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Óglaigh
na hÉireann
IRISH DEFENCE FORCES

Defence Forces Review 2021

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**Maynooth
University**
National University
of Ireland Maynooth

Launch of the Defence Forces Review

In Conjunction with an Academic Seminar



Preface

“To do successful research, you don’t need to know everything: you just need to know one thing that isn’t known”

(Arthur Scalow)

Building on the success of last year’s Review, 2021’s Review is themed ‘Making Ireland a Better Place to Live: Defence Forces Contribution to National Resilience’. The theme is particularly relevant as we emerge from the devastating COVID-19 pandemic, during which the Defence Forces provided surge support to our health services protecting the citizens of Ireland.

The Defence Forces Review provides a forum in which contributors can present their research and facilitate discussion on a wide range of defence-related matters for the benefit of the wider Defence Community in Ireland and beyond. Sadly, due to COVID-19 restrictions we will be unable to have a normal launch of the Review.

My thanks to the Editors of the Defence Forces Review for 2021, Lt Col Pdraig Brennan and Comdt Paddy Sheahan. Despite a very busy schedule working on the staff of the Command and Staff School, they shouldered this editorial burden with energy, commitment and enthusiasm.

For this year’s edition, they have had the pleasure of working in academic collaboration with Maynooth University. A special word of gratitude to their fellow editors, Dr Ian Speller and Dr Rory Finegan (Military History and Strategic Studies, MU) for their expert insights and invaluable contributions in making this collaborative effort a success. Additionally, a team of expert academics contributed to the peer review process, thus enhancing the academic quality of the publication.

Again, many thanks to all our contributors without whose commitment and generosity the production and publication of this year’s Review would not be possible.

Further copies of the Review are available from the Defence Forces Public Relations Branch at: info@military.ie or online at www.military.ie/info-centre/publications/defence-forces-review.

Eugene Cooke
Lt Col
Officer in Charge
Public Relations Branch

Editors' Notes

The primary role for the Irish Defence Forces is to 'provide for the military defence of the state', a standard *raison d'être* for armed forces across the world. While once this might have been taken to refer only to defence against conventional military attack, a broader vision is now required in order to provide for security at a time when new techniques and new technologies may combine with the old to present complex and often hybrid challenges that defy simple categorisation or easy response. Sadly, ignoring such threats does not make them go away and, as the 2021 cyber-attack on the HSE demonstrated, innocence provides no defence. For Irish society to prosper our people, values and institutions must be protected. Thus, as the 2019 White Paper on Defence notes, defence remains of paramount importance to Ireland and, 'as a vital element of overall security policy, it provides the bedrock of stability and prosperity across political, social, economic and environmental domains'.

Security today is best understood as a multi-faceted concept that goes beyond traditional ideas about military defence, to encompass also geopolitical, economic, societal, environmental and technological challenges. Threats may be posed by states, by non-state groups or by transnational criminals and may manifest in a bewildering variety of ways. Equally, security may be threatened by forces beyond human control, such as climate change or the spread of a virulent virus. Mitigating such threats is not the job solely of the Defence Forces, or of any one agency, rather it requires a multi-agency and often also a multi-national response to deal with complex national and transnational challenges. However, and as is evident from the chapters in this book, the Defence Forces have an important role to play across a very broad range of contingencies. These include tasks focused on traditional military security roles and support for UN operations overseas, and also domestic Aid to the Civil Power and Aid to the Civil Authority activities that enhance the safety and security of Irish society. The latter include, for example, support for relief operations in response to major flooding incidents and participation in the State's response to COVID-19. In addition, of course, the Defence Forces contribute to Irish society in ways that are not security related, including support for national commemorations and State events, and, less visible nationally but no less important, local level engagement with communities throughout Ireland.

This year's edition of the Defence Forces Review focuses particularly on the role that 'defence' plays in making Ireland a better place to live, and the editors invited contributors to explore how military forces can contribute to wider society and government policy goals given the dynamic and complex nature of the contemporary operating environment. The response was very impressive, with high quality submissions from serving and retired military personnel and from academics and other commentators with relevant expertise. Inevitably, practical limits meant that we could not publish all the proposed papers in a volume such as this, but it is deeply encouraging to know that there are a large number of people who engage with this subject and who are willing and able to make valuable contributions to the national debate about defence. In this Review we publish fourteen papers covering a diverse range of relevant topics that include the defence response to cyber threats, climate challenges, disaster relief, coastal resilience and wider aid to the civil power responsibilities. There are also papers that address the role and future of the Reserve Defence Forces, and papers that explore the impact and relevance of historical events, and that introduce the importance of a feminist perspective when thinking about military training and education. The diversity of topics reflects the diversity of defence roles and also the many different ways

in which the Defence Forces can make a positive contribution to wider Irish society. All of the contributions are interesting and insightful and engaging with them will help the reader to gain a better understanding of defence and of the impact of the Defence Forces on Irish society today.

This Review also publishes abstracts from the research thesis completed by Irish and overseas students from the Joint Command and Staff Course, who completed an MA in Leadership, Management and Defence Studies, taught in partnership between Maynooth University and the Command and Staff School. The partnership between the university and the school is a mature relationship that has developed over a period of twenty years. To date almost 500 military students have graduated with the MA, and in the process have undertaken research and completed theses on a wide range of topics. The partnership at the Command and Staff School, and similar relationships at the other schools within the Military College, and beyond, reflect the Defence Forces' investment in the development of their personnel at all levels, motivated by the realisation that it is no longer enough to train soldiers, sailors and air personnel, they must be educated to be able to meet complex and often unforeseen challenges. The thesis abstracts presented here reflect the wide range of topics of relevance to the Defence Forces, the theses themselves reflect the very high standards attained by the student body, indicative of the high standards achieved by Defence Forces personnel at every level.

This book would not have been possible without the hard work of all who have contributed to it, including the authors, the (anonymous) peer reviewers and the dedicated Defence Forces production team. The editors would like to thank them all for their contributions. We enjoyed putting this volume together, we hope that you enjoy reading it.

Editorial Team

Dr Rory Finegan (Maynooth University)
Lt Col Pádraig Brennan (Defence Forces)

Dr Ian Speller (Maynooth University)
Comdt Paddy Sheahan (Defence Forces)

Editor's Biographical Statement



Lieutenant Colonel Pádraig Brennan is an instructor in the Command & Staff School. He is an Army Officer with over 23 years' service and is a proud member of the Transport Corps. He has served in various staff, training and operational appointments including tours of duty with the United Nations in Syria, Liberia and the Democratic Republic of Congo. Additionally, he completed a tour of duty with the European Union Force in Chad. He is a graduate of the 2nd Joint Command & Staff Course where he was awarded a MA in

Leadership, Management & Defence Studies from Maynooth University. He also holds a Master of Economic Science in Policy Analysis from University College Dublin, and a Master of Science in Health and Safety from Dublin Institute of Technology.



Dr Rory Finegan is Assistant Professor in Military History & Strategic Studies in the Centre for Military History & Strategic Studies (CMHSS) at Maynooth University (MU), which includes delivery of the MA in Leadership Management & Defence Studies (MA LMDS) at the Irish Defence Forces Military College. He previously served as an officer in the Irish Defence Forces (DF), in a diversity of portfolios. He was Assistant Programme Manager (2019-2020) of the Peace IV Legacy of Violence Project based at the Glencree Peace &

Reconciliation Centre working with Victims & Survivors (V&S) Groups in Northern Ireland. Key issues of this project were captured in his role as Editor of the Academic Journal "Dealing with the Legacy of Violence in Northern Ireland through Mediation & Dialogue (2021)." He has lectured extensively in International Relations, Conflict Resolution and Terrorism Studies. His specific focus in academia is on the Northern Ireland Conflict (The Troubles) and he will deliver a bespoke undergraduate module in this sphere in 2022.



Commandant Paddy Sheahan is an instructor in the Command & Staff School. He is an Army officer with over 23 years' experience, and has held a variety of command, staff and training appointments. His overseas experience includes tours of duty in the Balkans, the Middle East and West Africa - from platoon commander through to staff appointment at Force Headquarters level. He is a graduate of the 2nd Joint Command & Staff Course where he was awarded a MA in Leadership, Management & Defence Studies from Maynooth University.



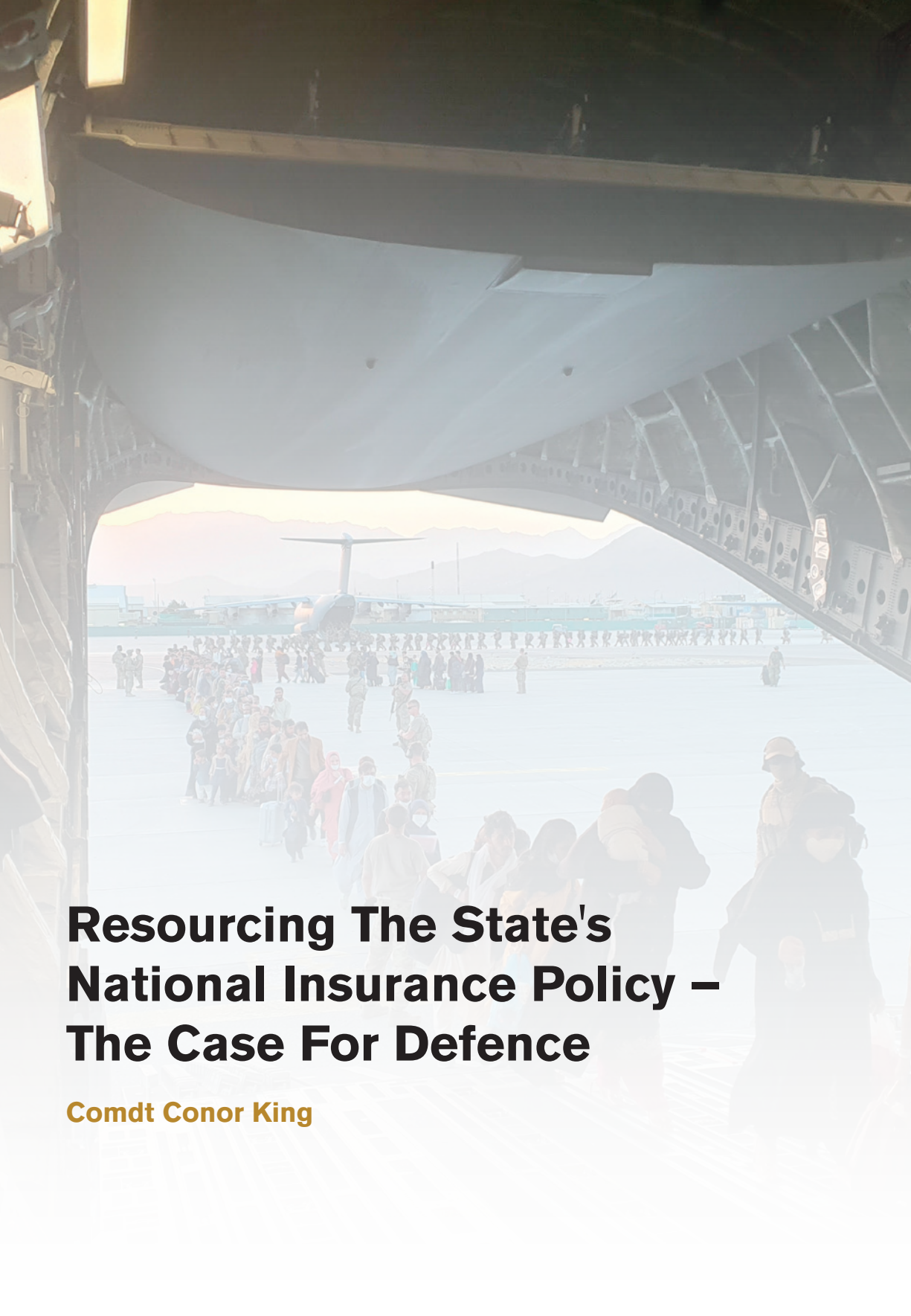
Ian Speller is an Associate Professor in the Department of History and is Director of the Centre for Military History and Strategic Studies at Maynooth University. He is a graduate of Durham University, completed an MA in Strategic Studies at Aberystwyth and has a PhD in War Studies from King's College London. His research focus is on military history, and maritime strategy and security and he has published widely in these fields. He teaches topics relating to military history, defence studies and contemporary security at Maynooth University, where he was responsible for establishing Ireland's first ever MA in military history and strategic studies. He also teaches on related topics at the Defence Forces Military College, as part of the educational partnership between Maynooth University and the Defence Forces.

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Resourcing The State's National Insurance Policy – The Case For Defence

Comdt Conor King

Abstract

A strong Defence Force, as the State's insurance policy, is vital to the security and resilience essential to Ireland's continued prosperity in the face of rising national and global risk.

A capacity to respond quickly, professionally and in an agile manner to imminent threats is only possible if the Defence Forces retains the skills acquired through years of training and experience at home and overseas. The difficulties experienced by the organisation in retaining highly skilled personnel due to inadequate remuneration and inferior conditions of service has had a severe impact on its operational capability, which has left the State vulnerable.

This paper examines the Defence Forces contribution to national resilience and argues that the robust national insurance policy which the State relies on the organisation to provide can only be comprehensive if it is properly resourced. The paper reviews the current and anticipated risks to the State and follows this by examining the roles assigned to the Defence Forces from a national resilience perspective. It draws linkages between the utility of the military in extreme events, and what the State expects from the Defence Forces. Finally, the paper compares the current level of resourcing available to Defence, with the defence funding committed by certain other EU 'neutral' or non-aligned states, concluding that Ireland's ability to access a comprehensive insurance policy is significantly undermined by under-resourcing of the Defence Forces, which threatens sovereignty, economic security, and force protection.

Ireland cannot allow strategic shocks such as COVID-19, and the inevitable impact on the public finances, to be a reason not to invest in Defence, and it is precisely for 'Black Swan' events such as a global pandemic that we need the robust national insurance policy that the Defence Forces provides.

Introduction

Global pandemics and cyber-attacks were, until recently, high-level threats that we have acknowledged as being possible, without preparing as if they were probable. As we are all too aware, both have come to pass, and the State has scrambled to mitigate the threat. The significant contribution by the Defence Forces to this response has shown their adaptability, capability and utility in times of national crisis. But it has also shown that Defence requirements are not matched by Defence investment, particularly when it comes to resourcing and retaining trained and experienced personnel and equipment.

In examining the Defence Forces contribution to national resilience, this paper presents the argument for increased spending on Defence and argues that the insurance policy which the State relies on the organisation to provide can only be comprehensive if it is properly resourced. The paper will begin with a review of the current and anticipated risks to the State. This will be followed by a look at the roles assigned to the Defence Forces from a national resilience perspective and an examination of the utility of the military in extreme events. Finally, the paper will analyse the current level of resourcing available to Defence, particularly in comparison to certain other EU 'neutral' or non-aligned states.

Ireland cannot allow strategic shocks such as COVID-19, and the inevitable impact on the public finances, to be a reason not to invest in Defence, and it is specifically for ‘Black Swan’ events such as a global pandemic that we need the robust national insurance policy that the Defence Forces provides. A strong Defence Force, as the State’s insurance policy, is vital to the security and resilience essential to our continued prosperity in the face of rising national and global risk.



Figure 1 The National Risk Assessment Risk Matrix 2020 (Department of Defence, National Risk Assessment for Ireland 2020)

Assessing the Risk

Risk assessment is a very simple process with a very significant purpose. When performed correctly, it will prioritise hazards, inform decisions, and guide resources. Risk assessment is the result of analysing identified hazards. The three main activities of analysing any hazard are to assess the likelihood that it will occur, identify the potential impact if it does occur, and put in place measures to reduce the likelihood and mitigate the impact. A calculation to combine the impact of a particular hazard with its likelihood of occurrence will give it a score, and this score is used to determine how resources should be allocated.¹

From a Defence perspective, the risk assessment is largely guided by three sources: The White Paper on Defence 2015²; The White Paper on Defence Update 2019³; and the National Risk Assessment 2020⁴. Figure 1, NRA Risk Matrix indicates where the main strategic risks sit in relation to one

¹ Health and Safety Authority, A guide to Risk Assessments and Safety Statements. Accessed at https://www.hsa.ie/eng/Publications_and_Forms/Publications/Safety_and_Health_Management/Guide_to_Risk_Assessments_and_Safety_Statements.pdf on 18 Aug 21.

² Department of Defence, White Paper on Defence (Dublin: Government of Ireland, 2015). <https://www.gov.ie/en/policy-information/bee90a-white-paper-on-defence>

³ Department of Defence, White Paper on Defence: Update 2019 (Dublin: Department of Defence, 2019) <https://www.gov.ie/en/publication/a519cf-white-paper-on-defence-update-2019/>

⁴ Department of Defence, National Risk Assessment for Ireland 2020 (Dublin: Government of Ireland, 2020). <https://www.gov.ie/en/press-release/5e685-national-risk-assessment-for-ireland-2020/>

another.⁵ We can see from the analysis in the matrix that the risk of a pandemic, understandably, is very high. Equally, maritime or air incidents, cyber incidents and animal disease are high risk. All of these scenarios have required Defence Forces intervention in the past and will require them again in future. The 2015 White Paper⁶ and its 2019 Update refined these risks from a purely defence perspective. The White Paper Update revised and reinforced two risks that are relevant to this discussion. These are espionage and cyber-attacks.

The White Paper Update identifies 'increasing evidence internationally of the threat that espionage presents to the sovereignty, national security and economic well-being of states.... It is also increasingly intertwined with activity in the hybrid and cyber domains'⁷. These predictions have proven accurate with a recent cyber-attack on the HSE⁸ and the presence of a Russian vessel equipped for undersea exploration operating around transatlantic cabling in Irish national waters.⁹

The Military Response

The basis of any risk management plan is that risk can always be minimised, but never eliminated. In broad terms, the objectives of the plan would be to reduce the likelihood of an event occurring and, in the event that it does occur, have a plan in place to mitigate the impact and get back to normal as swiftly as possible. In the case of a national emergency in Ireland, a major component of that mitigation is the Defence Forces. Defence is a significant contributor throughout the national response architecture. At the strategic level, the Government Task Force (GTF) on Emergency Planning, responsible for coordinating and overseeing the emergency management policies and activities of Government Departments and Agencies, is chaired by the Minister for Defence. Additionally, the Office of Emergency Planning (OEP), which operates the National Emergency Coordination Centre (NECC) is established within the Department of Defence¹⁰. The National Security Committee, chaired by the Secretary General to the Government, includes both the Chief of Staff and the Secretary General of the DoD¹¹.

Annex A to Strategic Emergency Management (SEM) - National Structures and Framework, outlines the roles and responsibilities of Lead Government Departments/Agencies (LGD/A) in a given emergency, and the Support Government Agencies (SGA) that will backfill their response. Fifty distinct emergency or incident types are identified in the document, none of which list Defence¹² as the LGD/A. In 23 of these incidents, however, Defence is tasked as the Principal Support Agency. Of the remaining 27 emergency types, Defence is allocated a support role in 23 of those¹³. It is clear, then, that Defence is identified as a significant asset in the mitigation of risk in 86 percent of scenarios. But what about the remaining 14 percent?

⁵ Ibid, pp.33.

⁶ White Paper on Defence 2015, pp.5 states 'Climate change, which is considered an environmental risk, can lead to changes in resource distribution, poverty and disaffection. This in turn can provoke resource conflicts, crime, or extremism' and goes on to assert that 'a key challenge for Government is to ensure that threats are identified and that the full range of Governmental policy responses is brought to bear'.

⁷ White Paper on Defence Update 2019, pp. 19.

⁸ Eilish O'Regan, 'Army drafted in to bring laptops and PCs to hospitals stricken by cyber attack', Irish Independent, 17 May 2021, accessed 25 August 2021. <https://www.independent.ie/irish-news/army-drafted-in-to-bring-laptops-and-pcs-to-hospitals-stricken-by-cyber-attack-40436415.html>

⁹ Colin Gleeson, 'Russian spy ship spotted off west coast of Ireland'. Irish Times, 18 August 2021, accessed 21 August 2021. <https://www.irishtimes.com/news/ireland/irish-news/russian-spy-ship-spotted-off-west-coast-of-ireland-1.4650443>

¹⁰ Department of Defence, Strategic Emergency Management - National Structures and Framework, pp. 6

¹¹ Dáil Éireann Debate 30 May 17, National Security Committee. Accessed at <https://www.oireachtas.ie/en/debates/question/2017-05-30/4/>

¹² Meaning in this case, the Defence Forces and/or Department of Defence, but excluding Civil Defence.

