphasized the need to boost NATO's resilience to current and projected threats and strengthen overall interoperability. In 2019 COM AIRCOM identified resilient basing as one of his key focus areas. Therefore the JAPCC endeavours to produce detailed observations on the current state of resiliency and actionable recommendations, to be communicated in a White Paper in the spring of 2023. Your participation is essential to this goal, which should also support your national responsibilities for resilience.

In order to better analyse the current resilience status of Alliance members against a full spectrum of threats, the JAPCC will publish the Resilient Basing Enhancement Workbook in November, 2022. The assessment intends to take a comprehensive approach across civilian infrastructure and military installations, thereby enabling organizations to identify their strengths and vulnerabilities, and challenge them to mitigate any identified shortfalls.

This tool is designed for entities that are responsible for contingency planning and evaluation. It is up to each nation to determine the appropriate HQ to formulate a comprehensive response for your nation. The introductory packet that follows this letter explains the process in greater detail and will enable you to plan ahead for the November release of the workbook.

The workbook challenges you to self-evaluate your nation's resilience by answering a series of questions. The workbook includes over 100 Issues to Consider (ITC) to prompt your headquarters' internal evaluation, and to consider implementing to improve resilience. The questionnaire also includes over 300 specific questions to be answered by your HQ and will form the basis of the JAPCC study. The workbook uses a virtual airbase 'Base X' to exemplify the ITCs and questions. Base X is then placed in several fictitious scenarios – based on existing NATO Force Protection Doctrines and experiences as well as current developments in the Ukraine – to stimulate your own self-evaluation.

Tasked Agencies are requested to share their findings, including mitigating strategies, via an embedded response sheet. The assessment may reveal sensitive shortfalls or identify mitigating actions, therefore the completed questionnaire must be marked and dealt with as at least NATO Restricted or higher.

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All nations are requested to report their findings before 1 Feb 2023. During the first quarter 2023 the JAPCC will assess received inputs, identify lessons learned and inform nations about the results via a white paper. Please identify the responsible office and point of contact to [JAPCC.Registry@japcc.nato.int](mailto:JAPCC.Registry@japcc.nato.int). We thank you in advance for your support of enhancing the Alliance's resiliency.

Remain vigilant and always be prepared!



**Paul Herber**  
Air Commodore, NE AF  
Assistant Director, JAPCC

# TABLE OF CONTENTS

**CHAPTER 1**

**Resilient Basing..... 4**

1.1 Introduction.....4

1.2 Aim.....5

1.3 Approach.....6

1.4 Milestones.....6

1.5 Caveat.....6

**CHAPTER 2**

**Workbook ..... 7**

2.1 Structure .....7

2.2 Scenario.....7

2.3 Issues to Consider .....8

2.4 Questionnaire.....8

2.5 Response Collection Sheets .....9

2.6 Guidance .....9

2.7 JAPCC Assistance.....10

**ANNEX A ..... 11**

Acronyms and Abbreviations .....11

**ANNEX B..... 12**

Joint Author Contribution.....12



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# CHAPTER 1

## Resilient Basing

*'It is easier and more effective to destroy the enemy's aerial power by destroying his nests and eggs on the ground than hunt his flying birds in the air.'*

Giulio Douhet (IT ret. Army General), 1921  
Father of Strategic Air Power

### 1.1 Introduction

Many NATO members are currently focused on introducing new Air and Space Power capabilities. The forces receiving these new technologies must trans-

form their organizations to connect with the new systems to operate them effectively. More interoperability challenges are inevitable, and these will require timely solutions. In addition to adapting to these new technologies, operational units are also faced with new smart sustainment concepts that introduce a greater reliance on and interdependencies with civilian support organizations. Meanwhile, the operational environment is rapidly changing.

**1.1.1** Modern technology is continually evolving; consequently, a large variety of kinetic and non-kinetic military capabilities are becoming available at an increasing pace. As a result, many NATO members are

adopting the concept of Multi-Domain Operations (MDO) to bring together all Alliance capabilities and enablers in a coherent manner. While these developments contribute positively to the delivery of NATO's strategy, there is also a vulnerability aspect to consider. The aforementioned technological trends also create new vulnerabilities that peer competitors or other adversaries can readily identify. Furthermore, unlike in the days of the Cold War, nations no longer face a single common threat. Contemporary threats and also state and non-state actors vary in posture and severity and are present in all domains – what NATO refers to as the 360-degree threats. Moreover, we live in the era of the 'Contiguous Battlespace'; that is to say, the likes of terrorists, insurgents and even some states do not recognize international borders (e.g. Ukraine). The implication of this is that both the home bases as well as deployed operating bases are equally at risk.