¹³ Department of Defence, Strategic Emergency Management - National Structures and Framework, pp. 33-48. Accessed at <https://assets.gov.ie/30731/2d1793da304a4169a2ff307d73e8af0c.pdf>

Emergency/Incident number 26 on the Annex is “Pandemic Influenza and Other Public Health Emergencies”. The Lead Government Department, as expected, is Health, and the Support Government Agency is the HSE. While the Civil Defence is included in a support role, the Defence Forces are not listed at all as a response agency to a Pandemic. In 2020, in direct response to COVID-19, the Defence Forces employed 10 aircraft and allocated 197 days at sea for Naval Vessels. There were almost 10,000 individual vehicle taskings on land. And all of this was facilitated by 53,930 individual taskings of DF personnel in direct support of the COVID-19 effort in 2020. By October 2021, this had grown to more than 110,000.¹⁴

These deployments included tasks ranging from Advanced Paramedic deployment, logistics, transport, testing, contact tracing, assistance to residential care facilities, and more. In 2021, DF tasks expanded to include mandatory quarantine facilities and mass vaccination centres. Although much of the DF non-essential activity in 2020 was postponed or cancelled to enable the response in support of the HSE, the nature of the organisation’s work in Aid to Civil Power (ATCP) and International Peace Support is essential. Facing the COVID-19 Pandemic, Defence Forces personnel went above and beyond to complete a monumental task to implement a mitigation plan of which they were not even meant to be part. This is another clear demonstration, as with similar cases of severe weather, cyberattacks, and national security operations, of the ultimate utility of the Defence Forces in national resilience.

Military Utility

What is it that makes the Defence Forces, or any military organisation, so essential in times of emergency and crisis? The answer is simple: military organisations are structurally and culturally designed to operate in high-risk environments and conditions of uncertainty. This requires very high levels of discipline, flexibility, adaptability and cohesion and the Defence Forces achieves this in two ways: their structures; and their people.

Structurally, at the operational level, the Defence Forces are like most military organisations. The lines of command, control, and communication within and between units and sub-units¹⁵ are well established and understood. A significant task issued to a higher echelon can be seamlessly devolved as a set of actions to be completed by lower echelons. The concept of Mission Command¹⁶, whereby subordinates receive the ultimate intent and desired end-state of a task but employ their own initiative and situational awareness to achieve it, is embraced by the Defence Forces and allows their Junior Leaders to adapt to most tasks regardless of the situation. This is evidenced by the variety of tasks undertaken by the DF in response to COVID-19.¹⁷

The DF structure, however, would be irrelevant without the skilled, capable and motivated personnel that populate it. Time and again, whether it is high-level security operations for visiting dignitaries, or support to our most vulnerable citizens in times of crisis, the men and women of the Defence Forces demonstrate their flexibility and resolve. The nature of service for these personnel is unlike anything else in Irish society and can be difficult for non-military persons to understand. It is encapsulated by the oath¹⁸ taken by each member on enlistment, which, effectively, is an undertaking to do anything necessary, in any place, at any time in

¹⁴ Department of Defence, Department of Defence and Defence Forces Annual Report 2020, pp. 87. At the time of writing, this commitment had grown to over 110,000 individual deployments (<https://military.ie/en/members-area/members-area-files/ic-weekly-update-18-oct.pdf>).

¹⁵ Brigades are composed of battalions, regiments and squadrons; which are further composed of companies, troops and batteries; which are further divided to platoons, sections, and so on.

¹⁶ Col. (Ret.) James D. Sharpe Jr. and Lt. Col. (Ret.) Thomas E. Creviston, ‘Understanding mission command’, accessed at https://www.army.mil/article/106872/understanding_mission_command

¹⁷ Department of Defence, Department of Defence and Defence Forces Annual Report 2020, pp. 87.

¹⁸ ‘I do solemnly swear (or declare) that I will be faithful to Ireland and loyal to the constitution and that while I am a member of the Permanent Defence Force, I will obey all orders issued to me by my superior officers according to law and I will not join or be a member of, or subscribe to, any political organisation or society or any secret society whatsoever’

service of the State.¹⁹ This unwavering commitment to service demonstrates the value of the Defence Forces to emergency response and national resilience.

Resourcing the Commitment

The preceding sections of this paper have demonstrated the centrality of the Defence Organisation to Emergency planning and vast utility of Defence Forces personnel in mitigating risk and recovering from national emergency. In this section we will examine the long-term viability of this approach given current conditions and funding. The crucial thing to note is that the Permanent Defence Force, prior to and throughout the period of the COVID-19 national emergency, is at its lowest strength since its foundation and is battling a significant retention crisis. Years of neglect have resulted in an unsustainable rate of turnover and the loss of experienced personnel across all ranks, particular the junior leaders at Sergeant and Captain rank (and Naval Service equivalent), responsible for the delivery of day-to-day and public-facing operations. This was acknowledged in the Public Service Pay Commission in 2019, and again in the Government's 'High Level Implementation Plan': Strengthening Our Defence Forces²⁰. The opening section of the Plan states:

The PSPC identified significant retention issues across the services that make up the PDF. The PDF comprises highly trained, skilled and well-motivated individuals who inevitably will be sought after and attracted to civilian employment, especially in a buoyant labour market. However, the loss of key personnel places additional pressure on, and limits the capacity of, the PDF in undertaking the crucial role that it performs in service to the State.²¹

Sadly, relatively little has been done to redress this critical national security issue. Some restoration of allowances have come about as a result of the plan, and the public sector as a whole has had a round of salary increases planned and delivered in recent years²². But these were delivered on a general round percentage basis and members of the PDF, among the lowest paid in the public service, received the least benefit. According to the Central Statistics Office, by the end of 2020, members of the PDF earned €72 less per week than the public sector average.²³ Although core pay for all public servants remains a matter of centralised government policy, the payment of sector specific allowances, and the provision of non-pay incentives can be influenced by individual departments to reward, motivate and retain suitably qualified and experienced personnel. In the case of Defence, the secured budget allocation is simply insufficient for any meaningful intervention by the civil or military authorities in the Defence Organisation to reward their personnel or improve the offer of a life in uniform.²⁴

¹⁹ Form of Oath or Declaration to be taken or made by Men (Personnel) Enlisting in the Permanent Defence Force, Defence Act 1954, section 58 (2).

²⁰ Government of Ireland, Strengthening Our Defence Forces – Phase One, accessed at <https://assets.gov.ie/30647/dcd2f11e73114ef3ab1d1df8f0e3b627.pdf>

²¹ Ibid.

²² Public Service Stability Agreement 2018 – 2020, <https://www.gov.ie/en/publication/432f22-public-service-stability-agreement-2018-2020/>. Also Building Momentum, a new public service agreement 2021-2022, <https://www.gov.ie/en/publication/e9d23-building-momentum-a-new-public-service-agreement-2021-2022/>.

²³ Central Statistics Office, Earnings and Labour Costs 2020, accessed at <https://www.cso.ie/en/releasesandpublications/er/elcq/earningsandlabourcostsq32020finalq42020preliminaryestimates/>

²⁴ A Commission on the Defence Forces is currently examining the organisation under Capabilities, Structures and Staffing and is due to present its recommendations to Government before the end of 2021.

Defence Expenditure

There are number of ways of looking at the defence budget, from analysis of the year-on-year defence votes, and defence as a percentage of Gross Domestic Product (GDP), Gross National Income (GNI), and GNI Adjusted. What is clear however, is that by any reasonable comparison with EU countries, the Irish spend on Defence is woefully inadequate.

The Euro value of the Vote 36, Defence, has increased over recent years. In 2015 it was established at €671,000,000 and had risen to €756,000,000 by 2019²⁵. At first glance, this is a positive trend which shows greater investment in defence and the Defence Forces. What these figures do not show, however, is that this actually represents a significant decrease in defence allocation as a percentage of GDP. Vote 36 in 2015 represented 0.26 percent of GDP at that time. By 2019, that value had dropped to 0.21 percent. The EU average, according to statistical office of the European Union²⁶, was 1.2 percent of GDP²⁷. But this figure is arrived at by inclusion of NATO allies with a large percentage-of-GDP spend such as France (1.7 percent) Norway (1.9 percent) and Greece (2 percent)²⁸. From an Irish perspective, comparison with other 'non-aligned' states of the EU is more useful. Finland and Sweden will be used in this paper as they share our national commitment to international peace and security through rules-based norms and international organisations like the EU and UN, and the Defence Forces have partnered with their military organisations at home and overseas²⁹. In 2019, the percentage of GDP spent on defence for each of these EU non-aligned states was 1.2 percent³⁰, more than five times Ireland's commitment.

25 Dáil Éireann Debate, Thursday - 25 February 2021, Defence Forces Expenditure. Accessed at <https://www.oireachtas.ie/en/debates/question/2021-02-25/147/#pq-answers-147>

26 Eurostat, <https://ec.europa.eu/eurostat/web/main/about/who-we-are>

27 Total general government expenditure on defence 2019, percent of GDP. Accessed at https://ec.europa.eu/eurostat/statistics-explained/index.php?title=File:Total_general_government_expenditure_on_defence,_2019,_percent25_of_GDP.png

28 Ibid.

29 Military.ie, The Battlegroup. Accessed at <https://www.military.ie/en/overseas-deployments/the-battlegroup/>

30 Total general government expenditure on defence 2019, percent of GDP. Accessed at https://ec.europa.eu/eurostat/statistics-explained/index.php?title=File:Total_general_government_expenditure_on_defence,_2019,_percent25_of_GDP.png

Defence Expenditure (Vote 36) 2009-2019 as a percentage of GDP

Year	Defence (Vote 36) Expenditure €m	Gross Domestic Product (GDP) €m	Defence (Vote 36) Expenditure as % of GDP
2009	804	169,786	0.47%
2010	744	167,674	0.44%
2011	704	170,951	0.41%
2012	657	175,104	0.38%
2013	667	179,616	0.37%
2014	673	195,148	0.34%
2015	671	262,853	0.26%
2016	671	270,809	0.25%
2017	681	300,387	0.23%
2018	701	326,986	0.21%
2019	756	356,051	0.21%
2020	781		

Table 1: Dáil Éireann Debate, Thursday - 25 February 2021, Defence Forces Expenditure.

Other metrics bear this stark reality also. Gross National Income (GNI) is defined by the OECD as 'gross domestic product, plus net receipts from abroad of compensation of employees, property income and net taxes less subsidies on production'.³¹ It is a broader measure than GDP and more accurately reflects the economic realities of a country in a given period. The GNI for Ireland in 2019 was €275,463m and results in a defence vote of 0.27 percent of GNI.³² A similar measure is the 'Modified GNI'³³. Essentially, it reduces the impact of Foreign Direct Investment (FDI) on the Irish economy for a more balanced comparison with other countries.

³¹ <https://data.oecd.org/natincome/gross-national-income.htm>

³² CSO, National Income and Expenditure 2019. Accessed at <https://www.cso.ie/en/releasesandpublications/ep/p-nie/nie2019/summary/>

³³ The CSO defines Modified GNI as 'an indicator that was recommended by the Economic Statistics Review Group and is designed to exclude globalisation effects that are disproportionately impacting the measurement of the size of the Irish economy'.

Total general government expenditure on defence, 2019, % of GDP

	Defence	Military defence	Civil defence	Foreign military aid	R&D Defence	Defence n.e.c.
EU-27	1.2	1.1	0.0	0.1	0.0	0.0
euro area	1.2	1.1	0.0	0.1	0.0	0.0
Belgium	0.8	0.8	0.0	0.0	0.0	0.0
Bulgaria	1.2	1.2	0.0	0.0	0.0	0.0
Czechia	0.9	0.8	0.0	0.0	0.0	0.1
Denmark	1.1	1.1	0.0	0.0	0.0	0.0
Germany	1.1	1.0	0.0	0.1	0.0	0.0
Estonia	2.1	2.0	0.0	0.0	0.0	0.1
Ireland	0.2	0.2	0.0	0.0	0.0	0.0
Greece	2.0	2.0	0.0	0.0	0.0	0.0
Spain*	0.8	0.7	0.0	0.1	0.0	0.0
France*	1.7	1.5	0.0	0.1	0.1	0.1
Croatia	1.0	0.9	0.0	0.0	0.0	0.1
Italy	1.3	1.2	0.0	0.1	0.0	0.0
Cyprus	1.8	1.7	0.0	0.1	0.0	0.0
Latvia	1.9	1.8	0.0	0.0	0.0	0.1
Lithuania	1.6	1.3	0.0	0.0	0.0	0.3
Luxembourg	0.4	0.3	0.0	0.1	0.0	0.0
Hungary	1.0	1.0	0.0	0.0	0.0	0.0
Malta	0.7	0.7	0.0	0.0	0.0	0.0
Netherlands	1.3	1.2	0.0	0.0	0.0	0.0
Austria	0.6	0.6	0.0	0.0	0.0	0.0
Poland	1.6	1.6	0.0	0.0	0.0	0.0
Portugal**	0.8	0.7	0.0	0.0	0.0	0.0
Romania	1.7	1.6	0.0	0.0	0.0	0.0
Slovenia	1.0	0.8	0.1	0.1	0.0	0.1
Slovakia*	1.1	1.0	0.0	0.0	0.0	0.0
Finland	1.2	1.0	0.1	0.0	0.0	0.0
Sweden	1.2	1.0	0.1	0.1	0.0	0.0
Iceland	0.1	0.0	0.1	0.0	0.0	0.0
Norway	1.9	1.7	0.0	0.0	0.0	0.0
Switzerland	0.8	0.7	0.1	0.0	0.0	0.0

(:) data not available

* provisional

** estimated

Source: Eurostat (online data code: gov_10a_exp)



Figure 2: Govt expenditure on Defence as % of GDP, 2019. Source: Eurostat

Ireland’s Modified GNI in 2019 was €213,708m and results in a defence share of 0.35 percent.³⁴ It can be seen, then, that even by the most advantageous approach to the analysis, the Irish spend on Defence is a fraction of even the most conservative of the EU military non-aligned states.

What is the impact of this underfunding and the inevitable lack of resources? The Defence Forces were able to respond to the global pandemic and provide essential services to the HSE, Dept. of Health, and others, often at the expense of routine training and education. But the response required was largely low-tech and leaned heavily on military structures and ethos to deliver highly motivated personnel as and when needed. But the Defence Forces have been unable to respond, at least in a timely manner, to other very serious events.

On a number of occasions in March 2020, Russian military aircraft transited Irish-controlled airspace³⁵. The Tupolev Tu-142 ‘Bear’ maritime patrol/bomber aircraft were travelling with their transponders off and were not visible to domestic civilian radar. But due to a complete lack of military primary radar systems, we did not detect these aircraft and, even if we had, we do not have the interceptor aircraft available to react.³⁶ This lack of capability has been acknowledged by the Minister for Defence, but there is no plan currently to address it.³⁷

34 Ibid.

35 Brian Hutton, ‘Russian bombers in Irish airspace for the second time in three days’, Irish Times, 11 March 2020, accessed on 24 August 2021. <https://www.irishtimes.com/news/ireland/irish-news/russian-bombers-in-irish-airspace-for-second-time-in-days-1.4200213>

36 White Paper on Defence 2015, pp.66.

37 Dáil Éireann Debate, Thursday - 8 October 2020, Air Corps. Accessed at <https://www.oireachtas.ie/en/debates/question/2020-10-08/1/#pq-answers-1>

A similar scenario has come to pass in Irish-controlled waters off the west coast. According to its website, the Celtic Norse Cable system 'will connect Central Norway to Ireland, with further connectivity to the United States Eastern Seaboard. Celtic Norse will provide new fibre connectivity, and new opportunities for the growing data centre industry'.³⁸ This major international information infrastructure lands and departs from the coastal area around Donegal. On 17 August 2021, the Russian Vessel Yantar took up position above the cables off the west coast.³⁹ The Yantar is generally assessed to be a spy ship and is equipped with submersibles that can be used for 'operating on seabed infrastructure such as internet cables...' with 'towed sonar systems to map the sea floor'.⁴⁰ Although the presence of the Russian vessel in the Irish exclusive economic zone is, of itself, not a violation, Ireland has no insight to the operations Yantar is undertaking on the sea bed as the Naval Service has no capability to monitor them.⁴¹ The 2019 DF review contained a paper by Lt (NS) Shane Mulcahy entitled *Patrolling Below the Horizon: Addressing Ireland's Awareness of our Maritime Geospatial Domain*⁴², and identified that "without systems capable of subsurface detection linked to data analysis systems ashore, the Naval Service remains quite literally, lost in the dark."

The final example of under-resourcing this paper will address is the lack of any form of strategic airlift. On 24 August 2021, an Emergency Civil Assistance Team (ECAT) consisting of Diplomats and ARW personnel deployed to Afghanistan to manage the evacuation of Irish passport holders and their families from the region.⁴³ This occurred more than nine days after the fall of Kabul to the Taliban and left less than seven days until the anticipated withdrawal of US forces from the airport. As Ireland has no suitable aircraft to carry the ECAT, let alone the citizens on the ground, this mission was ultimately facilitated by the goodwill of friendly states, who allocated space on their aircraft. It is unclear at this point whether the lack of air transport was a factor in the late deployment of the mission. But it is without question that if the Defence Forces were not able to 'hitch a ride', the mission would not have deployed at all. Much has been written in the national media regarding Ireland's lack of airlift capability. The Irish Times identified Ireland as 'one of only two EU countries without a heavy airlift capability' and described the fall of Kabul to the Taliban as 'the latest in a series of crises highlighting Ireland's lack of capability to move people long distances at short notice.' Other examples provided were the inability to evacuate two officers from the DRC in 2020, and the regular reliance on other friendly nations' military forces or the private sector to deploy and recover our personnel. Critically, the public discourse on airlift has rightly identified the potential benefits of organic airlift capability, not just in deploying and recovering our military personnel and citizens, but also pandemic response (such as the delivery of stocks of emergency PPE) and in the delivery of humanitarian aid during natural disasters.⁴⁴

38 <https://celticnorse.no/>

39 John Mooney, 'Russian spy ship monitored off coast of Donegal'. *The Times*, 18 August 2021, accessed 21 August 2021. <https://www.thetimes.co.uk/article/russian-spy-ship-monitored-off-coast-of-donegal-thvg8pg8k>

40 H.I. Sutton, 'Russian Spy Ship Yantar Loitering Near Trans-Atlantic Internet Cables', *Naval News*, 19 August 2021, accessed 21 August 2021. <https://www.navalnews.com/naval-news/2021/08/russian-spy-ship-yantar-loitering-near-trans-atlantic-internet-cables/>

41 Colin Gleeson, 'Russian spy ship spotted off west coast of Ireland'. *Irish Times*, 18 August 2021, accessed 21 August 2021. <https://www.irishtimes.com/news/ireland/irish-news/russian-spy-ship-spotted-off-west-coast-of-ireland-1.4650443>

42 Lt (NS) Shane Mulcahy, 'Patrolling Below the Horizon: Addressing Ireland's Awareness of our Maritime Geospatial Domain' *Defence Forces Review* 2019, pp. 121. <https://military.ie/en/public-information/publications/defence-forces-review/df-review-2019.pdf>

43 Vivienne Clarke, 'Ranger mission to evacuate Irish from Kabul a risk worth taking, Coveney says'. *Irish Times*, 24 August 2021, accessed 25 August 2021. <https://www.irishtimes.com/news/world/asia-pacific/ranger-mission-to-evacuate-irish-from-kabul-a-risk-worth-taking-coveney-says-1.4654849>

44 Conor Gallagher, 'Afghan crisis forces Ireland to do more with less once again. Analysis: Lack of long-range airlift capability greatly limits options for evacuation'. *Irish Times*, 24 August 2021, accessed 26 August 2021. <https://www.irishtimes.com/news/ireland/irish-news/afghan-crisis-forces-ireland-to-do-more-with-less-once-again-1.4655335>

Section 6.4.3 of the White Paper on Defence 2015 deals with Air Mobility and is not reassuring in this regard. It reduces the problem to one of Ministerial Air Transport and cites that the Department of Defence is 'reviewing the medium to long term options for the future provision of an independent off-island air transport service for high level delegations'.⁴⁵ As long as Óglaigh na hÉireann lacks a dedicated strategic lift platform, it lacks the capability to independently deploy and recover personnel and logistics to mission areas, or to assist Irish citizens through Non-Combatant Evacuation Operations when the commercial sector withdraws. Without this basic organic military capability, Ireland will inevitably continue to rely on the goodwill and indulgence of friendly states.

Conclusion

This paper has explored hazard identification, risk management strategies, and the critical role that Óglaigh na hÉireann plays in mitigating many of those risks. It has shown that in terms of unprecedented national emergency such the COVID-19 pandemic, the structures of the military and the dedication to service and ethos of its personnel make it the ultimate national insurance policy. Defence underpins Ireland's security as well as the promotion of the State's strategic interests in the international environment.⁴⁶ A strong Defence Forces, as the State's insurance policy, is vital for the continued inflow of foreign direct investment, essential for our small open economy.

Ireland's ability to access a comprehensive insurance policy is significantly undermined by the under-resourcing of the Defence Forces. By any reasonable metric, and by comparison with other similar EU states, the level of funding available for Defence in Ireland is dangerously low. This paper provided three brief examples of how this under-resourcing threatens the sovereignty of our skies, the economic security of our communications and data industry, and our ability to assist Irish citizens and troops abroad in times of crisis. A capacity to respond quickly, professionally and in an agile manner to imminent threats is only possible if the Defence Forces can resource these capabilities, thereby retaining the skills acquired through years of training and operational experience at home and overseas.

As we look to an increasingly globalised future, the potential for global pandemics, extreme weather events and regional conflict is clear. As Ireland's centrality to the information and data infrastructure of the EU and US continues to grow, and as our economy grows with it, we will increasingly become the target of unwelcome foreign state and non-state interest, and even espionage. A strong, highly-motivated, well-resourced Defence Force is essential as the national insurance policy that will mitigate these risks and protect Irish interests at home and abroad.

⁴⁵ White Paper on Defence 2015, pp.66.

⁴⁶ *Ibid.*, pp. 1.

A scenic view of a rugged coastline with steep, rocky cliffs overlooking the sea under a clear blue sky. The cliffs are layered and show signs of erosion, with some green vegetation on the upper slopes. The sea is a deep blue-grey color, and the sky is a bright, clear blue with a few wispy clouds.

Ireland, the Sea, and it's People: Building Coastal Resilience

Senior Chief Petty Officer Ruairí de Barra

“Speaking as an islander in a room full of islanders, it is more fitting to describe humanity as one land and one ocean, and a sense of common humanity as one that transcends all barriers and boundaries.”

President Michael D. Higgins
Ireland’s Strategy for Partnership with Small Island Developing States

Abstract

We are bound by the sea. An island nation on the periphery of Europe, which has a long and deep connection with the ocean. Our literature and art roar with the sounds of waves as our poets, artists, and authors capture this relationship throughout what is termed the blue humanities¹. This paper shall argue that while we have expressed this attachment most eloquently in many mediums, this nation has been lax in its more practical expression of such attachment, by way of investment in the potential of Ireland’s seas and its peoples. This paper shall propose that it is along our coasts where the impacts of climate change shall be felt most keenly, and our coastal resilience tested. This paper shall present a case that the Defence Forces, and in particular the Irish Naval Service, can play a significant role in building and defending that coastal resilience. The conversation and debate on climate change, conflicts, and potential catastrophes is ever increasing within national defence and security sectors. It is timely and appropriate that Ireland begins to formulate a plan to deal with the effects of climate change in practical terms. The time to act still exists. This island may be bound by a restless sea, yet we are not bound in our response; actions taken now can allow us to begin to build the coastal resilience required to face our uncertain future.

Introduction

When climate change is discussed, it is often spoken about in terms of something that is happening ‘over there.’ The Intergovernmental Panel on Climate Change sixth assessment report is unequivocal in its findings; that human activity is responsible for climate change, and that the global scientific community are observing unprecedented changes across the entire climate system, with every region of the world being affected². It is “the biggest threat to security that modern humans have ever faced”³, and it has been described to the United Nations Security Council (UNSC) as a “crisis multiplier”⁴. The United States of America has classified it as a “direct threat to the national security”⁵. The communication of the impact of climate change in Ireland needs to evolve and describe what could occur here in far greater detail. A pivot from speaking about the fate of Bangladesh, to the potential impacts on Baldoyle. This is not to ignore or downplay the terrible impacts which may be suffered by other communities, nor to propose the state adopt

1 The emergence of the blue humanities is a belated recognition of the close relationship between modern western culture and the sea. Justine M Baker states that “The blue humanities are characterized by disciplinary fluidity, straddling environmental studies, oceanography, marine biology, maritime history, Atlantic history, ecology, science studies, and more.

2 Intergovernmental Panel on Climate Change: Climate Change 2021: The Physical Science Basis. Contribution of Working Group I to the Sixth Assessment Report of the Intergovernmental Panel on Climate Change [Masson-Delmotte, V., P. Zhai, A. Pirani, S. L. Connors, C. Péan, S. Berger, N. Caud, Y. Chen, L. Goldfarb, M. I. Gomis, M. Huang, K. Leitzell, E. Lonnoy, J. B., R. Matthews, T. K. Maycock, T. Waterfield, O. Yelekçi, R. Yu and B. Zhou (eds.)]. Cambridge University Press. In Press. 2021.

3 David Attenborough, United Nations Security Council, 2021. <https://www.un.org/press/en/2021/sc14445.doc.htm> (accessed 23 June 2021).

4 Secretary-General António Guterres, United Nations Security Council, 2021. <https://www.un.org/press/en/2021/sc14445.doc.htm> (accessed 23 June 2021).

5 Congress.gov. “H.R.2810 - 115th Congress (2017-2018): National Defence Authorization Act for Fiscal Year 2018.” December 12, 2017. <https://www.congress.gov/bill/115th-congress/house-bill/2810>. (accessed 23 June 2021).

a more insular or nationalist stance. In fact, to our credit Ireland has increased its commitment to invest in ‘a better world’⁶ through Irish Aid, Ireland’s Official Development Assistance (ODA) programme. The 2022 ODA allocation is estimated to increase to 0.32 per cent of Gross National Income (GNI), from an estimated 2021 allocation of 0.31 per cent GNI⁷.

A Different Tomorrow

As a relatively environmentally benign island nation, we have not experienced a large-scale environmental disaster in modern times. Yet, this island has suffered grievously in the past on an unimaginable scale; as a nation we still bear the memory of the famines of the mid-1800s, the scars of which remain physically in our landscape and in our stunted demographic profile⁸. Our remarkable political stability has allowed us to deal with most crises of the past decades since independence without fundamentally disrupting the fabric of our society.

Climate change has the potential to be the catalyst for crises which will be both novel and devastating. We are currently battling a global pandemic, from which we have learned many extraordinarily painful lessons. Extreme events, which require complex whole of society responses, such as this current pandemic, place a huge strain on national resources, and national resilience.

The difficult question must be asked, could we at the height of the next pandemic when it occurs⁹, also deal with an extraordinary flooding event caused by extreme precipitation such as experienced across Europe¹⁰ in the summer of 2021, or cope with the potential of a tsunami¹¹ impacting on our western or southern coasts such as occurred in 1755¹² and 1761?

There will be a future large-scale disaster which will impact this island, or the combined effects of multiple simultaneous calamitous events. An acute disaster may be decades away, or it could be tomorrow; however, the effects of climate change as they inexorably continue to mount will be felt first in our highly populated coastal cities, and the lowest lying regions of our coast.

Coastal Resilience

Coastal resilience is defined as “the capacity of the socioeconomic and natural systems in the coastal environment to cope with disturbances, induced by factors such as sea level rise, extreme events and human impacts, by adapting whilst maintaining their essential functions.”¹³ The concept of resilience being the property of withstanding and absorbing change, with the capacity to return post-disturbance to pre-disturbance state¹⁴. Resilience is commonly examined under

6 Department of Foreign Affairs. 2021. “Ministers Welcome Increased Allocation For Overseas Aid”. <https://www.dfa.ie/news-and-media/press-releases/press-release-archive/2020/october/ministers-welcome-increased-allocation-for-overseas-aid.php>.

7 Ibid.

8 Ireland Population 1841 census = 8.2 million. 1851 = 6.1 million, 1890 = 4.7 million, 1911 census 4.4 million, 2021 population 4.9 million.

9 “World Must Be Ready For The Next Pandemic, UN Says On First International Day Of Epidemic Preparedness”. UN News. 2021 <https://news.un.org/en/story/2020/12/1080922>. (accessed 23 July 2021).

10 Pancevski, Bertrand. “Germany Flooding Explained: What To Know About The Devastating Downpour”. Wall Street Journal. 2021. <https://www.wsj.com/articles/germany-flooding-bernd-whats-happening-11626446298>. (accessed 20 July 2021).

11 “Tsunami Hazard And Response”. 2021. Gsi.ie. <https://www.gsi.ie/en-ie/programmes-and-projects/geohazards/activities/Pages/Tsunami-Hazard-and-Response.aspx>. (accessed 23 July 2021).

12 The Lisbon earthquake of 01 November 1775 was the result of violent seismic activity along the major fault line that separates Europe from North Africa, is estimated to have originated some 200 km due south of Lisbon. On 30 March 1761, another major earthquake struck. After both events, southern Irish coasts recorded tsunami events.

13 Masselink, Gerd, and Eli D. Lazarus. “Defining coastal resilience.” *Water* 11, no. 12 (2019): 2587.

14 Ibid. p 5.

three headings or lenses¹⁵; Psychological, Ecological, and Engineering. Ireland needs to critically examine the roles the DF can play in building coastal resilience through these lenses. Only strong communities will be able to face the challenges ahead.

Our coastlines are dotted with communities which have already seen decades of underinvestment¹⁶, marginalisation, population flight to urban centres, and recently the challenges of Brexit, and Common Fisheries Policy changes, and currently the COVID-19 pandemic.¹⁷ These already weakened coastal communities shall face the impacts associated with climate change such as sea level rise (SLR), storms of increasing frequency and severity, and coastal erosion¹⁸. SLR, is often a headline effect which can have devastating consequences on the environment, populations, and infrastructure. It is estimated that 329,117 citizens live in a low elevation coastal zone (LECZ) in Ireland¹⁹. The common definition of LECZ is the contiguous and hydrologically connected zone of land along the coast and below 10 m of elevation.²⁰

The geography of our >7500km coastline leads to the projection that, “Ireland is seen as having an overall low vulnerability to the impacts of sea-level rise.”²¹ This overall low vulnerability to SLR is not much consolation to the residents of the estimated 62,000 homes which will be at risk by 2050²². With more than 50 per cent of the Irish population living within 15km of coast, in particular in our main coastal cities of Dublin, Cork, Limerick, and Galway²³, we are a society which should be intimately connected with the sea. However, we have become increasingly divorced from it.

It has often been said that we suffer from a form of sea-blindness²⁴, we are as Nicolas Allen of the Willson Center for Humanities and Arts, puts it “an island that forgot itself”²⁵. The causes of this blindness are many, and the effects have been long lasting. In the years after gaining independence, we turned our faces towards the land and our backs to the sea. We did not establish our own mercantile marine and “British domination of Irish shipping continued”²⁶, a decision made by a government influenced and constrained by the conditions of the Anglo-Irish treaty. There are strong indications that this sea-blindness is being cured slowly through national policy and strategy such as the publication the Marine Plan for Ireland, titled “Harnessing our ocean wealth” in 2012, and the continual release of incremental updates to that plan in subsequent years. One of the strongest examples of this plan continuing its progress is in the marine renewable energy sector. This sector presents the potential to reduce our dependence on fossil fuels for energy, and the potential to invest in and reinvigorate the communities along our coast. A true forerunner in the ability to build coastal resilience.

15 Flood, Stephen, and Judd Schechtman. “The rise of resilience: evolution of a new concept in coastal planning in Ireland and the US.” *Ocean & Coastal Management* (2014): 19-31. p 20.

16 The Irish South and West Fish Producers Organisation. “Saving Seafood And Harnessing Our Ocean Wealth”. Cork: Octavian Research. (2021)

17 McCarthy, Mark. 2021. “Marine Times Newspaper”. *Marinetimes.ie*. http://marinetimes.ie/news_2021/news0321_news03.html. (accessed 24 July 2021).

18 Li, Xiaorong, James R. Cooper, and Andrew J. Plater. “Quantifying Erosion Hazards And Economic Damage To Critical Infrastructure In River Catchments: Impact Of A Warming Climate”. *Climate Risk Management*. 2021. doi:10.1016/j.crm.2021.100287.

19 McEvoy, Sadie, Marjolijn Haasnoot, and Robbert Biesbroek. “How are European countries planning for sea level rise?” *Ocean & Coastal Management*, 2021. p2

20 Lichter, Michal, Athanasios T. Vafeidis, Robert J. Nicholls, and Gunilla Kaiser. “Exploring data-related uncertainties in analyses of land area and population in the “Low-Elevation Coastal Zone”(LECZ).” *Journal of Coastal Research* 27, no. 4 2011): p757-768.

21 Devoy, Robert JN. “Coastal vulnerability and the implications of sea-level rise for Ireland.” *Journal of Coastal Research* 24, no. 2. 2008. p325-341.

22 Hosford, Paul, and Emily Beament. 2021. “Climate Change Can't Be Avoided Says UN”. *The Irish Times*. 2021.

23 Flood, Stephen, and Judd Schechtman. “The rise of resilience: evolution of a new concept in coastal planning in Ireland and the US.” *Ocean & Coastal Management* 102, 2014. p 23.

24 Mellett, Mark. “Seascapes”. RTÉ Radio 1. 01 Dec 2014.

25 Allen, Nicholas. *Ireland, Literature, and the Coast: Seatangled*. Oxford University Press, 2020.

26 Bryce Evan, *Ireland's Accursed Seabindness: the early lack of a Merchant Marine*. 2021.

An Ocean of Promise

There has been recognition by Government for many years now that, “developing the marine economy is a long game.”²⁷ Ireland has huge potential for off-shore and subsea development “with significant marine resources in sea areas under national jurisdiction.”²⁸ In their recent submission to the Commission on the Defence Forces (CODF) the Marine Renewables Industry Association (MRIA) outlined the enormous potential wind, wave, and tidal energy capacity in Ireland, and they highlighted their opinion of the critical role the DF shall play in the security of both the physical infrastructure and the cyber security of the interconnected power production and distribution elements²⁹. The DF are recognised as “a key component of the security architecture”³⁰, and the role to be played by DF, in particular the NS and Army Communication and Information Systems Corps will be significant. In their submission MRIA forwarded the creation of a National Offshore Intelligence Fusion Centre (NOIFC) separate from the current National Marine Operations Centre (NMOC), with NOIFC holding a remit for security and NMOC for non-security related matters such as safety of life at sea.³¹ These are credible suggestions in advancing the security elements of our marine renewable energy sector.

The role played by the NS and the Sea Fisheries Protection Authority (SFPA) in enabling a sea fishing industry in Ireland is very well understood, and indeed the motto of the SFPA “Seas full of fish, coasts full of jobs” is neat summation of the role to be played by the fishing industry and fishing communities in coastal resilience. For the sea fishing industry to be effective and efficient then the fishing fleet must put to sea in a safe environment where fishing vessels are regulated, inspected, and policed. The NS as the state’s principal sea-going agency must therefore be equipped and manned at sufficient levels in order to credibly conduct the entire range of duties assigned to it now, and into the future. Climate change will place increased pressures on the rich fishing waters of our coasts, in particular if other current fishing grounds in European Europe become less productive.

There is recognition that “increasing demand and competition for coastal and marine space and access to resources diminishes human security”³², and this increasing demand will impact Ireland. As an island which, as outlined previously, may not suffer extreme SLR, we can consider this almost a privileged position when the stark reality faced by other island nations is considered, especially low lying islands in the Pacific, as expressed by foreign minister of the Marshall Islands, Mr. Tony de Brum, who stated that “displacement of populations and destruction of cultural language and tradition is equivalent in our minds to genocide.”³³ While it outside the scope of this paper, those very low lying areas of our own coast must be considered for protection of their existing natural eco-systems, or restoration of their natural defences as studies have found that “the resilience and protective benefits provided by coastal ecosystems against waves, floods and storm surge is very valuable.”³⁴

27 Siggins, Lorna. “Casting off towards a blue future.”. 2016.

28 Long, Ronán. “Legal and technical issues concerning the determination of the baselines in Ireland.” 2008.

29 Marine Renewables Industry Association. “Submission To Public Consultation Commission On The Defence Forces”. Cork: Marine Renewables Industry Association, 2021. p 8.

30 Mellett, Mark. “The Sustainable Development Goals and Common Values: A Vital Framework for Humanitarian Action.” In *A Skein of Thought*, Fordham University Press, 2020. p79-96.

31 Marine Renewables Industry Association. 2021. “Submission To Public Consultation Commission On The Defence Forces”. Cork: Marine Renewables Industry Association, 2021. p 9.

32 Scollick, Andrew Dale. “Building resilience for social-ecological sustainability in Atlantic Europe.” PhD diss., University College Cork, 2016.

33 Tony de Brum, Foreign Minister Marshall Islands, 2015.

34 Sutton-Grier, Ariana E., Kateryna Wowk, and Holly Bamford. “Future of our coasts: the potential for natural and hybrid infrastructure to enhance the resilience of our coastal communities, economies and ecosystems.” *Environmental Science & Policy* 51, 2015. p137-148.

Strengthen The Nation

Security can at times seem to be an afterthought in Ireland. This perspective is changing and conversation on this subject is growing. Professor Ben Tonra proposes that there are four dimensions to the shape of Ireland's security and defence "Ireland's geopolitical position, the absence of a strong martial tradition, a commitment to collective security and international law, and a tradition of military non-alignment or neutrality"³⁵.

The Irish Defence Forces (DF) through the Department of Defence (DoD) clearly recognises the threat of climate change by its inclusion in its strategy documents which state that, "Climate change will see increased competition for scarce land, water and food resources and may have devastating consequences for many states on Europe's periphery."³⁶, and former DF Chief of Staff Vice Admiral Mark Mellett DSM identifies it as the greatest current threat to Ireland³⁷.

The DF is small by any comparative European or near-European peer levels. It is vital that we critically examine the emergency response policies of similar sized nations. For it is the area of emergency response to the aftermath of coastal flooding, or extreme precipitation flooding, and other such events that the DF shall be required to assist with increasingly in the future. The contribution of the DF could be considered under the concept of 'Total Defence'³⁸ as proposed by the Singapore Civil Defence Forces (SCDF). This brings the Singapore Armed Forces and SCDF together with their civilian population under six pillars of Defence, Military, Civil, Economic, Social, Digital, and Psychological. The current experiences of DF during this current pandemic as part of Operation Fortitude³⁹, the HSE ransom-ware attack⁴⁰ and other aids to the civil authority tasks have clearly demonstrated the value of the DF in underpinning many of these pillars. The three lenses of Coastal Resilience (Psychological, Ecological, and Engineering) assist in the recognition of the concept of national resilience.

The Last Line of Defence is the First Line of Defence

A frank conversation must be had on the provision of genuinely effective emergency response capability for the DF in terms of material, training, and personnel. The Defence Forces, Civil Defence, and other state first responders have a clear responsibility that "When a disaster occurs, emergency response and ensuring the safety of a community and its citizens is the top priority."⁴¹ They all have roles in the emergency response preparedness of the state, and they need to be equipped accordingly and in a dedicated fashion. There is a wide belief that there is "a fundamental contradiction to suppose that human rights can be defended by military means"⁴², however it is the proven case that the last of line of defence for a nation, its armed forces, can in times of greatest emergency become, by necessity, its first line of defence.

35 Tonra, Ben. "Security, defence and neutrality: the Irish dilemma." *Irish Foreign Policy*. 2012. p221-241.

36 Department of Defence, *White Paper on Defence* (Dublin: Government Press, 2015. p13.

37 O'Connor, Niall. 2021. "Head Of Defence Forces Says Climate Change Is Single Biggest Threat To Ireland". *TheJournal.ie*. <https://www.thejournal.ie/climate-change-security-risk-to-ireland-mark-mellett-5507407-Jul2021>. (accessed 30 July 2021).

38 Singapore Ministry of Defence, "What is Total Defence?" <https://www.scdf.gov.sg/home/community-volunteers/community-preparedness/total-defence> (accessed 18 June 2021).

39 Operation FORTITUDE is the Defence Forces operation in response to COVID19. This is coordinated by the Defence Forces Joint Task Force

40 Dáil Éireann. Minister for the Environment, Climate and Communications, Eamon Ryan TD, 'Recent Cyberattack and its Impact on the Health System: Statements.', Vo.1007 No.2, 18 May 2021.

41 Bridges, Todd S., Kelly A. Burks-Copes, Matthew E. Bates, Zachary A. Collier, J. Craig Fischenech, Candice D. Piercy, Edmond J. Russo et al. Use of natural and nature-based features (NNBF) for coastal resilience. Vicksburg: US Army Engineer Research and Development Center, Environmental Laboratory, Coastal and Hydraulics Laboratory, (2015).

42 Kaldor, Mary. "A Decade of Humanitarian Intervention: The Role of the Global Civil Society. (2001).

The CODF which will deliver its report of the future of the DF in late 2021 and will hopefully bring some much-needed focus on these abilities and future requirements. It is vital that certain emergency response functions are examined for the possibility of co-operation within the European Union (EU). The terrible fires experienced in Greece in August 2021 were fought in part by specialist aircraft, many of which were purchased through the EU Civil Protection and Humanitarian Aid⁴³ programme. In this programme the EU encourages states to buy fire-fighting aircraft and helicopters, in exchange the EU pay 90 per cent of the acquisition cost and 90 per cent of the maintenance costs. When these assets are deployed the EU will reimburse the member states 75 per cent of the operating cost. The access to the funding is dependent on the member states commitment to deploy them to other member states should they call for assistance.

Ireland may in the future be in need of assistance from our partners in Europe to combat our own emergencies. It is a fair observation to consider how much ecological damage could have been prevented if even a single fire-fighting aircraft had been available to the Air Corps to fight the fires in Killarney National Park in April 2021. It is also a fair observation to consider the assistance which could have been provide to Greece if aircraft to both fight the fires, and to transport fire fighters were available. For example, the European Air Transport Fleet Programme⁴⁴ is an innovate scheme where resources can be pooled for medium and heavy lift military aircraft, membership could have enabled the DF to render aid.