**1.1.2** A sudden interruption of enabling activities will rapidly start to affect NATO operations directly. In most cases, the perceived general response to engaging with this challenge is, in most cases, reactive: tackling problems as they occur and managing the consequences rather than looking to prevent undesirable disruptive events in the first place. Acquisition of new capabilities has at least partially been driven by a desire to respond to the emerging threats discussed above. However, many nations have introduced these new technologies with industry-like support structures, and in some cases, were forced to reduce the procurement of enablers (as a result of the desire to reduce cost). As a consequence basic military tactics designed to enhance resilience, such as dispersal and redundancy, are much harder, if not impossible to achieve. Therefore, we might have procured front-end battle-winning capabilities, but we will struggle to operate them effectively in a challenging environment such as a crisis or a major operation. This will be particularly true if we need to function at scale and bring all available capabilities to bear simultaneously, especially over time. The inescapable question is: Have we forgotten how to sustain an Air War?

The Alliance is committed to constantly intensifying its resilience efforts because both national and collective

resilience is anchored in the NATO Treaty, in particular Article 3, which states that NATO members will develop and maintain their individual and collective capacity to resist armed attack. By continuously enhancing the readiness capability of our nation forces, the vulnerability of the entire Alliance is reduced.

**1.1.3** A recent NATO-wide assessment<sup>1</sup> (2020 Resilient Assessment), indicated that nations need to enhance their resilience levels and therefore urged NATO members<sup>2</sup> to take immediate remedial action(s). This implies that existing approaches to resilience need to be reviewed and assessed based on their effectiveness when stressed.

**1.1.4** Resilience is first a national responsibility, and strengthening resilience requires a systematic and layered approach. The first step is to raise the overall resilience awareness of NATO Alliance members. The RNLAf Air Space and Warfare Centre is aware of this priority and has requested support from the JAPCC, an organization equipped and able to support both RNLAf and other nations. Unfortunately, NATO has not agreed on a definition with respect to resilience therefore the JAPCC has introduced the following working definition.

***'A set of measures, tasks and activities to increase friendly forces' ability to continue to operate despite adversary actions or other hazards.'***

## 1.2 Aim

**1.2.1** This paper aims to assist nations with increasing awareness of (critical) vulnerabilities and identifying mitigations to enhance members' resilience. In turn, the outcome should lead to force providers of NATO being better prepared to meet the challenges of the contemporary operational environment. The desired end state is that vulnerable Air and Space Power capabilities are far better protected so that its deterrent effect can be assured.

## 1.3 Approach

**1.3.1** The JAPCC's objective is to support nations with identifying vulnerabilities and mitigating shortfalls in resilience. This will be achieved by providing a robust resilience questionnaire based on existing NATO Force Protection and associated doctrines and NATO-adopted risk assessment methodology guidelines (i.e., ISO 31000). Issues to be Considered (ITCs) have been added as a bridge between the virtual and the real world and will demand an in-depth analysis that must be command-led and involve all staff divisions.

**1.3.2** This resiliency questionnaire is presented in a workbook format. The questions have been set around describing a virtual airbase scenario in a complex threat environment. Participants are requested to share their answers, findings, and mitigation strategies via this workbook with the JAPCC. The assessment to be conducted by the nations will inevitably reveal sensitive shortfalls or mitigation actions. Therefore, the completed questionnaire must be marked and dealt with as at least NATO RESTRICTED or even higher, if the originator decides.

**1.3.3** After receiving the completed questionnaire, a follow-up interview may be requested with those involved in completing the questionnaire to ensure coherence and standardization of the approach. The assembled information will be analysed by the JAPCC and presented in a classified white paper containing JAPCC observations and any Lessons Identified (LI). The content of this white paper will not refer to any specific country and will only be released with the approval of the reporting nation.