Defend, Protect, Support

This paper has examined just some of the diverse roles of the DF as they defend, protect and support the nation through building national resilience and emergency response capability. The importance of the NS in building coastal resilience is evident. To support this NS role, serious consideration must be given to the development of at least limited forward operating bases (FOB) away from Cork harbour. Such FOBs would better enable the NS to deliver on all aspects of that resilience, enabling better response times in the event of disasters, embedding the NS in more diverse maritime communities, and providing for possible NS expansion through a greater infrastructural footprint. The Defence Forces can draw on the studies such as those in the United States which have found that “The military has strong incentive to prepare and protect its installations from climate-related hazards, an acknowledged threat to national security”⁴⁵ in relation to any such considerations.

If the purchase of the two Lake Class patrol vessels from New Zealand should move ahead, then such an FOB on our east coast would be of vital importance, rather than have naval vessels subject to the exigencies of a civilian controlled port authority. It might also present opportunities for synergy with other state agencies. The Commissioner of Irish Lights has express interest in exploring the potential of sharing services in terms of an east coast logistical base for example⁴⁶.

43 “Forest Fires: EU Continues To Mobilise Assistance For Greece And Other Countries In Region - European Civil Protection And Humanitarian Aid Operations - European Commission”. 2021. European Civil Protection And Humanitarian Aid Operations - European Commission. https://ec.europa.eu/echo/news/forest-fires-eu-continues-mobilise-assistance-greece-and-other-countries-region_en. (accessed 09 Aug 2021).

44 “European Air Transport Fleet Programme (EATF)”. 2021. Eda.Europa.Eu. [https://eda.europa.eu/what-we-do/all-activities/activities-search/european-air-transport-fleet-\(eatf\)](https://eda.europa.eu/what-we-do/all-activities/activities-search/european-air-transport-fleet-(eatf)). (accessed 08 Aug 2021).

45 Stevens, Amelia, and Shana Jones. “Promoting Coastal Resilience through Partnerships and Planning: Communities, Sea Grant Programs, SERPPAS, and Military Installations.” *Sea Grant L. & Pol’y J.* 10, 2020.

46 Commissioner of Irish Lights. “Public Consultation: Commission On The Defence Forces”, 2021.

The commitment by Government to the purchase of a multi-role vessel (MRV) will also have a huge impact on every facet of ability of the NS and DF to build resilience at home and assist those in need abroad. A 140m MRV, with hospital facilities, heavy lift cranes, helicopter landing capability, and landing craft would be an immense strategic asset. The training, skills, and experience developed from overseas operational deployments of any MRV, and its crews could prove invaluable in the future, should the NS need to respond at home.

Another factor for consideration is that the current Naval Base on Haulbowline is at or near capacity in terms of berthage and on shore accommodation for personnel. It also has inherent vulnerabilities to SLR, given the islands relatively low elevation. Genuine issues are experienced at high water during spring tides, and when storm surge or high winds are also present. Major works may be needed to raise the height of vulnerable quay walls on the island, in particular those defences in place for vital quay side buildings such Block Six, which houses the Naval Operation Centre, the Naval Communications Centre, the Fisheries Monitoring Centre, and is also the primary personnel management and administration hub.

On our west coast, with its vast natural resources, its enormous marine renewal energy potential, and the repeated calls for westward investment, suggest that a second naval base in Galway would in fact be a significant positive if the DF were to consider a policy of actively seeking to build coastal resilience. Indeed, this paper would argue that it would be an exemplar of building coastal resilience. A new Port of Galway is currently under proposal. Renmore Barracks is adjacent to the proposed new development and expansion. This would present enormous opportunity to the NS, and the entire western seaboard. The Port of Galway submission to the CODF⁴⁷ makes an excellent summary of the case citing current issues with the restrictions experienced in the lock-controlled Galway docks, and the need for protection and monitoring the ever-increasing maritime traffic off the west coast.

Previous DF Reviews have highlighted the critical requirement to provide security the major sub-sea data cables which stretch out from Ireland into the depths of the western ocean⁴⁸. A less often considered benefit of a diverse Naval footprint could possibly be realised in terms of recruitment and retention to the NS. It is a truth of all warships, that they are ‘rendered redundant in all (their) marvellous sophistication without a crew.’⁴⁹ Permanent FOBs could make the NS a more attractive prospect for potential recruits, while supporting employment opportunities in coastal communities.

47 Port of Galway, "Submission In Respect Of Defence Forces Review". Galway: Calafort na Gaillimhe, 2021.

48 Mulcahy, Shane. "Patrolling Below The Horizon; Addressing Ireland'S Awareness Of Our Maritime Geospatial Domain.". In Defence Forces Review 2019, 114-122. Dublin.

49 de Barra, Ruairi, and Donnacha Curtin. "Muscle And Blood". An Cosantóir, Volume 78, No. 3. 2018. p18.

Conclusion

One of the tropes used by climate change deniers is to demand perfect projections of the future. This is not possible. Science allows us to project a range of pathways based on statistical probabilities, calculated projections, and best estimates. The core science is irrefutable however, humanity cannot persist in the perpetual consumption of the planet's natural resources ad infinitum. Our actions thus far have set in motion events which will have devastating consequences for future generations. Articulating these possible pathways into a unified message, which can move beyond having conversations on the requirement for climate action, to taking action to protect Ireland from threats to our national security, is difficult. The enormity of the challenges ahead can seem overwhelming when viewed holistically by many people.

One such pathway which is clear, is that we need to prepare for more frequent extreme weather events, and sea level rise. It is not only environmental challenges which face those who inhabit our coasts, there are socioeconomic factors which will impact in an ever-increasing manner on already hard-pressed communities. Where our communities meet the sea are uniquely vulnerable, and the DF has a major role to play in building coastal resilience in these areas.

The DF of the future will be required to be agile, and robust. It must be capable of meeting of the demands to come in a credible manner. To do so it may have to enact significant, even radical changes, in its composition, infrastructure, and strategy. Skills and capability gaps must be identified, and action taken to remedy deficiencies. This will take major investment. The preparation for climate change will be expensive, however it is clear when one views crises, natural disasters, and emergency events as they unfold across the globe, failure to prepare for those events will cost far more. It is time for this island nation to prepare for a different future.



The Irish Defence Forces in a Changing Climate: Implications and Suggestions for Preparedness, Adaptation and Mitigation Measures

Dr Andy Scollick

“My mission is accomplished when we also recognise climate change as a matter of national security and when the security sector takes its responsibility to adapt, prevent and be prepared for this new – possible existential – threat.”¹

General Tom Middendorp

Abstract

Militaries both contribute to and are impacted by climate change. The impacts of climate change will shape the future home and overseas environments in which the Defence Forces operate. First, this paper considers how climate change will have significant consequences for a wide range of Defence Forces’ activities and even core functions. Next, it looks at the current carbon footprint of the Defence Forces and at what climate solutions they are applying with a view to achieving greenhouse gas emissions reductions. This is followed by an overview of the advantages of a green military transition, plus the EU framework for guiding defence-related climate actions. Based on examples of military climate practices and emerging technologies for addressing sustainability, the paper suggests a number of practical measures to guide the strategic thinking of those responsible for the future development of the Defence Forces.

Introduction

What has defence got to do with climate change? A great deal. Militaries have a carbon footprint. They contribute greenhouse gases to the overall atmospheric burden that drives climate change. For example, the defence sector accounts for approximately 50 per cent of the UK central Government’s emissions² and 1 per cent of the UK’s total greenhouse gas (GHG) emissions annually.³ Militaries are called upon to assist with disaster management actions following increasingly frequent and severe extreme weather events associated with climate change, such as the deadly July 2021 floods in Germany, Belgium and the Netherlands. Militaries are also expected to deal with violent conflicts associated with climate change impacts. The sub-Saharan Sahel region of Africa, for instance, is experiencing more droughts, desertification and soil erosion, resulting in crop failures, famine, ill health, poverty, displacement and migration.⁴ In this way, climate change is a threat multiplier. The consequences of climate change increase the potential for human mistrust, intercommunal violence, extremism, political, economic and social instability and state fragility in the region. These intersect with other factors such as population growth, weak institutions and poor governance, unequal access to natural resources and environmental degradation. Together, this can exacerbate existing conflicts and contribute to the emergence of new conflicts.

Militaries are also impacted directly. For example, bases, airfields, equipment and personnel are increasingly affected by extreme weather involving high winds, flooding, coastal erosion, heat waves

1 General Tom Middendorp (Ret.), former Chief of Defence of the Netherlands, Chair of the International Military Council on Climate and Security, in “Climate change is also a matter of national and international security: An interview with Tom Middendorp,” JASON Institute for Peace and Security Studies, June 6, 2021, <https://jasoninstitute.com/2021/06/06/climate-change-is-also-a-matter-of-national-and-international-security-an-interview-with-tom-middendorp/>.

2 Ministry of Defence, Ministry of Defence Climate Change and Sustainability Strategic Approach (London: Ministry of Defence, 2021), 6.

3 Ministry of Defence, Powering Future Operations: Net Zero Challenges and Opportunities (London: Ministry of Defence, 2021), 1.

4 Norwegian Institute of International Affairs & Stockholm International Peace Research Institute, Climate, Peace and Security Fact Sheet: Sahel, April 2021, accessed October 20, 2021, https://sipri.org/sites/default/files/NUPI_Fact_Sheet_Sahel_LR5.pdf.

and wildfires; and also by rising sea levels, declining fresh water resources and poorer air quality. Furthermore, militaries have a leading role to play in the innovation and testing of climate solutions⁵ for the benefit of the military itself as well as the state's climate action plan and international climate neutrality⁶ obligations. Overall, climate change is a matter of national, international and human security.

This paper addresses the implications of climate change for the Defence Forces. First, it considers the climate change-related operational environment and its effects on the processes and functions of the Defence Forces. Second, it looks at the role of the Defence Forces in terms of its contribution to climate change and climate solutions. Lastly, based on international examples of emerging military practices that address climate change, it suggests a number of practical measures to guide thinking by those responsible for developing the Defence Forces in coming years.

Climate Change-Impacted Operational Environment

The operational environment (OE) is a dynamic complex of the changing conditions, circumstances and influences that affect the analysis and decisions of commanders, employment of capabilities and activities of military forces. The OE is situated relative to multiple dimensions (spatial, temporal, sociocultural, political, diplomatic, military, economic, informational, infrastructural, environmental and so forth). These variables provide context to actions or events within the OE. The OE is also a particular combination of the land, sea, air, space, cyber and electromagnetic domains of military activity in which operations are undertaken. Therefore, the OE includes a country or region's physical, geological and biological processes and structures in the form of climate, weather, oceanic conditions, terrain, soil, water and ecosystems. The OE also includes human individuals, groups, communities and societies as well as their interrelationships, interactions, communications, social organisation and constructions such as institutions, economy, culture, politics, technology and infrastructure.

How humans behave, what actions we take and how we react to threats and uncertainty are driving changes in the OE. Global climate change is driven by human behaviour, which drives economic and industrial activities, which generate emissions of carbon dioxide, methane, nitrous oxide, halogenated hydrocarbons and other greenhouse gases, which drive the anthropogenic element of climate change. In turn, humans react and behave in response to climate change-related threats (water and food shortages, energy insecurity, extreme weather events, increased disease risk and so forth) and uncertainties. The character of a society's response to climate change can turn an OE from permissive to hostile for a state's military or international forces present in the state to support peacekeeping or counter-insurgency missions.

Not all OEs involve another party's territory or conflict. With climate change-related extreme weather events at home in the domestic OE, a military will increasingly be required to address disaster preparedness, response and recovery operations, usually in support of civil authorities and civil defence organisations. For example, in the United States (US), National Guard units are frequently called up by state governors to assist fire crews battle wildfires on the ground and from the air. Likewise in Australia and elsewhere. In Ireland, the public are already familiar with images

⁵ Climate solutions are practices and technologies that can help stop the increase in levels of greenhouse gases in the atmosphere and then begin to reduce and maintain them at a safe level.

⁶ Climate neutrality refers to achieving net zero greenhouse gas emissions by balancing global emissions so that they are equal to (or less than) the emissions removed from the atmosphere by Earth's natural capacity to absorb and store them in sinks such as forests and oceans. In effect, it means reducing emissions through climate action. The term 'carbon neutrality' refers to carbon dioxide emissions only. See United Nations Framework Convention on Climate Change, "A Beginner's Guide to Climate Neutrality," Blog, February 26, 2021, <https://unfccc.int/blog/a-beginner-s-guide-to-climate-neutrality>.

of Defence Forces personnel filling sandbags and helping with post-flood clean-up. In addition, extreme weather events can directly cause damage to a military's installations and materiel as well as potentially injuring and killing unprotected personnel. For example, approximately 95 per cent of the hangars and other buildings at Tyndall Air Force Base in Florida were severely damaged or destroyed by Hurricane Michael on 10 October 2018.⁷ A month earlier, two Marine Corps bases in North Carolina were extensively damaged by Hurricane Florence. In March 2019, Offutt Air Force Base in Nebraska was overwhelmed by flooding. It costs billions of dollars to rebuild and repair such bases.

Climate change will significantly shape the Defence Forces' future OEs, both in Ireland and overseas. This will have consequences for Defence Forces' processes and functions in general. It will require a fundamental commitment to adaptability at all levels of military organisation and behaviour. Current and projected climate change will continue to directly and indirectly affect a range of Defence Forces' activities, including planning, training, operations, logistics and procurement as well as its infrastructure, including both built and natural estate. A flexible, iterative and adaptive approach to climate change impact assessment and planning is required if the Defence Forces are to minimise the effects on it of rising temperatures and changing precipitation patterns, the increasing frequency and intensity of extreme weather events, and rising sea levels and storm surge.

Such phenomena will alter OEs, necessitating adjustments of capabilities and capacities. For example, Army peacekeeping deployments in the Middle East or Africa that are already affected by water shortages will have to cope with even higher temperatures and further diminished water resources. The Air Corps may experience reduced windows for missions or even damage to Casement Aerodrome airbase infrastructure due to more extreme weather. Naval Service vessels will have to cope with increasing average wave power and height; low-lying levels of Haulbowline Naval Base may experience inundation during concurrent high tides and storm events accentuated by sea level rise. Permanent and Reserve Defence Forces members will increasingly be called upon to assist the civil authorities and Civil Defence during severe flooding, wildfires and other events, for which they may require additional and specialised training. Overall, resilience needs to be built up in the Defence Forces so that they in turn can help the state build resilience to climate change. Conversely, without adaptation, the Defence Forces will become increasingly vulnerable to climate change factors in the OE. The overall structure (organisation) of the Defence Forces may not need to change, but the processes (operations and actions) will be impacted, which in turn could negatively affect core functions,⁸ capabilities and missions. This has consequences for planning and procurement, with significant cost implications.

Ireland prides itself on its contribution to overseas peace support, humanitarian assistance and disaster relief missions. If this strategic role of the Defence Forces is to be maintained, then it must be recognised at the highest political level that the increasing number of tasks performed by the Defence Forces in response to climate change-impacted OEs will overstretch existing capabilities and budgets.

7 Sébastien Roblin, "The U.S. military is terrified of climate change. It's done more damage than Iranian missiles," NBC News, September 20, 2020, <https://www.nbcnews.com/think/opinion/u-s-military-terrified-climate-change-it-s-done-more-ncna1240484>.

8 That is, the defence of the state against armed aggression; assisting An Garda Síochána (the national police service), including the protection of the internal security of the state; participation in peacekeeping, crisis management and humanitarian relief operations in support of the United Nations; and maritime security and fishery protection.

Toward a Climate-Neutral Defence Forces

The Defence Forces have a carbon footprint. Altogether, across the three service branches, there are 9 naval vessels, 26 aircraft and approximately 1,700 vehicles currently in the inventory. Then there is the built estate or installations (bases, training facilities, casement Aerodrome, headquarters, stores and so forth – over 1,200 buildings⁹) which consume electricity and heating oil. Overseas deployments also add to the footprint.

In 2020, the Defence Forces consumed 188 Gigawatt hours (GWh) of energy for electricity, heating and transport.¹⁰ (For comparison, in 2019, the overall energy consumption of Ireland's public sector was 9,898 GWh and for An Garda Síochána it was 187.5 GWh.¹¹) Depending on the mix of fuels, this represents approximately between 35,000 and 60,000 tonnes of carbon dioxide emissions per year from Defence Forces' activities. (For comparison, the public sector was responsible for 1,787,000 tonnes of carbon dioxide emissions in 2019.¹²) In 2020, the Defence Forces consumed 4 per cent less energy than they did in 2019. The overall decrease in energy consumption since 2009 is 20.8 per cent.¹³ The main sources of energy consumption by the Defence Forces during 2020 were utilities:

- Natural gas (25 per cent)
- Electricity including solar PV (16 per cent)
- Heating oil (3 per cent)
- Liquefied petroleum gas (3 per cent)

and transport fuel:

- Marine fuel (31 per cent)
- Aviation fuel (11 per cent)
- Road diesel and petrol (9 per cent)
- Sulphur free gas oil for Naval Service shore power (2 per cent)¹⁴

Clearly, the built estate and naval fleet account for over three-quarters of Defence Forces' energy consumption. The overall Defence Forces' carbon footprint represents a significant contribution to Ireland's overall GHG emissions.

In line with the EU commitment to global climate action under the Paris Agreement and central to the European Green Deal is the EU target to transition to a climate-neutral society by 2050.¹⁵

9 Defence Forces, Army Engineer Graduate Programme Overview: An Elite Leadership Programme for Engineers (Newbridge, Co Kildare: Defence Forces, 2021), 13, <https://military.ie/en/careers/army-careers/what-is-an-army-officer-cadet/what-is-an-army-engineer-cadet/army-engineer-graduate-programme-2021-overview-.pdf>.

10 Department of Defence, Annual Report 2020 (Newbridge, Co Kildare: Department of Defence and Defence Forces, 2021), 107.

11 Sustainable Energy Authority of Ireland, Annual Report 2020 on Public Sector Energy Efficiency Performance: An SEAI Report prepared for the Department of the Environment, Climate & Communications (Dublin: Sustainable Energy Authority of Ireland, 2020), 13.

12 Sustainable Energy Authority of Ireland, 13.

13 Department of Defence, Annual Report 2020, 107.

14 Department of Defence, Annual Report 2020, 107.

15 "2050 long-term strategy," European Commission, accessed July 28, 2021, https://ec.europa.eu/clima/policies/strategies/2050_en.

Within this framework, Ireland is required to develop a long-term strategy on how to achieve the necessary GHG emissions reductions to meet national commitments. Regardless of where the Defence Forces will fit in to the national long-term strategy (when published) relative to other sectors, it is generally accepted that the Defence Forces have a moral and ethical obligation to aim for climate neutrality by 2050. Achieving this 'Net Zero' goal requires a focus on climate solutions.

The Defence Forces are already contributing to climate solutions through a programme of installing solar panel arrays on its built estate in order to generate renewable energy for self-consumption. To date, the Engineer Corps have installed 12 photovoltaic (PV) systems at various Defence Forces installations around Ireland. The PV array installed on a hangar roof at Casement Aerodrome alone produced over 275,000 kilowatt hour of electricity in the initial 12-month period, saving €33,000 on electricity and avoiding over 100 tonnes of carbon dioxide emissions that year.¹⁶ The ongoing PV system installation programme is part of the Defence Forces' plan to expand on-site generation and use of electricity from renewable energy sources, including for the electrification of heating and road transport.

The Defence Forces are also acquiring electric powered vehicles and hybrid electric-fossil fuel vehicles for its fleet, which consists of approximately 55 per cent military vehicles and 45 per cent administrative vehicles. According to Minister for Defence Simon Coveney TD, in June 2021, the fleet consisted of approximately 1,700 individual vehicles. This included 41 electric vehicles and three hybrid vehicles.¹⁷ Therefore, electric and hybrid vehicles currently make up less than 2.5 per cent of the fleet. The majority of the fleet (1,618 vehicles) are diesel engine.¹⁸

The Government clearly recognises the importance of climate action in relation to defence and the demands it places on capabilities and future investment requirements, as reflected in the 'White Paper on Defence'.¹⁹ In this regard, the Department of Defence remains fully committed to incorporating green procurement practices into all defence organisation procurements, in line with national, EU and international obligations.²⁰ There is, of course, more that the Department of Defence and Defence Forces could do, given the resources. The next section looks at the generic advantages of a military green transition, with some concrete examples of the practices emerging in militaries as they grapple with the implications of climate change.

Opportunities and Practical Measures

Defence organisations and militaries around the world are coming to terms with climate threats to security and their own role in climate change. Leaderships are also realising that defence-related climate actions and solutions can generate opportunities for militaries to operate and develop more sustainably. Put simply, there are benefits, including cost savings, to militaries from adapting to threats and mitigating the negative impacts of military activities on the climate.