## 1.4 Milestones

**1.4.1** The assumption is that nations will need at least three months to complete the questionnaire. The JAPCC will require approximately six weeks to assess the inputs and identify lessons learned. Two months later, a draft white paper will be produced so that internal JAPCC staffing can commence. The following timeline has been set:

- SEP 22: Questionnaire available;
- OCT 22 – JAN 23: Nations complete questionnaire;
- JAN 23: JAPCC analyses responses;
- MAR 23: White paper final study draft;
- MAY 23: White paper published.

## 1.5 Caveat

**1.5.1** The JAPCC analysis and the above-displayed timeline requires cooperation and adequate participation of at least seven Nations. A delay in response will result in a corresponding delay in the JAPCC deliverable.

<sup>1</sup> 2020 Resilient Assessment (NS).

<sup>2</sup> NATO War fighter Capstone Concept 2040 (NS).





## CHAPTER 2

### Workbook

*'Personally, I am always ready to learn, although I do not always like to be taught.'*

Sir Winston Churchill,  
House of Commons Speech, London, 4 November 1952

#### 2.1 Structure

**2.1.1** The workbook consists of four elements: a reader describing the scenario, Issues to Consider for analysis support, a series of questions (questionnaire) and a Response Collection Sheet. For security reasons, the workbook is categorized as NATO Re-

stricted and can be obtained by sending a request to [JAPCC.Registry@japcc.nato.int](mailto:JAPCC.Registry@japcc.nato.int). For the same reasons, a caveat with regard to further distribution will be included when sharing this workbook. In the following paragraphs, essential background information is provided for each element.

#### 2.2 Scenario

**2.2.1** To conduct an operational estimate and enable nations to complete a resilience-focussed questionnaire, the JAPCC developed a scenario representing notional airbase created by deducting information from former JAPCC products, using available expertise, internal discussions and recent developments.

**2.2.2** The airbase is coded as 'Base X' and has been given various operational capabilities that will be outlined in the workbook, such as airfield zones, perimeter and asset protection infrastructure. Information with respect to off-base factors such as terrain, railway and road infrastructure, air and seaports, demographics, climate and medical hazards are also provided.

**2.2.3** Considering the aim to enhance resilience awareness, all hazards and threats (including developments) must be understood in detail. It is imperative to identify which threats have what level of impact on our aircraft, airbase capacity, and sustainment capabilities. Besides the common threats, Terrorism, Espionage, Subversion, Sabotage, and Organized Crime (TESSOC), the following threat elements have been incorporated into the scenario description:

- Indications and warnings: This includes major force movements, the conduct of exercises on borders, or suddenly ignoring previously recognized treaty conventions.
- Mechanisms for escalation in tensions: Determine how propaganda effects can lead to civil unrest.
- Motivation aspects: Identify what reasons potential enemies will have to instigate a conflict.
- Damage to Critical National Infrastructure (CNI): This implicates all resources that are considered critical to maintaining every day life.

## 2.3 Issues to Consider

**2.3.1** The described airbase and the combination of threats and hazards are elements of a fictitious airbase and have been used to create a likely scenario. To bridge the virtual world of the study to the real world, the study includes over a hundred ITC's which will demand in-depth analyses covering multiple disciplines. Not all issues and following questions will likely apply to your organization or its environment; equally, there may be some topics identified

by the responding organization that the JAPCC team has not identified. In order to capture these additional observations, several free text blocks have been added to the Response Collection Sheets. The overall intent is that nations will be able to identify both the common capabilities and the operating environment elements, to project the provided information to their airbase or organization.

## 2.4 Questionnaire

**2.4.1** The scenarios in the workbook are linked to the questionnaire via topics which corresponds with the paragraph title. Every set of questions has been developed via NATO's Functional Solution Analysis method, better known as DOTMLPFI. This acronym covers the following aspects:

- Doctrine: The way they plan to (or) say they will fight, e.g., emphasizing manoeuvre warfare combined air-ground campaigns. Determine if there is an existing (joint) doctrine that addresses or relates to an issue.
- Organization: How they organize to fight; divisions, air wings, Marine-Air Ground Task Forces (MAGTFs). In what part of the organization is the problem occurring?
- Training: How they prepare to fight tactically; basic training to advanced individual training, various types of unit training, and joint exercises.
- Materiel: All the 'goods' necessary to equip our forces that DO NOT require a new development effort (weapons, spares, test sets, etc., that are 'off the shelf' both commercially and within the government).
- Leadership: How they prepare their leaders to lead the fight from squad leader to 4-star general/admiral; professional development.
- Personnel: Availability of qualified people for peacetime, wartime, and various contingency operations.