16 "The Defence Force's Solar PV Project," Sustainable Energy Authority of Ireland, accessed July 28, 2021, <https://www.seai.ie/case-studies/defence-forces-solar-pv/>.

17 Minister for Defence Simon Coveney, "Electric Vehicles, Dáil Éireann Debate, Wednesday - 16 June 2021," Houses of the Oireachtas, June 16, 2021, <https://www.oireachtas.ie/en/debates/question/2021-06-16/131/>.

18 Minister for Defence Simon Coveney, "Departmental Transport, Dáil Éireann Debate, Wednesday - 24 March 2021," Houses of the Oireachtas, March 24, 2021, <https://www.oireachtas.ie/en/debates/question/2021-03-24/805/>.

19 Government of Ireland, White Paper on Defence: Update 2019 (Dublin: Government of Ireland, 2019), 5 & 77.

20 Minister for Defence Simon Coveney, "Select Committee on Foreign Affairs and Defence debate - Thursday, 20 May 2021," Houses of the Oireachtas, May 20, 2021, https://www.oireachtas.ie/en/debates/debate/select_committee_on_foreign_affairs_and_defence/2021-05-20/4/.

Basing, training, deploying and sustaining military forces are energy intensive. Equipment and logistics rely on supplies of diesel, aviation fuel and other fossil fuels and lubricants. The potential for interruption in fuel supply, whether from shortage or hostile action, is an Achilles' heel of military operations. Reducing a unit's dependence on fossil fuels in the field through energy efficiency, green technologies and renewable energy sources should reduce the amount of fuel transported to the field. This lessens a unit's logistical vulnerability, especially regarding 'last mile' resupply in hostile environments. A unit in the field that is able to supply its own needs through deployable renewable energy generating systems and rechargeable batteries is less vulnerable to disruption of fuel supply. Energy efficiency and resilience increases a unit's autonomy, agility and range, giving it operational advantage. A lower noise signature, due to electric-drive vehicles and batteries rather than generators, reduces the chance of detection, adding to a unit's tactical advantage.

Energy efficiency involves providing the same or an improved level of service with less energy. Increasing the energy efficiency of military forces and installations in order to reduce GHG emissions will generate cost savings by consuming less fuel and replacing expensive fossil fuels with renewable energy. Power generated by solar panels, wind turbines, rechargeable batteries and such like, and the electrification of vehicle fleets and heating systems, will reduce operational expenditures across defence in the long-term. In addition to reducing the carbon footprint, diversification of energy supplies improves energy autonomy and security. Furthermore, energy efficiency, energy management and renewable energy skills developed at home can be transferred to overseas operations and vice versa. Technological innovations by the military regarding, for example, low-energy field bases and alternative fuels have the potential for spillover effects into civil sectors and green procurement in general – especially when such innovations are designed to meet the high-performance standards, long lifecycles and extreme operating environments of the military.

The processes of developing, promoting and implementing actions and solutions (i.e. practices) at the nexus between climate change and security may occur out of necessity and emerge through self-organisation, experimentation, learning and adaptation in response to a military's experience of changes in its OE; or they may result from foresight, anticipation, planning and guidance; or indeed some mix of the two.

EU Framework

A pertinent example of a proactive approach is the November 2020 'Climate Change and Defence Roadmap' produced by the European External Action Service.²¹ The Roadmap focuses on actions at EU level, while providing Member States with some preliminary guidance in taking certain actions to address the climate-defence interactions. As a supranational framework, it outlines a set of concrete short-, medium- and long-term objectives in three interlinked areas:

1. The impact of climate change on the OE in which Common Security and Defence Policy (CSDP) missions and operations are deployed.
2. Capability development to ensure that military equipment remains effective under extreme weather conditions; and that energy efficiency and new technologies and practices will reduce the carbon and environmental footprint of missions, operations and the defence sector in general.

²¹ European External Action Service, Climate Change and Defence Roadmap, EEAS(2020) 1251, November 6, 2020, <https://data.consilium.europa.eu/doc/document/ST-12741-2020-INIT/en/pdf>.

3. Strengthening diplomatic outreach in multilateral fora and partnership frameworks dealing with climate change, defence and security, including synergies with the UN and NATO.²²

The EU framework provides a mechanism to transfer climate and security knowledge and best practices among Member States. The Roadmap will draw on examples of innovation and implementation emerging in and around militaries from around the world.

Military Climate Practices

The number of actual applications of climate actions and solutions in the military sphere remains relatively limited. Most are inherently context-dependent. Nevertheless, such practices put into operation the climate-security objectives laid out in various national, EU and international level frameworks. Below are some examples of nascent military climate practices and emerging technologies with relevance to the Defence Forces.

Fuels. Aviation accounts for nearly two-thirds of conventional fossil fuel usage across UK defence. The Royal Air Force (RAF) is required to achieve Net Zero carbon emissions by 2050.²³ All RAF fixed-wing aircraft are now certified to use 50 per cent synthetic fuels with ‘drop-ins’ from sustainable fuel sources, including hydrogenated fats and oils, wood waste, alcohols, sugars, household waste, biomass and algae.²⁴ Since 2017, Sweden has successfully tested JAS 39 Gripen multirole fighter aircraft with a 50/50 mixture of jet fuel and biofuel without any loss of engine performance.²⁵

Naval vessels are energy intensive. The NATO Energy Security Centre of Excellence has published a research study on the use of liquefied natural gas (LNG) as an alternative fuel for naval vessels, with the aim of achieving improvements in efficiency and reductions in emissions.²⁶ The maritime shipping industry is looking at replacing heavy fuel oil, one of the most polluting fuels in the world, with fuel cells that produce electricity from natural gas, hydrogen, biogas, or blends of these, in order to reduce GHG emissions.²⁷ In the US, Scripps Institution of Oceanography will oversee the design and construction of a coastal research vessel with a hydrogen-hybrid propulsion system. It is expected to be able to conduct about 70 per cent of its missions using hydrogen fuel alone.²⁸ Green hydrogen, produced by splitting water using electrolysis rather than from conversion of fossil fuels, has great potential to fuel the path to Net Zero by 2050 in defence.²⁹

22 “Towards a climate-proof security and defence policy: a Roadmap for EU action,” European External Action Service, December 11, 2020, https://eeas.europa.eu/headquarters/headquarters-homepage/90320/towards-climate-proof-security-and-defence-policy-roadmap-eu-action_en.

23 Aaron Mehta and Andrew Chuter, “British military aircraft must hit net-zero carbon target by 2040, says Air Force chief,” Defense News, May 4, 2021, <https://www.defensenews.com/smr/energy-and-environment/2021/05/04/british-military-aircraft-must-hit-net-zero-target-by-2040-raf-head-says/>.

24 “Sustainable fuels to power RAF jets,” Ministry of Defence, December 12, 2020, <https://www.gov.uk/government/news/sustainable-fuels-to-power-raf-jets>.

25 “Successful tests with fossil-free fuel,” Swedish Armed Forces Headquarters, December 3, 2020, <https://www.forsvarsmakten.se/en/news/2020/12/successful-tests-with-fossil-free-fuel/>.

26 Marju Körts, “Liquefied Natural Gas (LNG) as an alternative propellant in the naval field,” NATO Energy Security Centre of Excellence, March 11, 2021, <https://www.ensecocoe.org/en/newsroom/liquefied-natural-gas-lng-as-an-alternative-propellant-in-the-naval-field/492>.

27 Timothy Schweikert, “Fuel Cells are Making Waves in a Centuries-Old Industry,” The Maritime Executive, April 30, 2021, <https://maritime-executive.com/editorials/fuel-cells-are-making-waves-in-a-centuries-old-industry>.

28 Garry Robins, “California gives UC San Diego \$35 million to build a coastal research ship,” San Diego Union-Tribune, July 23, 2021, <https://www.sandiegouniontribune.com/news/science/story/2021-07-23/scripps-oceanography-research-ship>.

29 “How to scale-up green hydrogen,” International Renewable Energy Agency, accessed July 28, 2021, <https://www.irena.org/DigitalArticles/2021/Jan/Hydrogen>.

Renewable energy from carbon-neutral renewable resources including sunlight, wind, freshwater, tides, waves, geothermal heat and biomass. As part of the British Army's Project Prometheus, the first of four pilot renewable energy sites at bases has begun. The 2.3MW solar farm, involving 4,248 PV panels on a 4 hectare site (the size of six football pitches), is expected to supply the Defence School of Transport in Leconfield, East Yorkshire with a third of its electricity needs. Together, the four pilot sites will generate some £1 million in efficiency savings and reduce emissions by 2,000 tonnes of carbon dioxide equivalent per year. These cost savings will be reinvested into Army infrastructure and help to reach the Army's ambition of Net Zero by 2050. Project Prometheus aspires to introduce around 80 further solar farms across the Army estate in the next seven years.³⁰

The US Marine Corps have been using portable solar systems in the field for years. These include the Ground Renewable Expeditionary Energy System (GREENS) and the Solar Portable Alternative Communications Energy System (SPACES). GREENS comprises different configurations of solar panels and rechargeable batteries to provide continuous power for remote outposts and patrol bases. SPACES is a soldier-portable, flexible, folding solar panel array for charging batteries and operating communications equipment for use by squads in remote and tactical environments.³¹

Built Estate. In 2020, the British Army commissioned a prototype carbon-efficient accommodation block at Westdown Camp on Salisbury Plain. This is the first of around 40 new blocks, providing more than 1,700 bed spaces across the UK Defence Training Estate under the Ministry of Defence's (MOD) Net Carbon Accommodation Programme contribution to Net Zero by 2050. The block includes air source heat pumps, which transfer heat absorbed from the outside air to an indoor space, and rooftop solar panels to provide building's energy requirements.³²

Natural Estate. Stewardship of the defence estate comes with a responsibility to protect the environment over the long-term. That means protecting wildlife and habitats (the natural infrastructure), biodiversity and ecosystem services (the benefits accrued from ecological processes). The MOD is one of the biggest landowners in the UK. Its defence estate includes a vast acreage of rural firing ranges and training areas.³³ The MOD's commitment to a sustainable natural estate is reflected in its annual 'Sanctuary' magazine, which contains numerous examples of environmental and conservation management.³⁴ Furthermore, there are over 125 MOD Conservation Groups supporting environmental projects across the Defence estate throughout the UK and overseas.³⁵

Smart Camps. In 2016, the Royal Netherlands Army invited the business and science communities to come up with ideas for reducing the environmental footprint of military bases. The 'SmartBase' programme experiments with innovative civil solutions to minimise the logistics footprint by reducing the use of water and fossil fuels. Tests involving solar panels, wind turbines,³⁶ and self-contained waste-

30 "Army's Solar Farms support commitment to Sustainability," Ministry of Defence, April 7, 2021, <https://www.gov.uk/government/news/armys-solar-farms-support-commitment-to-sustainability>.

31 U.S. Marine Corps, Guide to Employing Renewable Energy and Energy Efficient Technologies (Quantico, VA: Marine Corps Warfighting Laboratory, 2012), 23-26.

32 "Commitment to sustainable construction recognised in MOD Sanctuary Awards," Landmarc, accessed October 20, 2021, <https://www.landmarcsolutions.com/community-hub/news/news-detail-page/2021/03/16/net-carbon-accommodation-programme-recognised-in-mod-sanctuary-awards>.

33 "Lima Charlie: Could Climate Change Be The MOD's Biggest Battle?," Forces Net, September 16, 2019, <https://www.forces.net/comment/lima-charlie-could-climate-change-be-mods-biggest-battle>.

34 See "Sanctuary magazine," Ministry of Defence, last updated March 16, 2021, <https://www.gov.uk/government/publications/sanctuary>.

35 Rebecca Jenkins, "How conservation groups help to protect biodiversity on the Defence estate," Ministry of Defence, June 5, 2020, <https://insidemedio.blog.gov.uk/2020/06/05/how-conservation-groups-help-to-protect-biodiversity-on-the-defence-estate/>.

36 "GEM Tower located at Military Base 'Fieldlab SmartBase' to run tests," Green Energy Mill, May 13, 2020, <http://www.gem-tower.com/gem-tower-located-at-military-base-fieldlab-smartbase-to-run-tests/>.

water-to-drinking water³⁷ and waste-water-to-grey-water treatment³⁸ are conducted at the Dutch Ministry of Defence ‘Fieldlab’ site at Ede-Driesprong in the Netherlands. Military specifications are maintained.

Between 2015 and 2016, the European Defence Agency (EDA) ran a ‘Smart Energy Camp Technical Demonstrator’ project at the EU’s Training Mission in Mali. The purpose was to test the implementation of an intelligent power management system (energy demand management, solar PV renewable production and batteries) in a challenging operational camp environment.³⁹ The demonstrator was transferred to the EU’s Military Planning and Conduct Capability in January 2021.⁴⁰ At the Captieux military base in southwest France, experiments are underway as part of project ‘Eco Camp 2025’ to create a sustainable overseas operations camp that is self-sufficient in water and energy.⁴¹

Assessment and Planning. The US Department of Defence (DOD) has adopted and expanded a climate change assessment tool designed by the US Army Corps of Engineers to project the effects of climate change on almost 1,400 DOD installations in the US and overseas. The Defence Climate Assessment Tool (DCAT) enables planners and decision makers to understand each location’s exposure to climate-related hazards using historical data and future climate projections.⁴² DOD has offered to work with other US government departments and foreign governments on replicating and expanding the DCAT for mutually beneficial purposes.⁴³ Methodologies for integrating climate change-related impacts into defence planning are beginning to emerge. The US Army published the Army Climate Resilience Handbook (ACRH) in August 2020.⁴⁴ It enables installation planners to assess vulnerabilities to climate change impacts and help them include risk mitigation and adaptation measures in planning activities.

Networking. There are now more opportunities for climate scientists, social scientists, representatives of business and non-profit organisations, and policy makers as well as leaders, planners, engineers and others from militaries to engage in dialogue, close the knowledge gap and coordinate their efforts. For example, the International Military Council on Climate and Security (IMCCS),⁴⁵ founded in 2019, is an international network of senior military leaders, security experts and institutions across the world dedicated to sharing information and best practices on addressing the military and security dimensions of climate change.

The above examples of military climate practices are a starting point. There are numerous other examples of practices currently emerging from militaries around the world in what is a growing area of great strategic importance.

37 “Rainmaker Worldwide and Bredenoord Deliver Mission-Critical Water Supply Technology for Dutch Military Bases,” Rainmaker Worldwide, June 12, 2018, <http://rainmakerww.com/2018/06/12/rainmaker-worldwide-bredenoord-deliver-mission-critical-water-supply-technology-dutch-military-bases/>.

38 “Black to grey water conversion on military camp,” Dutch Water Sector, April 30, 2020, <https://www.dutchwatersector.com/news/black-to-grey-water-conversion-on-military-camp>.

39 European Defence Agency, Smart Energy Camp Technical Demonstrator, October 23, 2017, <https://eda.europa.eu/docs/default-source/events/eden/phase-i/information-sheets/cf-sedss-information-sheet-smart-energy-camps-technical-demonstrator.pdf>.

40 “EDA’s Smart Energy Camps Demonstrator transferred to MPCC,” European Defence Agency, January 15, 2021, <https://eda.europa.eu/news-and-events/news/2021/01/15/eda-s-smart-energy-camps-demonstrator-transferred-to-mpcc#>.

41 “Statement by Mrs. Florence Parly, Minister of the Armed Forces, on the energy defence strategy, in Varennes-sur-Seine on September 25, 2020 [original in French],” Vie publique, September 25, 2020, <https://www.vie-publique.fr/discours/276433-florence-parly-25092020-strategie-energetique-de-defense>.

42 David Vergun, “DOD Using Climate Assessment Tool to Understand Impacts of Climate Change,” US Department of Defense, April 22, 2021, <https://www.defense.gov/Explore/News/Article/Article/2576382/dod-using-climate-assessment-tool-to-understand-impacts-of-climate-change/>.

43 “DOD Announces Installation Climate Exposure Assessments Plan Through the Defense Climate Assessment Tool,” US Department of Defense, April 22, 2021, <https://www.defense.gov/Newsroom/Releases/Release/Article/2581027/dod-announces-installation-climate-exposure-assessments-plan-through-the-defens/>.

44 Ariane Pinson et al., Army Climate Resilience Handbook (Washington, DC: US Army Corps of Engineers, 2020).

45 See <https://imccs.org/>.

Recommendations

Explore the possibilities. Net Zero solutions require uptake into military thinking and planning. Cost-benefit analyses require ‘future loading’ to take into account the forecast economic consequences of climate change impacts of a 1.5°C, 2°C or higher global average temperature rise. The cost of research and development, and procurement has to be offset against the potentially dire ecological, social, economic and political conditions of the future.

Lead and inspire. The Defence Forces not only must embrace the Net Zero transformation in spirit, but also must help lead it, through military innovations that benefit and inspire society. Ireland has an opportunity to become a leader, demonstrating actions and solutions to achieve Net Zero.

Exercise foresight. Preparedness starts with being informed about the evidence and projections regarding climate change. Future climate change-impacted OEs require foresight analysis, especially concerning Defence Forces’ overseas deployments. More can be done to assess future OEs, for example, regarding potential climate-related crises.

Be prepared for multiple crises. The Defence Forces must be prepared to operate effectively whenever and wherever needed in response to climate change impacts; and to sustain multiple, concurrent and complex (MCC) response operations. Preparedness begins with planning for enhanced defence capabilities to deliver an increasing number and range of MCC response operations. Preparedness also requires coordination with Civil Defence, Irish Coast Guard and An Garda Síochána to plan for joint MCC response operations at home.

Be adaptive. The Defence Forces and Department of Defence must develop climate change adaptation plans based on assessments of the projected negative impacts of climate change on Defence Forces’ capabilities and operations as well as built and natural estate. Climate change and security should be a theme within an adaptive defence planning approach.⁴⁶

Be informed. Information is key to foresight, preparedness and adaptation. Evidence-based analysis is needed by policy makers as well as decision takers. Defence planners need data and military intelligence; crisis managers need timely information in order to build a picture and respond effectively to climate change-related disasters or sudden changes in the OE.

Work in partnership. The Defence Forces should leverage existing partnerships and seek to form new ones in order to share expertise and assist the development of joint capabilities and preparedness for MCC response operations. Staff exchanges and joint learning and training activities pave the way for multinational responses to climate change-related events. The aim should be to improve operational effectiveness and efficiency.

⁴⁶ See Andy Scollick, “A Strategic Adaptive Defence Planning Framework for state Polities in the 21st Century,” in *Defence Forces Review 2020*, ed. Paul Hegarty and Caitriona Dowd (Newbridge, Co Kildare: Irish Defence Forces, 2020), 34-36.

Interoperability. The Defence Forces should explore opportunities for interoperability with other European militaries regarding climate change and security,⁴⁷ including through the EDA and Finabel European Army Interoperability Centre.⁴⁸

Enable mitigation. Reducing the Defence Forces' carbon footprint starts with benchmarking. This requires developing a methodology to accurately measure and track GHG emissions from all defence activities. The Defence Forces need to engage with climate change mitigation research directly and indirectly through research partners: aims compatible with the Research, Technology & Innovation Capability feasibility study.⁴⁹

Advance the energy transition. Fossil fuels are a major source of GHG emissions in defence. Alternative fuels, such as LNG or green hydrogen, require infrastructure to facilitate the transition. The sustainability benefit of transitioning to hybrid and electric drive vehicles is already understood by the Department and Defence Forces. A dedicated programme of engagement by the Army Engineer Corps with the EDA, other militaries and, specifically, vehicle manufacturers would serve to explore and even contribute to the possibilities for electrification of administrative fleet vehicles.

Leverage the supply chain. The Defence Forces must be a responsible consumer that encourages commercial suppliers and service providers toward Net Zero practices and sustainability standards. The Department of Defence and Defence Forces have a unique supply chain network. Thus, they are in a position to leverage reductions in GHG emissions across the network. As part UK Government procurement policy, the MOD are expected to introduce a requirement for potential suppliers (hoping to win contracts above £5 million per year) to provide a Carbon Reduction Plan that includes the supplier's current carbon footprint and plans to achieve Net Zero by 2050.⁵⁰ This could be replicated in Ireland.

Conclusion

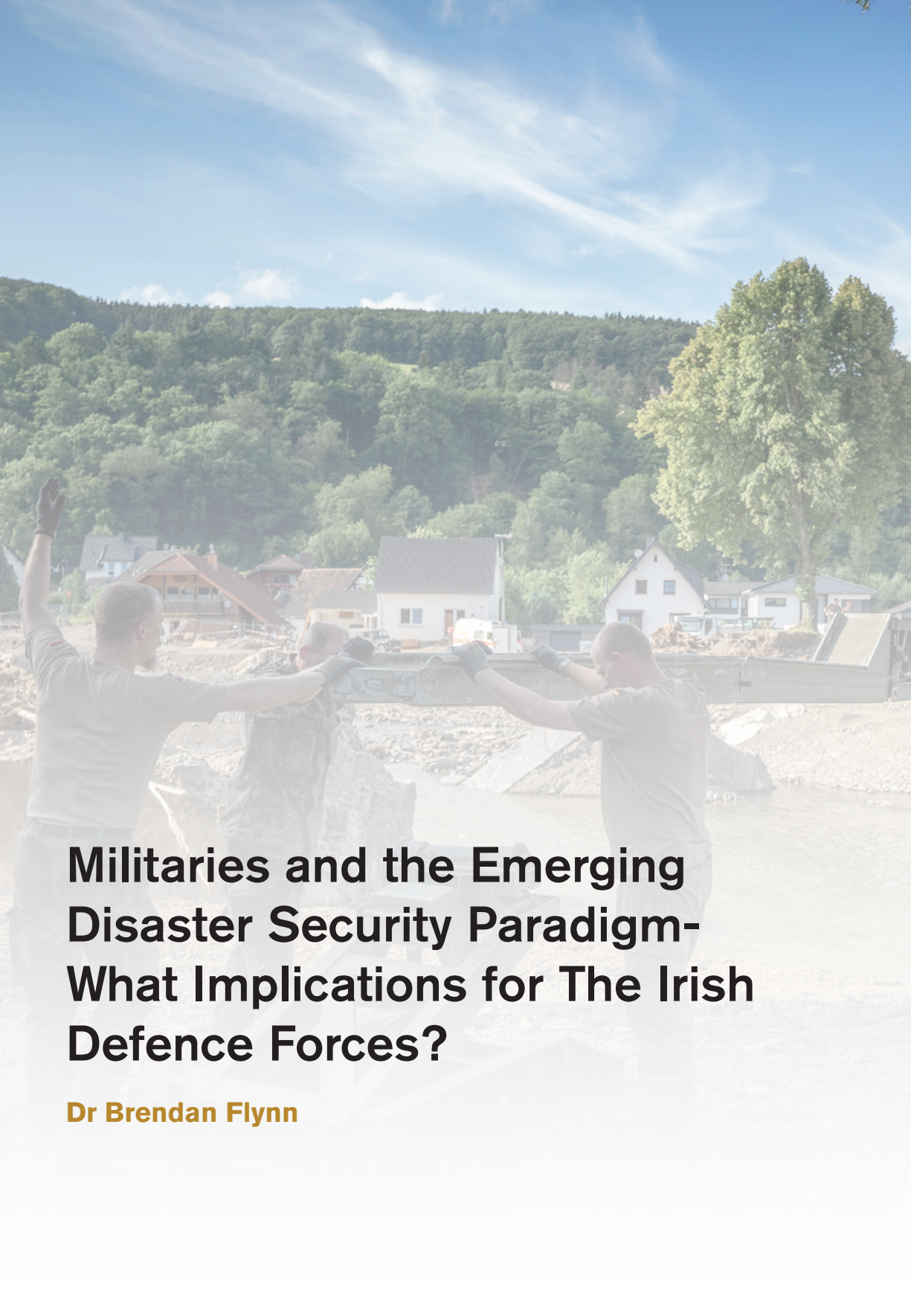
Even if all greenhouse gas emissions from human activities stopped today, the average global temperature and sea levels would continue to rise for centuries to come. Therefore, it is imperative that the Irish Defence Forces prepare now for an operational environment shaped by climate change. The impacts of climate change will fundamentally affect the ways in which the Defence Forces plan, organise, train, employ and sustain the military means to advance state policy and achieve strategic, operational and tactical objectives. In addition to undertaking climate preparedness and adaptation actions, the Defence Forces are obliged to achieve climate neutrality by 2050 and contribute to climate mitigation and environmental protection actions in general. Concrete actions will be guided by the EU's emerging framework for addressing the security challenges posed by a changing climate in the context of the CSDP. This paper looked at the climate-changed operational environment, the Defence Forces' current carbon footprint and climate actions, the benefits to be gained from adaptation and mitigation, the EU framework for guiding climate actions and solutions, and examples of military climate practices and emerging technologies relevant to the Defence Forces. A number of recommendations were suggested to help guide the development of a strategic approach to climate change and security by the Defence Forces.

47 Wauters Gilles, Kaloudiotis Theodoros and Sirikupt Chonlawit, *Armed Forces and Climate Change: Adaptation and Resilience in the Face of a Threat Multiplier* (Brussels: Finabel, 2021), 10-14.

48 See <https://finabel.org/>.

49 Department of Defence, *Feasibility Study: Establishment of a Research, Technology & Innovation Capability for the Irish Defence Organisation - Final Report*, September 2020 (Newbridge, Co Kildare: Department of Defence & Irish Defence Forces, 2020).

50 Richard Morgan, "Suppliers to Plan for Net-Zero or plan to be excluded from Government bids," Three Counties Defence & Security Group, June 16, 2021, <https://www.3cdsg.co.uk/news/suppliers-to-plan-for-net-zero-or-plan-to-be-excluded-from-government-bids>.



Militaries and the Emerging Disaster Security Paradigm- What Implications for The Irish Defence Forces?

Dr Brendan Flynn

Abstract

This paper explores an evolving “Disaster Security Paradigm” (Briggs and Matejova, 2019) which has seen 21st century militaries increasingly respond to emergencies, pandemics, extreme weather events, and relatedly, the challenge of climate change. These missions are nothing new to the Irish Defence Forces, which has played a significant role in responding nationally to the COVID19 pandemic and flooding, or internationally to the Mediterranean refugee crisis, the West African Ebola outbreak and other humanitarian disasters. While many western militaries continue to innovate in facing such threats within their existing force structures and capabilities, this paper explores to what extent this growing trend may require lasting and structural adjustment for national militaries, especially those of small states. Equally, what is in question is how militaries maintain their core roles and competences to avoid becoming civil protection forces by default, which could easily leave them incapable of a fuller spectrum of military operations. In the context of the Irish Defence Forces, such concerns pose challenges but also perhaps opportunities for a military that has some notable features: an outside overseas peacekeeping contribution, achieved from a relatively small professional military base, with few reserves, and a predominance of traditional light infantry supported by relatively few specialist corps elements, augmented by small air and naval services. It is argued that a balancing act is evident as regards any implications for structural change. Professional small state militaries must be agile and credible responders to disasters and climate change, while at the same time keeping their force structure and capabilities suitable for diverse military threats. Moreover, rather than being the exclusive preserve of any one corps or service, there should be great attention paid to ensuring flexible joint and combined disaster relief operations and capabilities, whether on the island of Ireland or internationally. This has significant implications for resourcing, procurement and force structure.

Introduction

Militaries in the firing line of Climate Change?

On the morning of 13th July 2021, German TVs and mobile phones relayed pictures that were straight from a Hollywood disaster movie: bridges washed away, people clinging to rooftops, houses inundated with water. Two western regions had been plunged into Germany’s worst natural disaster in living memory, when unseasonal heavy rainfall produced sudden river flooding, resulting in an estimated 177 fatalities and damage to property or critical infrastructure worth several billion Euro¹. A link with climate change was quickly established in the public narrative of the disaster, suggesting a future trend which wealthy liberal democracies like Germany will now have to face. And one could add here, countries like Ireland, which has also experienced many severe flooding events².

1 Knolle, Kirsti and Riham Alkousaa (2021) “Germany counts cost of floods as hopes of finding survivors fade”, Reuters Press Agency, July 21st, <https://www.reuters.com/world/europe/no-more-survivors-likely-be-found-german-flood-zone-relief-official-2021-07-21/>

2 For accessible details of these see: <https://floodlist.com/tag/ireland/>; for a scientific overview of Ireland’s climate change vulnerabilities see Sweeney J. (2020) “Climate Change in Ireland: Science, Impacts and Adaptation”. In Robbins D., Torney D., Brereton P. (eds) Ireland and the Climate Crisis. Palgrave Macmillan, Cham.



German Army pioneers erect a Medium Girder Bridge (MGB) for the residents during the flood operation in Insul in The Ahr Valley on July 26th, 2021.

Picture credit: ©Bundeswehr/Tom Twardy, with thanks to Lt. Col. Sven Grygiel (Heer).

Central to the German government response was to mobilise their military, who played a leading role in the initial response, notwithstanding particular German constitutional restrictions on using the armed forces to aid civil authorities³. In fact, disaster response is nothing new for the German Bundeswehr and has arguably played a major role in securing their public legitimacy. Famously, in 1962, flooding in Hamburg was so severe that a young local politician, Helmut Schmidt, later to be a defence minister and German Chancellor, overstepped his legal powers and called out the Bundeswehr, a move that was widely supported by the public⁴. In August 2002, the Elbe river system experienced severe flooding which again the German military were crucial in responding to.

Disaster response has then proven to be vital for the Bundeswehr as regards their unspoken bond and social contract with ordinary citizens. A key lesson from the German experience is that the public expects their military to respond credibly, that the military itself must actively embrace such roles, and that at least once every decade, a significant natural disaster will likely occur which presents a severe test. This German experience serves as an instructive case for the wider question of what role militaries can and should play in an emerging paradigm of 'disaster security', and what implications follow for the Irish Defence Forces.

3 Knight, Ben (2021) "How the German military is helping in flood-hit areas", Deutsch Welle Press Agency, July 19th,

<https://www.dw.com/en/how-the-german-military-is-helping-in-flood-hit-areas/a-58319840>

4 See: Bayer, Stefan, and Simon Struck. "The Strategic Orientation of Armed Forces in Times of Climate Change." #GIDSresearch | No. 1 / 2019, p.28, https://gids-hamburg.de/wp-content/uploads/2020/02/Research1-2019_Bayer_Struck_englisch.pdf

An Emerging Disaster Security Paradigm?

Like the end of the Cold War, climate change and increasing disaster risks threaten to pull the rug out from our assumptions on how we plan and respond to security risks... We will not be able to isolate changes into discreet hazards the way that we have often been able to in the past, nor can we look to historical records of events as guidance for what happens next.⁵

The above quote from Chad Briggs and Miriam Matejova (2019) captures what they suggest is an emerging disaster security paradigm: a way of understanding disaster response as a core mission for modern militaries and not just a peripheral or secondary role. It also involves a fundamental insight that disasters will increasingly become a 'new normal' as they are often structurally linked to evolving climate change and deeper environmental and energy resource shifts. A third line of argument is that disasters are never purely natural phenomenon, but rather they can be made more or less likely and severe according to human foresight, action and planning. It is also possible that disasters will be exploited or even engineered for political opportunity, in effect weaponizing them⁶. This perspective is qualitatively different from much of the academic literature of the last decades on resource scarcity or environmental security as precursors to conflict, especially as it advocates using military planning, wargaming and intelligence approaches as part of the wider societal response to climate change and disasters.

In particular it redefines national security well away from the traditional threats of other states, subversion or terrorism, and consequently a deliberate reshaping of militaries is implied. Moreover, it is obviously not just a question of soldiers deployed to abate flooding. Climate change implies severe drought conditions, and therefore forest fires, even in countries such as Ireland⁷. A distinct but related category is the threat of pandemics, very much in our attention cycle now with COVID19, and for which all European militaries have mobilised to respond⁸, with Óglaigh na hÉireann standing up Joint Force Fortitude, a unique ad hoc structure established within days of the first lockdown⁹. However, what we tend to forget is that the COVID viruses, while very infectious, were of a relatively low lethality. A future pandemic could well be worse¹⁰. Moreover, there are some linkages between climate change and vulnerability to future pandemics as the spread of pathogens can be facilitated by biodiversity and ecosystem loss, or for example the spread of exotic species that can be vectors for disease¹¹.

Climate change also manifests in the intersection between natural and humanitarian disasters, as there are systematic linkages between cycles of drought, conflict over scarce resources, foremost water, and regime instability or insurgency. Here there is overlap with the domain of 'human security' although we should be very careful to note that the causation of any 'climate wars' will rarely be simply reducible to

5 Briggs, Chad M. and Miriam Matejova (2019) *Disaster Security: Using Intelligence and Military Planning for Energy and Environmental Risks*. Cambridge: CUP, p16.

6 Briggs and Matejova (2019) Chapter 7, pp.137-139.

7 Irish Environmental Protection Agency research makes it clear that drought and vegetation fires are not a new phenomenon but also that their prevalence and intensity should increase with climate change. See Desmond, M., O'Brien, P. and McGovern, F., 2017. A Summary of the State of Knowledge on Climate Change Impacts for Ireland. Report No. 223. Environmental Protection Agency, Johnstown Castle, Ireland.

8 See for details: Missiroli, Antonio, and Michael Rühle. "The Pandemic and the Military: EU and NATO Between Resilience and Total Defence." *European Foreign Affairs Review* 26(2) (2021): 203-218.

9 <https://www.military.ie/en/who-we-are/army/covid-19-joint-task-force-jtf-/>

10 On this point see: David K B, Ozuluoha C C. 'Past and Present Viral Pandemics: Lessons Learnt and Future Recommendations', *Int J Health Life Sci*. Online ahead of Print ; 7(1):e108965.

11 For this linkage see Lemery, Jay and Paul Auerbach (2017) *Enviromedics: The Impact of Climate Change on Human Health*. Maryland: Rowman and Littlefield, chapter 5.

climate change alone¹². In any event, waves of displacement, refugees and spillover violence may accompany such climate influenced conflict. For example, the worsening conflict in the Sahel and Mali has a climate change aspect, which reinforces pre-existing ethnic conflicts and the appeal of extremist insurgency¹³.

The logic of this particular analysis speaks towards the need for a more expeditionary disaster response role for western militaries. It is surely not enough to merely deploy troops overseas in peace support operations and humanitarian missions, if there are not also flanking measure that address drought or other climate change related phenomenon and their humanitarian consequences. While these can often be provided by civilian agencies and personnel, some situations will also require western militaries to rapidly deploy expeditionary disaster relief forces, especially where security risks are paramount¹⁴. In other words, disaster response is not just a residual mission for domestic military formations at home, but increasingly it is a 'new normal' for western militaries that must become flexible, adaptable forces that can deploy for many types of missions and roles under diverse organisational structures (whether UN, EU, NATO or even AU¹⁵).

What do the military bring to natural disaster response? The most obvious examples are specialised military equipment, notably helicopters and advanced field engineering vehicles. Increasingly these are being augmented by drones and satellite imagery. Specialist field hospitals and possibly even CBRN¹⁶ equipment may also play a useful role. Naval vessels can be extraordinarily useful as secure mobile bases, or to facilitate mass evacuations and deliver aid in bulk. However, it is as often rather general military assets, such as robust and ubiquitous cargo trucks, or infantry battalions deployed as surge manpower, that features.

However, arguably the most valuable contribution of the military is their distinctive planning and decision process, dedicated military command and control (C2) systems, and a deeper culture of leadership. These attributes are probably the least understood or appreciated by the general public, but are often the most needed by civilian agencies, who typically suffer from a severe co-ordination problems in any disaster response, having previously operated each in their own 'silo'. Also useful would be the military approach to fast management of information/intelligence cycles. Today's social media saturated environment makes real time management of the public informative cycle imperative to prevent the spread of 'flash' social panics. Briggs and Matejova (2019) go much further to argue for a significant role for military wargaming, simulation and scenario planning as key tools in both anticipating and planning for disasters. Rather than a reactive model, calling out the armed forces after the event, they argue the military has a positive role to play well in advance, through 'bombproofing' the civilian planning process with more dynamic and robust assumptions and responses¹⁷.

12 Whether climate change simply causes war directly has provoked a heated debate among social scientists. However, a sensible middle ground can be found if one relaxes the causal claims by placing climate change as one among several variables that can lead to conflict and this causal mechanism can operate often very indirectly. See the discussion in Ash, Konstantin, and Nick Obradovich. "Climatic stress, internal migration, and Syrian civil war onset." *Journal of Conflict Resolution* 64, (1) (2020): 3-31, and Regan, Patrick M., and Hyun Kim. "Water scarcity, climate adaptation, and armed conflict: insights from Africa." *Regional Environmental Change* 20 (4), (2020): 1-14.

13 For the most recent scholarly discussion of the relationship between climate change and Mali specifically, see Hegazi, Farah, Florian Krampe and Elizabeth Seymour Smith (2021) *Climate-Related Security Risks And Peacebuilding In Mali*. April. Stockholm: SIPRI. For a wider view of the entire Sahel, see: Graves, Alisha, et al. "Avert Catastrophe Now in Africa's Sahel." *Nature*, 575, no. 7782 (2019): 282-86. For a more sceptical view, although from a narrow data source, which argues that climate changes is not that important in furthering violence in the Sahel, see: Benjaminsen, Tor A, Alinon, Koffi, Buhaug, Halvard, and Buseeth, Jill Tove. "Does Climate Change Drive Land-use Conflicts in the Sahel?" *Journal of Peace Research* 49(1), (2012): 97-111.

14 It should be noted that Irish Engineer Corps personnel have been deployed in small numbers in the aftermath of the Haiti hurricane disaster (2012) and the Asian Tsunami disaster (2004), and Medical Corps personnel deployed two teams with Canadian and British army personnel to help in the West African Ebola pandemic in 2014 as part of Operation Gritrock.

15 I mention the African Union (AU) here because their peacekeepers are among the most active in Africa and they have recently developed policies on the nexus between peace support, intervention and climate change. See the Communiqué of African Union Peace and Security Council, March 9th 2021, at: <https://reliefweb.int/report/world/communiqu-984th-meeting-psc-held-level-heads-state-and-government-9-march-2021-theme>

16 CBRN = Chemical, Biological, Radiological and Nuclear threats and capabilities. An older version of this acronym was NBC.

17 See for examples Briggs and Matejova (2019), chapters 3 and 6 in particular.

Challenges in Embracing ‘Disaster Security’

One problem for militaries if they embrace disaster security is that they invite becoming labelled as ‘just another’ civil protection or emergency service, rather than an armed force whose primary focus is on the lawful use of force and facing down armed threats from state or non-state actors. The discursive widening of security may also then prefigure a narrowing of the concept of defence to become a low priority or residual contingency. For most militaries this is deeply problematic, because unconventional or hybrid conflicts and violent threats remain ubiquitous and large scale inter-state war is quite possible, even if increasingly rare.

In Japan for example, the outstanding response of their armed forces to the Fukushima disaster (2011) led to a debate about whether their military should not be re-imagined as primarily a type of disaster relief service rather than an armed force¹⁸. In Austria and Switzerland, campaigners hostile towards military spending have argued, at various times, for a type of national emergency force rather than an armed defence force¹⁹. While such voices are typically not reflective of mainstream elite or mass opinion, they can reinforce an erosion of military roles, responsibilities and training away from the focus on use of arms.

As always a sensible and pragmatic balancing act is both possible and required, but for small state militaries it is not often appreciated that they have more limited scale and depth to sustain multi-functional roles. They seldom lack the headcount or budgets to equally train and equip for conventional inter-state warfare, unconventional armed threats, as well as peace support operations and now, disaster security missions. One or other of these roles can easily slip as a priority, and the urgent mission has a tendency to displace the remote, but possibly vital, contingency scenario.

It is also worth pointing out here that some academics and NGOs do not welcome the military engaging in what they perceive as a hijacking of the climate change agenda. In the academic jargon, this is labelled as a ‘securitisation of climate change’²⁰, and while one does not necessarily have to agree with such arguments, they should alert us to a real tension between preparing militaries for traditional use of force roles and embracing disaster security. There is a need for clarity and realism. Militaries cannot be ‘climate change first responders’, nor are they a cheap labour force to be exploited at will by other civilian agencies. The obvious balance lies around finding the most added value roles and in providing rapid initial disaster response, together with pre-emptive long term national resilience planning, which militaries have traditionally been strong at. For the military itself, greater attention needs to be paid to multifunctional equipment, training and doctrine, so that they are agile to switch between roles, and are expert but without become over specialised.

18 See the discussion in Samuels, Richard J. 3.11 : Disaster and Change in Japan, Cornell University Press, 2013., pp.87-88

19 For a flavour of the Austrian debate see: Mader, Georg, “Viewpoint from Vienna-Austria’s Military: Renew or Abolish”, European Security and Defence Magazine, 14th February, 2020, <https://euro-sd.com/2020/02/articles/16211/viewpoint-from-vienna-austrias-military-renew-or-abolish/>; on the steady erosion of the Austrian Bundesheer’s warfighting capabilities see Gressel, Gustav (2021) ‘Free-rider for life: Austria’s inability to fulfil its defence commitments’, in Cramer, Clara Sophie and Ulrike Franke(eds.) Ambiguous alliance: Neutrality, opt-outs, and European defence. European Council on Foreign Relations, 28th June, <https://ecfr.eu/publication/ambiguous-alliance-neutrality-opt-outs-and-european-defence/>; In the case of Switzerland their tradition of direct democracy through referendum has led to referenda against conscription (2013) and for the abolition of the army (in 1989 and again in 2001) as well as referendums on major procurements of expensive jet fighter aircraft (in 1992 and again in 2014-the latter being successful).