- Facilities: Real estate property, installations, and industrial facilities (e.g., government-owned ammunition production facilities) that support the force.
- Interoperability: Processes and procedures need to function seamlessly.

## 2.5 Response Collection Sheets

**2.5.1** To process the findings and questionnaire responses, responding organizations will use workbook Annex A: Response Collection Sheet. Questions to be answered are displayed in the response sheet to facilitate nations completing the questionnaire. Furthermore, the layout is structured to enable the JAPCC to easily compare multiple nations' results.

## 2.6 Guidance

**2.6.1** Understanding the given scenario and projecting it to the nation's own operational environment requires contributions from multiple disciplines. To determine which SMEs or domains should be involved in assessing and completing the questionnaire, it is advised to:

- Commence by reading the workbook;
- Assess per chapter which disciplines need to be consulted or involved;
- Set up teams and task them with a pre-selected package of topics and questions;
- Distribute the Response Collection Sheet. Note: be aware of classification issues;



- Identify, which already completed Staff estimates are available, and relevant, for accomplishing your resilience assessment;
- Determine, with the help of the assigned teams, your operational estimate based on the given scenario and issues to consider by framing and understanding the identified problems, assessing the risks and developing and evaluating the mitigation options;
- Complete the Response Collection Sheet and submit the information via NSWAN to the JAPCC by addressing to JAPCC.Registry@japcc.nato.int.

## 2.7 JAPCC Assistance

**2.7.1** The questionnaire has been validated within the JAPCC and by the RNLAf Air Warfare Centre. Suggested improvements have been incorporated into the final version of this workbook. Ultimately, the JAPCC aims to support your organization to enhance its resilience awareness. In case you need either clarification or assistance with completing the questionnaire, please send an e-mail to the aforementioned NSWAN address.

# ANNEX A

## Acronyms and Abbreviations

<b>CNI</b>	Critical National Infrastructure	<b>MDO</b>	Multi-Domain Operations
<b>DOTMLPFI</b>	A functional Solution Analysis Method covering the following aspects: Doctrine, Organization, Training, Materiel, Leadership, Personnel, Facilities and Interoperability	<b>NCO</b>	Non-Commissioned Officer
<b>ITC</b>	Issue to consider. Paragraph with intention to bridge from the scenario to the real world by performing an analysis on a certain subject	<b>NWCC</b>	NATO Warfighter Capstone concept 2040
<b>LI</b>	Lessons Identified	<b>RESILIENCE</b>	A set of measures, tasks and activities, to increase friendly forces' ability to continue to operate, despite adversary actions or other hazards
<b>MAGTFs</b>	Marine-Air Ground Task Forces	<b>TESSOC</b>	Terrorism, Espionage, Subversion, Sabotage and Organized Crime

# ANNEX B

## Joint Author Contribution

### Lieutenant Colonel Frans van de Weerd

Joined the RNLAF in 1981 and was assigned as an FP Custodian to a Nike Missile Group in Germany. Three years later, he became an NCO in Logistics. In 1994, he was commissioned as a Logistic Officer. His career path exists of a mix of Combat Support and Combat Service Support positions. In 2010, he was assigned as a duty Officer to the RNLAF Operations Centre. Besides analysing daily reports from dispersed or deployed units, he was responsible for creating and updating emergency response checklists. After this challenging opportunity, he has written logistic requirements for both the combat support and service support domain. He is currently serving at the JAPCC at Kalkar, Germany and found the ideal position to combine his logistic and Operation Centre experience.

### Wing Commander (ret.) Jez Parkinson

Joined the RAF in 1986 as an RAF Regiment Officer. He is currently serving at the JAPCC at Kalkar, Germany, in his third NATO appointment where he is employed as a Special Advisor to the Directorate. He has a broad background in Force Protection and has completed operational tours in the Middle East, The Balkan, and Northern Ireland being awarded the NATO Meritorious Service Medal for his last deployment as Deputy Commander of the Kandahar Airfield responsible for FP. Amongst his many projects and responsibilities related to FP, he is an officer with Principle responsibility for the NATO FP Course, and the author of both NATO Policy and NATO Doctrine for the Force Protection of Air Operations.





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