20 Bayer and Struck, 2019, p.2.

Militaries and the Emerging Disaster Security Paradigm-What implications for the Irish Defence Forces?

Table 1. Comparing Specialist Formations and Assets relevant for Disaster Relief from 5 small state Militaries, 2021.

	AUSTRIA	DENMARK	URUGUAY	NEW ZEALAND	IRELAND
Engineer Units	3 x combat engineer battalions + 8 x Militia Reservist Engineer Coys; Specialist Bridging Coys in 3rd and 6th engineer battalion	1 x Combat Engineer Battalion in 1st Mechanised Brigade; 1x service level Engineer regiment;	6 x Engineering battalions (2 organised in a brigade)	1 x engineering regiment with 6 squadrons (Coy sized), 1 of which is for emergency response and 1 of which is reservist	2 Field Engineer Groups (Cork, Athlone) in the 2 Brigades; 1 service level Engineer Group; specialist bridging equipment
Support Units	4 x support battalions for 4 brigades	1 x service support battalion; 1 x service maintenance battalion			
Signals/CIS Units	2 x signals battalions; also signal coys or elements in each Brigade support battalion	1 x signals battalion in 1st Mechanised Brigade; 2 x signals battalions for combat support in a Signals/Command support regiment	1 x communications brigade with 2 battalions	1 x signals/ command support regiment with 5 squadrons (1 reservist)	2 x Field CIS Coys in the 2 Brigades; 1 service level CIS group
Medical Units	3 x field Ambulatory units; 1 x Emergency medical Service and various medical establishments			Force Health Organisation and Deployable Health Organisation with variable detachments	Central Medical Unit and medical detachments in each Brigade; has deployed abroad to deal with Ebola and on ships for Operation Sophia.
Transport/ Logistics Units	1 x transport coy in each of the four Brigade support battalions; 7 service level supply and transport Coys	1 x logistics Battalion in 1st Mechanised Brigade; 1 x logistics regiment for service support with 2 battalions and other elements.		2 x logistics battalions with 2 dedicated transport coys and 2 reservist coys.	2 transport groups in the 2 Brigades; 1 service level transport group.

Militaries and the Emerging Disaster Security Paradigm-What implications for the Irish Defence Forces?

CBRN Units	1 x CBRN Coy in each of the four Brigade's support battalions; 1 CBRN Depot with instruction/response Coy	1 x CBRN Battalion as part of Engineer regiment, includes a construction Coy			
Specialist Engineer Vehicles	49 (Armoured Recovery Vehicles-Greif, Dingo 2; M88A1)	25 (Wisent, BPZ-2, Biber)	5-6 (Some Russian origin tracked vehicles with amphibious capabilities)	10 (LAV armoured engineering variants)	Various (8x8 recovery vehicles; water purification trailers)
Specialist CBRN vehicles	12 (Dingo 2)				
Helicopters	61 (Alouettes; Kiowa; Blackhawk; AB-212-18 Leonardo A169 helicopters on order)	31 (Merlin; Seahawk; Fenec)	11 (Dauphin; Bell 205/212-all very old)	21 (Seasprite; NH90; A109H)	8 (6 AW139; 2 EC135)
Logistics/Support/ Multi-Role Vessels	Landlocked/NA	12 vessels, mostly small, including at least 2 specialist anti-pollution vessels; 4 landing craft; Denmark participates in the Ark project with Germany (and NATO) giving ready access to several large Ro-Ro cargo/ passenger vessels. 2 of the Absalon frigates have multi-role transport/ hospital ship capabilities		3 vessels with helicopter landing capabilities and 2 landing craft; 1 large Multi-role vessel with hospital and Ro-Ro capabilities.	
Total Active Force (excluding reserves)	22,050	15,400	21,100	9,400	8,750
Deployed Overseas (as a % of Total Active Forces)	838 (3.8%)	645 (4.1%)	1165 (5.5%)	45 (0.4%)	540 (6.1%)

Sources: various, but principally IISS /International Institute for Strategic Studies (2021) The Military Balance. Vol. 121. London: Routledge/IISS and official website of armed forces.

Conclusions

Implications for The Irish Defence Forces?

Given the small size of Óglaigh na hÉireann, their heavy commitment on a per capita basis to overseas peace support operations, and the parsimonious Irish defence budget, the scope for engaging with any disaster paradigm may be considered limited. Unlike some other militaries²¹, Ireland's Defence Force have never developed dedicated standing disaster relief forces, but has improvised within the existing brigade and corps structure. For the most part this has worked satisfactorily, although the establishment of Joint Force Fortitude to deal with the COVID19 pandemic may well be a turning point. A permanent standing formation to address such civil aid emergency roles is logical if one accepts the analysis that because of climate change, such demands will be systematic and growing.

Corps specialists, such as field engineers, medical, signals and logistics troops are often vital in dealing with any civilian disaster. However, the Irish Defence has a rather small specialist corps structure. Table 1 (below) contrasts five small state militaries, including Ireland. These have been selected for diversity, but all have been engaged in extensive overseas deployments. While it is difficult to compare in detail, one can discern some broad trends. Ireland stands out as having in general, smaller specialist corps formations: groups or coys rather than entire battalions or regiments. This may have implications for developing depth in any particular technical services and corps. Ireland's provision of military helicopters, multi-role vessels that can play a disaster relief role, and CBRN units or assets, all seem to be significantly lower than Austria, Denmark or New Zealand. However, it should not be a case of simply assuming disaster security capabilities are the preserve of specialist corps or merely a question of adding to their technical equipment. Ireland's defence forces would obviously benefit from more engineering, medical and signals capabilities and troops, but overall what is needed is a more joint and flexible force posture. Moreover, some capabilities while desirable, may be simply financially infeasible. For example, developing a NATO standard Role/Tier 2+ or 3 level field hospital²², which can operate in an adverse CBRN environment, would be enormously costly (anywhere between 1.8-2.9m USD per month deployed²³) and would require many dedicated professional and technical personnel. For Ireland's Defence Forces it might be more relevant in such cases to develop partnerships with other states so that Irish medical detachments can integrate as part of multi-national medical units.

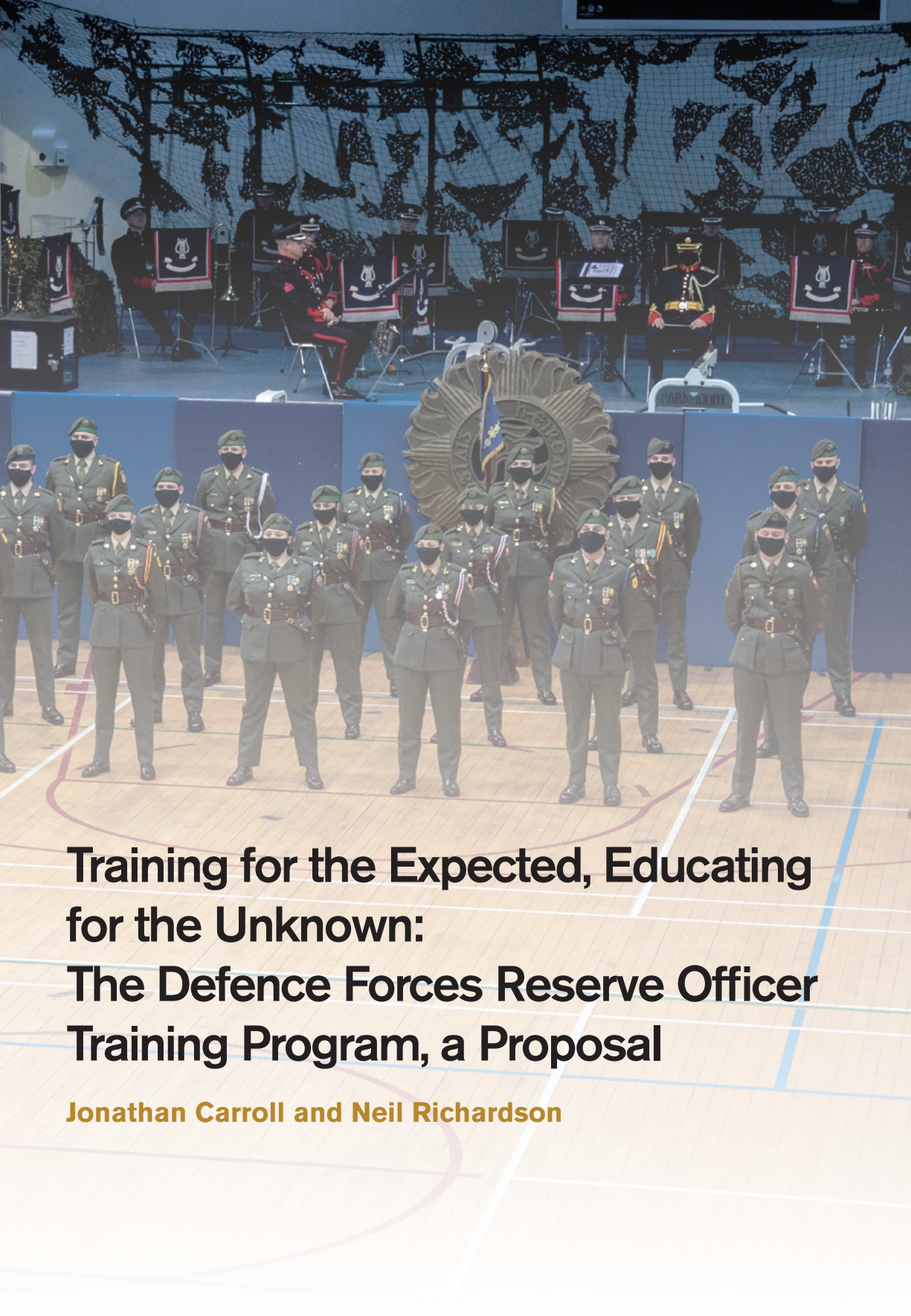
An additional priority for the Irish Defence Forces could well be the greater mainstreaming of climate and disaster relief into Peace Support Operational doctrine and planning, both for Irish contingents but also as part of multi-national formations, whether under UN, EU or other command structures. In previous decades, apart from small observer detachments, Ireland's typical peacekeeping offer was a composite infantry battalion, sometimes with supporting corps detachments. In future, this may be simply unsustainable given a small overall force pool, the rising cost of western military deployments and changes in global peacekeeping that place an emphasis on local forces.

²¹ The Spanish armed forces established in 2006 Unidad Militar de Emergencias as such a standing command. See <https://ume.defensa.gob.es> and Bayer and Struck, 2019, p.15

²² For an explanation of some of the complexities involved from a US Army perspective see: https://www.army.mil/article/210113/army_field_hospitals_and_expeditionary_hospitalization; The British Army developed a new Role 3 Field Hospital in 2016, with a focus on CBRN treatment, and this was deployed as part of their COVID19 response. See: <https://www.army-technology.com/features/featureinside-the-british-armys-new-front-line-field-hospital-4809564/>

²³ See: Childers, Cdr. Richard, CDR MC USN and Col. Paul Parker, RAMC (2015) 'The Cost of Deploying a Role 2 Medical Asset to Afghanistan', Military Medicine, Vol.180 (11), 1132-1134.

Smaller, combined and joint task forces, which blend Irish special forces, trainers, paramedics, engineers, CIS and intelligence specialists, possibly with Air Corps and/or Naval Service assets, together with those of other countries, may offer much greater 'valued added' to any given crisis intervention. This would especially be the case if the strategic intent is either to achieve a quick, initial stabilisation, and the opposite, a long-term presence which nurtures local peace building capabilities but at a much lower footprint. In this regard, the Joint Forces Fortitude example provides inspiration for a future, that while surely containing many unexpected developments, seems also certain to feature numerous and complex disaster response scenarios as climate change trends exacerbate.



Training for the Expected, Educating for the Unknown: The Defence Forces Reserve Officer Training Program, a Proposal

Jonathan Carroll and Neil Richardson

Abstract

Recently, the Covid pandemic prompted legislative changes to the legal foundations of the Defence Forces with the Emergency Measures in the Public Interest (Covid-19) Act 2020. For the Permanent Defence Forces (PDF), this facilitated the prompt reenlistment of former personnel with skills deemed valuable to the Defence Forces. For the Reserve Defence Forces (RDF), the long-sought after provision of employment protection was finally delivered; reservists can now be called up domestically in an emergency without jeopardizing their civilian employment. However, how can the Defence Forces ensure that reservists have skills beneficial to being called up in a contingency? How can the abilities, talents, and service-orientated nature of members of the RDF be better harnessed and integrated to benefit the Defence Forces as a whole? This paper suggests that the answer is an Irish Reserve Officer's Training Program. Such a program has the potential to enable the Defence Forces to attract and retain skilled personnel, even former PDF members, in areas vital to national security. While most prevalent in the United States, the British, Australians, and the Russians have an equivalent system of supporting an individual's third-level education in return for a service commitment. In the context of reserve forces, such programs are cost effective to build skills capacity; on hand when required and without the cost of maintenance when not. With the current Defence Forces personnel retention issues and skills shortages, this paper demonstrates a proposed practical operation of such a program, its potential benefits, and how it would require only modest investment. Yet at the same time it would significantly bolster and integrate the utility of the RDF skills base and increase Defence Forces capabilities across the skills spectrum, making the Single Force Concept more of a Total Force Policy.

Introduction

In the context of supplying a surge of personnel to the Defence Forces the Emergency Measures in the Public Interest (Covid-19) Act 2020 was certainly a step forward. That such legislation was needed highlighted the reality that skilled personnel are a finite commodity for the Defence Forces; supply does not always meet demand. For the (RDF), the new legislation provided long sought-after employment protection, so that reservists could report for duty without endangering their civilian employment.¹ However, this only applies in a declared emergency and does not cater to a contingency of less severity that might still require a Reserve call-up. This legislation was certainly a step forward, but a critical issue remains. Reservists are only valuable if trained, and there is no legislation obligating employers to release reservists or enabling reservists to train for their Defence Forces roles. Consequently, the RDF can be called up, but questionable skills proficiency undermines how reservists can be used operationally. This issue is exacerbated by the recent legislative amendments passed by the Dáil to enable reservists to serve in some capacity on UN or EU peacekeeping operations overseas.² The training gap must therefore be addressed.

¹ Emergency Measures in the Public Interest (Covid-19) Act 2020 (Ireland), Section 27.

² Defence (Amendment) Bill 2020 (Ireland), Section 14, 15, and 17. This Amendment to the existing Defence Acts has passed in the Dáil and is currently awaiting debate in the Seanad. The amendments, if adopted, will allow reservists to serve on overseas deployments on UN peacekeeping operations, or with the EU Battlegroups.

In the absence of training legislation, how can the Defence Forces ensure the availability of skilled reservists, trained, and available when and where necessary? This paper proposes that a Defence Forces Reserve Officer Training Program (ROTP) is the solution. Limited numbers of civilians or serving reservists could attend select third-level undergraduate or postgraduate programs deemed suitable by the Defence Forces, catering to developing skillsets of value or that are in short supply. The Defence Forces finances the reservists' education in return for a contractual obligation by that individual to serve for a set period, providing those skills when required. An ROTP partnership between the Defence Forces and Irish third-level institutions would create a pool of skilled and obligated reservists usable for a variety of contingencies, without the cost of maintaining such skilled individuals in the PDF on a full-time basis.

The skills shortages in the Defence Forces have been a media fixture for several years at this point. In their submission to the Commission on Defence, the Representative Association of Commissioned Officers (RACO) highlighted that in January 2021 there was significant shortages of officers with specialist qualifications in the PDF. In both the medical and marine engineering branches, 50 percent of officers positions were vacant. 33 percent of engineering, 44 percent of CIS Corps, and 28 percent of Ordnance officer positions were also empty.³

The Defence Forces is clearly struggling to compete with the private sector in terms of attracting skilled personnel, a situation made more acute by a recent survey showing that many PDF officers, after leaving the Defence Forces advise against the military as a career.⁴ In one instance, a Defence Forces psychiatrist position was vacant for two years; no one applied for the job due to the poor salary offered.⁵ Thus, the demand is clear, but supply is an ever-increasing problem. An ROTP could alleviate this, in both the short and long term by recruiting either aspiring specialists embarking on third-level programs or established professionals pursuing postgraduate qualifications into the RDF by sponsoring their third-level education in return for an obligation of service.

The U.S. Army ROTC Program

How would such a program work? A model to take inspiration from is the U.S. Army Reserve Officer Training Corps (ROTC) program. The ROTC program offers scholarships to undergraduate students pursuing qualifications in areas of value to the military such as engineering, nursing, and medicine as examples.⁶ Students apply to the ROTC program, passing a military medical, physical fitness and aptitude tests, for either a four-year undergraduate degree program, or a two-year masters level program.⁷ In the periods between semesters ROTC students conduct military training in various areas specific to their service branch, and on graduation from the university, the student is commissioned as an officer in either the active duty U.S. military, or the Reserve or National Guard components. The ROTC program covers the cost of the student's university education in return for an eight-year service obligation, either entirely with the reserve, or four years active-duty, with the final four years as a reservist.⁸ Should a candidate leave the program, they then must pay back the

3 Representative Association of Commissioned Officers, "Commission on the Defence Forces Briefing Document, 16 February 2021," 4-5.

4 Sean O'Riordan, "Damning results from Defence Forces exit survey," Irish Examiner, June 13, 2021.

5 Christina Finn, "Defence Forces finally fill psychiatrist role after nearly two-year long vacancy," The Journal, December 19, 2019.

6 Department of the Army, Headquarters U.S. Army Cadet Command, USACC Regulation 145-1: Reserve Officer's Training Corps Incentives Policy, 2 August 2016, 10-12.

7 USACC Regulation 145-1: Reserve Officer's Training Corps Incentives Policy, 5.

8 USACC Regulation 145-1: Reserve Officer's Training Corps Incentives Policy, 22.

tuition costs the ROTC program paid on their behalf. The ROTC program positively incentivizes applicants by funding their college education, which is relatively expensive in the United States, and disincentivizes dropping out due to the requirement to pay back the money the military has invested in educating the candidate. It is a very effective system of attracting skilled and qualified officers into the services by recruiting them at the start point of their careers and obligating them to serve for a fixed period. Critically, the U.S. military defines the mission by identifying only those qualifications that are required by the services.

The Irish Reserve Officer's Training Program (ROTP) Operating Concept

It must be acknowledged that the cost of education in the United States is far higher than that of Ireland, and that the resources available to the U.S. military greatly exceed those of the Defence Forces. Yet, there is scope for an ROTP to operate in Ireland. Currently, under the Free Fees Initiative, the Irish government pays Irish universities up to €6,270 per undergraduate student per year to support progression towards an undergraduate degree.⁹ Thus, the bulk of tuition costs in Ireland are already paid for by the Government in the case of students from Ireland, or the European Union. Students themselves are required to pay a "student contribution" towards these costs, of €3,000 per year.¹⁰ For those students who cannot afford the student contribution, they apply to Student Universal Support Ireland (SUSI) for grants to pay the student contribution, and to provide a maintenance grant for other university costs, with eligibility based on household income levels.¹¹

While it may seem that between SUSI and the Free Fees initiative the attraction of having the Defence Forces pay for a third-level qualification is non-existent, this is not the case. The Free Fees Initiative does not cater to postgraduate courses, and the eligibility for SUSI grants means that household income must be less than €45,790-54,240.¹² Therefore, between those students' ineligible for a SUSI grant, or postgraduate students that cannot avail of the Free Fees Initiative, there is a sizable cohort where a Defence Forces sponsored education would potentially be an attractive option.

In operation, the ROTP would target skills shortfall in the Defence Forces; these are already known quantities, often reported in the media. The Defence Forces could identify the skills priorities for the next five years and select third-level programs in higher education institutions that qualify individuals in these areas. Within universities, selected courses could be in the areas of engineering, medicine, or cyber security as examples. The Defence Forces then decides how many specialists in these areas are required, or should be maintained on strength for contingency purposes, including some allowance for dropouts. The ROTP then commences a competition for applicants to the program, offering to pay the student contribution, and/or a small maintenance stipend to already serving reservists, or civilian students in return for a period of service of eight years in the RDF post-graduation, for an undergraduate program, or five years for a postgraduate program. The applicants then complete an induction medical, physical fitness test, psychometric tests, and an interview with serving personnel in the service Corps their qualification relates to.

9 Higher Education Authority, "Free Fees Initiative," Last accessed July 27, 2021, <https://hea.ie/funding-governance-performance/funding/student-finance/course-fees/>.

10 Higher Education Authority, "Free Fees Initiative."

11 Student Universal Support Ireland, "Undergraduate Income Thresholds and Grant Award Rates," Last accessed July 27, 2021, <https://susi.ie/undergraduate-income-threshold-and-grant-award-rates/>.

12 Student Universal Support Ireland, "Undergraduate Income Thresholds and Grant Award Rates."

Reserve Training while in Third-Level Education

Once accepted to the ROTP program, the individual in question joins an existing Reserve unit for administration, completing weekly training parades before completing the existing Direct-Entry Military Induction Course during their first summer. Corps specific training – or other role-specific military conversion training – can be modularized and delivered in the subsequent summers in-between semesters before graduation. For example, an undergraduate engineering student at university might undergo a modularised combat engineering course in subsequent summers to give them an understanding of engineering in a military context. Thus, with an ROTP operated along these lines, students' civilian qualifications and their military corps/role specific training are being cultivated simultaneously, resulting in a proficient reserve officer upon graduation.

If ROTP candidates leave the program before fulfilling their terms of service, they become liable to pay back the costs of education the Defence Forces paid on their behalf. But post-graduation, as reserve officers with specialist skills, the Defence Forces does not have to pay them an annual salary or make pension contributions. Instead, the specialists are paid only when needed, but maintained as a latent contingent capability on an ongoing basis. They remain obligated to the Defence Forces, ready to be called up, and continuously developing their skills in a civilian professional setting. Additionally, ROTP graduates can apply for the Defence Forces to fund further postgraduate education, obligating them for a further period of service, and retaining increasingly skilled personnel in the Defence Forces.

It is necessary that, at the end of their first year in the program, students should have the option for an 'early opt out' or to continue with the program. For those that choose to leave at this point, they should be given the option of discharge, coupled with repaying any monies given to them to support their first year in third-level, or rendering two years' enlisted reserve service with a line reserve unit. Such an 'early opt out' clause, coupled with a two years' reserve service obligation, would be necessary to allow for students who were either unwilling or unsuited to remain with the program to withdraw whilst mitigating the loss of personnel to the Defence Forces by mandating a period of line service.

A Broadly Applicable Concept for the Defence Forces; RETP

Conceptually, and operationally, while an ROTP aims to provide officers with specialist qualifications, the skills-shortage in the Defence Forces is not limited to officer-specific appointments. It was recently reported that the Naval Service are experiencing a 33 percent deficiency in chefs, along with other shortages in non-officer roles such as engine room artificers and medics.¹³ Similarly, the Army Nursing Service currently stands at only 3 or 4 percent of establishment.¹⁴ These are qualifications associated with non-commissioned officers (NCOs), and which are often learned and developed in third-level institutions other than universities. As such, there is significant potential for a corresponding Reserve Enlisted Training Program (RETP) to provide enlisted specialists to the Defence Forces in certain areas. Irish third-level institutions lend themselves well to alleviating this issue through an RETP. Within the new 'technical universities', institutes of technology, or other third-level institutions, selected courses could include those providing qualifications such as culinary/catering, mechanical automation, maintenance fitting,

¹³ Sean O'Riordan, "Naval Service hit by shortage of chefs, warns PDFORRA," *Irish Examiner*, July 6, 2021.

¹⁴ Marie O'Halloran, "Defence Forces' nursing service down from 100 to 'just three or four'," *The Irish Times*, June 30, 2021.

emergency medical technician (EMT)/paramedic/advanced paramedic, or nursing. Likewise, during breaks in their studies, a mechanical automation and maintenance fitter apprentice could be required to serve several periods at sea in the engine room of a Naval Service vessel or in an Army vehicle base workshop, while – in keeping with the various other responsibilities of such a role – trainee chefs might also train “as machine gunners and firefighters.”¹⁵ Amongst the Irish population there is a wealth of skills either already developed, or in development, held by individuals who may not want a full-time career in the Defence Forces. The Defence Forces can still harness these skills, but what is currently missing however is a mechanism to do so. An ROTP or RETP would greatly alleviate shortages the Defence Forces currently suffers on an extremely cost-effective basis in relative terms.

Cost Indications and Retention Benefits

For a financially constrained Defence Forces, a key question is always, how much would an ROTP/RETP cost? With the government already paying the bulk of tuition costs, the Defence Forces would in theory only be liable for the student contribution portion of these costs, and perhaps a small stipend to further incentivize applicants. But, if just the student contribution was provided, consider the benefit of the Defence Forces training a software engineer, a doctor, a structural or mechanical engineer, a fitter, a heavy-vehicle mechanic, or a nurse, for between €3,000-4,000 a year for an undergraduate program, or €5,000-7,500 a year for a master’s program. Such a program would not only appeal to younger students, but also to already established professionals looking to attain an advanced qualification to boost their career and are willing to serve in the RDF in return for getting it. Given that the current cost to turn a civilian into a 3-Star PDF Private over 25 weeks is €14,649.33, including clothing, food, and ordnance, gaining an engineering officer over four years for less than €20,000 is a clear bargain, especially when that officer is obliged to the Defence Forces for eight years after graduation from an undergraduate program, or five years for a postgraduate.¹⁶ Hypothetically, if a pilot ROTP/RETP cohort consisted of 100 individuals in a four-year degree or apprenticeship program and the student contribution is €3,000 a year per person, the total cost would be €1.2 million for 100 specialist officers or NCOs who owe the Defence Forces eight years of service after graduation. An ROTP/RETP cohort could be a fraction of that size and cost, possibly only accepting 50 applicants per year, with a commensurate reduction in costs.

An ROTP/RETP would also address the issue of attracting and training officers and NCOs with a broad range of specialist qualifications, particularly in a cost-effective way that does not compete with the private sector for the full-time employment of such personnel. However, there are tangible benefits to such a scheme. By their nature, personnel with specialist qualifications would be utilisable and could expect to be meaningfully utilised. This would provide operational outputs for the RDF and provide the organisation with a significant purpose. Coupled with the positive associations that such personnel would have with the Defence Forces – the organisation that financially supported them throughout their third-level studies – these factors are likely to secure the retention of such reservists in the long-term. Furthermore, such a program would provide the Defence Forces with suitably qualified reservists to serve on operations overseas to fill specialist vacancies if required.

¹⁵ O’Riordan, “Naval Service hit by shortage of chefs, warns PDFORRA.”

¹⁶ Permanent Defence Forces Other Ranks Representative Association, Submission of the Permanent Defence Force Other Ranks Representative Association (PDFORRA) To the Commission on the Defence Forces, (Dublin, PDFORRA, 2021), 34.

The British Ministry of Defence has taken a similar view towards such reserve oriented educational programs, particularly as a vehicle for recruiting committed reservists, noting that, “as highlighted by the US reserve model, one of the most effective ways this could be achieved would be by funding reservists through further education or apprenticeship programmes in exchange for periods of guaranteed service.”¹⁷ Therefore, there would necessarily need to be close interaction between the Department of Defence and the Department of Education and Skills to make an ROTP/RETP a success. However, the benefits to national resilience that such a programme would bring, with the Defence Forces obtaining a wealth of qualified personnel, while students nationwide could learn and develop a range of invaluable, transferable skills gleaned from reserve military service, are likely to be significant, especially in the current resource-constrained, retention crisis environment. The only downside is that the Defence Forces would have to wait the duration of the third-level program or apprenticeship before having the qualified specialist. However, this would bring the Defence Forces in line with international best-practice, as most Western militaries currently operate a four-year officer degree program. Ireland and Britain are some of the very few European exceptions to this.

Transition to Future Operations

While a targeted ROTP/RETP pilot program is recommended, designed to provide the Defence Forces with RDF officers and NCOs with required specialist qualifications, an expanded ROTP/RETP in the future has the potential to address recruitment and retention issues in the wider RDF. Such an expanded program, training students for “line” (i.e., non-specialist) officer and NCO appointments, could replenish conventional RDF appointments across a broad range of ranks in corps such as the artillery, cavalry, or infantry. Given the military-specific nature of these corps – It is hard to find a civilian third-level qualification that directly relates to firing high explosive shells accurately at a distant target – applications could be accepted from students on a broad range of third-level courses, with students undergoing conventional military courses (skills or career courses) during their summers between semesters, resulting in them obtaining a “line” officer or NCO appointment in their respective corps on graduation.

¹⁷ Ministry of Defence, *Reserve Forces Review 2030: Unlocking the reserves' potential to strengthen a resilient and global Britain* (London, Ministry of Defence, 2021), 68.

Conclusion – Moving from a Single Force Concept to a Total Force Policy

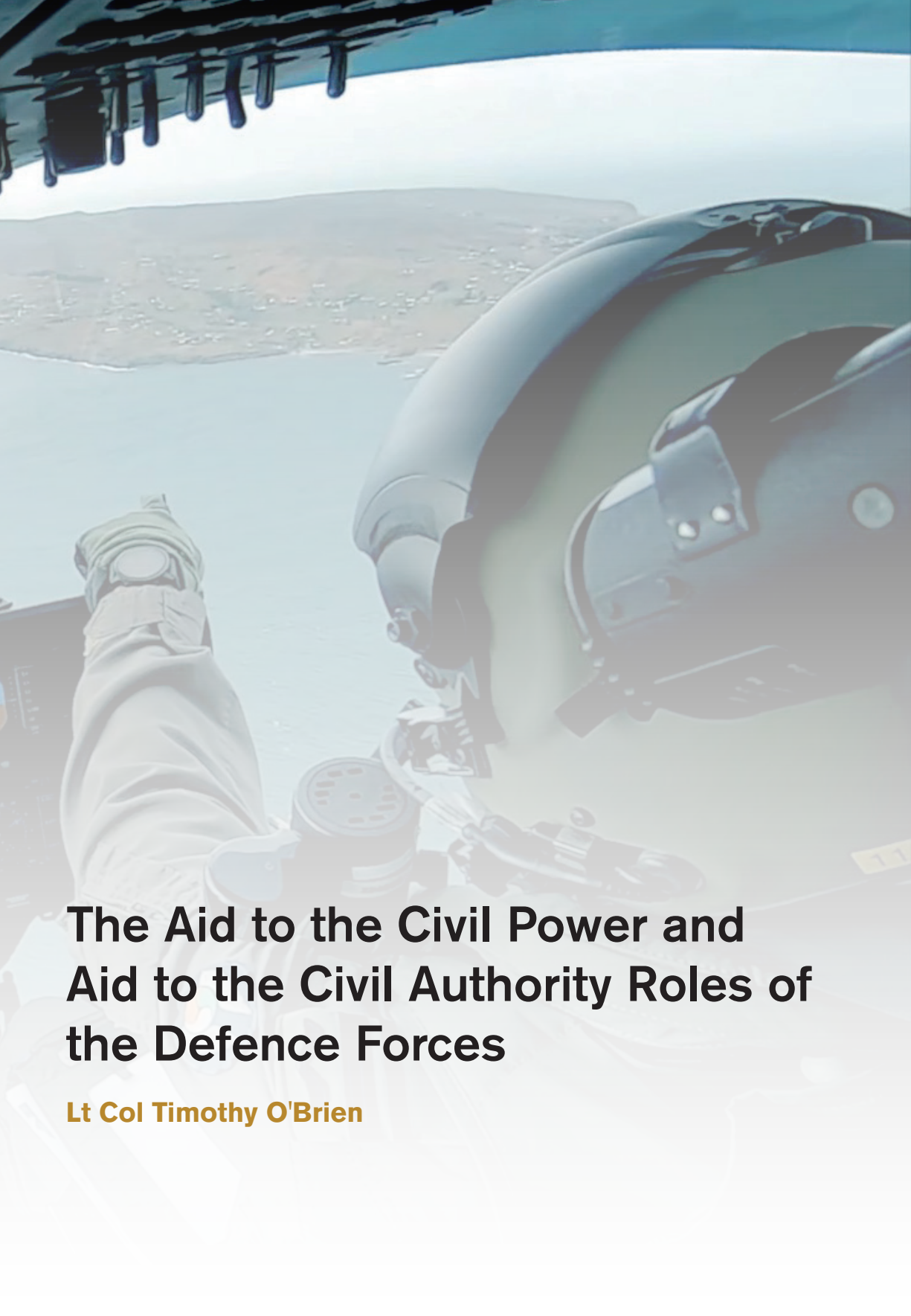
As of December 31, 2020, the RDF comprised 1,588 “effective” personnel; those registered as actively engaging in reserve service.¹⁸ However, due to confusion over RDF administration that often leads to personnel being retained on the “effective list” despite inactivity, the number of reservists attending for paid training each year must be considered as providing a more accurate reflection of the active reserve strength.¹⁹ In 2019, the most recent ‘normal’ training year since the onset of the Covid-19 Pandemic, only 1,019 personnel underwent some form of paid training that year, at a time when the RDF had 1,680 “effectives” officially on strength.²⁰ Therefore, approximately 30 percent of the RDF’s currently stated “effective” strength is likely inactive and that active strength of the RDF is somewhere in the region of 1,000 personnel all ranks. With an authorized establishment of 4,069 personnel all ranks, the RDF has in excess of 3,000 appointments to fill. One of the biggest challenges the RDF faces has been a lack of meaningful utilization. This is reflected in the ever-diminishing number of reservists. Under the Single Force Concept every conventional role the RDF currently caters for, the PDF already provides. Thus, the RDF has no apparent unique capabilities that justify investment and retention initiatives, or operational utilization. However, what the PDF currently needs are specialist skills in quantity. This is a commodity which the RDF, with a wealth of civilian specialist expertise, can provide, especially through mechanisms such as ROTP/RETP. This latent symbiotic relationship has to date remained both unrealized and untapped.

The Single Force Concept, which integrated the RDF into the PDF force structure in 2013 has resulted in a mindset where reservists must align to a menu of capabilities defined not by the skills they could bring to the table, but the limited options on offer under the PDF force structure, with no meaningful attempt to harness the critically valuable skills base reservists have, that the Defence Forces needs. For a small military with stretched financial and materiel resources, thinking outside the box is an absolute necessity. Yet the Defence Forces is in continuing crisis, and the RDF remains inexplicably unexploited. To maintain the skills and capabilities required to achieve its domestic and overseas missions the Defence Forces needs to adopt a Total Force Policy, where critical skillsets are vested and developed within the RDF on a cost-effective basis that can be utilized, and without which the Defence Forces cannot operate. A Total Force Policy would maximize the yield of this symbiotic relationship by providing the Defence Forces with specialist personnel when required, whilst giving the RDF a meaningful role and contribution towards the Irish defence framework. An ROTP/RETP would be just the tip of this iceberg. It is time for the Defence Forces to start relying on the RDF.

¹⁸ Department of Defence, “Tabular Statement: Substantive Strength of the Second Line Reserve,” December 31, 2020.

¹⁹ For more on the issue of Reserve effective strength see Jonathan Carroll, “Conceptually Ambitious, Hardly Novel, and Currently Failing: The Irish Army Reserve in the Single Force Concept,” *The Journal of Military History and Defence Studies* 1, no.1 (2020), 211-216.

²⁰ Department of Defence, “Reserve Defence Forces Manday Report 2019,” January 6, 2020; Department of Defence, “Tabular Statement: Substantive Strength of the Second Line Reserve,” December 31, 2019.



The Aid to the Civil Power and Aid to the Civil Authority Roles of the Defence Forces

Lt Col Timothy O'Brien

An Army Explosive Ordnance Disposal team has made safe a viable explosive device found in Tuam, County Galway this morning. The device has been removed from the scene for further examination.

RTE News, 21 May 2021¹

Abstract

Given the theme of this year's Review, this paper gives an overview of the Aid to the Civil Power (ATCP) and Aid to the Civil Authority (ATCA) roles of the Defence Forces. As the primary day to day, on island, roles of the Defence Forces, the paper demonstrates how ATCP and ATCA operations contribute to national resilience, while simultaneously assisting An Garda Síochána and the other Primary Response Agencies in protecting and supporting communities throughout the State. The paper explains the terms ATCP and ATCA, give detailed examples of each type of operation and provide statistics regarding their frequency. The paper also provides an overview of the role of the Defence Forces within the State's Major Emergency Management Framework, while also examining support provided to a wide range of government departments and agencies, arising from Department of Defence sponsored Service Level Agreements and Memorandums of Understanding. Finally, the paper also demonstrates how the Defence Forces, on government direction, have plans to deal with industrial action in various sectors of society, while also giving an in-depth look into Operation Fortitude, the Defence Forces response to COVID 19.

Introduction

The current Defence Forces (DF) and Department of Defence Strategy Statement sets out a high-level goal to provide for the military defence of the State, contribute to national and international peace and security and fulfil all other roles assigned by Government. For the DF, this goal requires the successful delivery of a range of operational outputs. Referring to these outputs in the foreword to that Strategy Statement², the Minister for Defence Mr. Simon Coveney, outlined how the DF had, from March 2020 onwards, provided a sustained and dedicated response to the challenges presented by COVID-19, which had been an enormous benefit to the Health Service Executive (HSE) and other arms of the State battling the pandemic. These COVID-19 support operations are an example of the Aid to the Civil Authority (ATCA) role of the DF and this paper demonstrates how this ATCA role, along with the broad range of operational outputs that make up the domestic security support role of Aid to the Civil Power (ATCP), both contribute to national resilience and play a significant part in making Ireland a better and safer place to live in.

1 "RTE News." rte.ie. Last modified May12, 2021. <https://www.rte.ie/news/regional/2021/0512/1221146-tuam-unexplained-device/>.

2 The Department of Defence and Defence Forces Strategy Statement 2021-2023 was published on 22 April 2021. See "Department of Defence." Gov.ie. Last modified September 27, 2021. <https://www.gov.ie/en/publication/114cb-department-of-defence-and-defence-forces-strategy-statement-2021-2023/>.

Making Ireland Safer

Aid to the Civil Power

The 2015 White Paper on Defence describes the ATCP role of the DF as an ongoing and contingent task which takes place, on request from An Garda Síochána, in assisting them in their role to protect the internal security of the State³. The White Paper also notes how this armed support, to what remains a predominantly unarmed police force, has historically been of critical importance in maintaining the security of the State. In his *A History of the Irish Army*, John P. Duggan traces the genesis of the organisation's current ATCP role to August 1969, when three Infantry Groups were formed and deployed to Dundalk, Castleblaney, Cootehill and Cavan, as a result of the outbreak of violence in Northern Ireland and the associated subversive threat to the State posed by the Provisional IRA.⁴ Eunan O'Halpin demonstrates the core importance this internal security role meant for the Government during the 1970s, when highlighting the 1974 decision to withdraw a contingent of troops from United Nations peacekeeping service in the Sinai, for redeployment on ATCP operations, following the Dublin and Monaghan car bombings⁵. Commenting in 1987 on the ongoing financial burden of ATCP operations, the then Minister for Defence Mr. Michael J. Noonan, stated that this was the price the Government had to pay to maintain the State's democratic institutions.⁶

Fifty years after the period discussed by Duggan and O'Halpin, the internal security role of the DF continues, as demonstrated in the Defence Organisation's⁷ Annual Report for 2020⁸ which provides ATCP operational statistics for the period 2017-2020. These statistics (Table 1) cover a wide range of operations conducted in support of An Garda Síochána (Irish Police). Contemporary ATCP operations, which are no longer focused on the border with Northern Ireland, can be divided into two categories. These are permanent, or framework operations, which are conducted on a 24-hour basis and non-framework operations that occur following specific requests from An Garda Síochána.

3 Department of Defence, White Paper on Defence, Dublin, 2015: 35.

4 Duggan outlines how the Army previously conducted ATCP operations, in the face of threats to the State by the IRA, during the 1940s and 1950s. See Duggan, John P. *A History of the Irish Army*. Dublin: Gill and MacMillan Ltd, 1991, 280.

5 O'Halpin, Eunan. *Defending Ireland-The Irish State and its Enemies Since 1922*. Oxford: Oxford University Press, 1999, 340.

6 Irish Defence Forces, *The Irish Defence Forces- A Handbook*, Dublin: An Cosantóir, 1987, 4.

7 The term used to refer to both the Defence Forces and the Department of Defence.

8 Department of Defence and Defence Forces, *Department of Defence and Defence Forces Annual Report 2020*, Newbridge: Department of Defence and Defence Forces, 2021:75

Table 1: ATCP Operations 2017-2020				
Type of ATCP Operation	Number of Operations			
	2017	2018	2019	2020
Garda Air Support Unit Missions	991	1,131	1,199	1,070
Central Bank Patrols	1,095	1,095	1,095	1,095
Airport Security Duties	293	299	296	178
Explosive Production Security Guard	365 Days	365 Days	365 Days	365 Days
Central Bank Security Guard	365 Days	365 Days	365 Days	365 Days
Prisoner Escorts	159	130	91	29
Explosive Ordnance Disposal Callouts	100	70	88	81
Naval Service Diving Operations	4	5	7	5
Explosive Escorts	8	5	5	7
Euro Cash in Transit Escorts	4	5	5	6
Hospital Guard	14	2	5	3
VIP Visits	2	2	3	1
Search Operations	8	9	15	12
Air Corps (Others)	0	0	2	9
Totals	3,408	3,483	3,541	3,226

Department of Defence and Defence Forces, Department of Defence and Defence Forces Annual Report 2020,
Newbridge: Department of Defence and Defence Forces, 2021:75

Framework Operations

Framework ATCP operations outlined in Table 1, include the permanent military guards at vital installations, such as the Central Bank of Ireland and at an explosive production facility, the provision of air support to An Garda Síochána by the Air Corps and the deployment of Explosive Ordnance Disposal (EOD) teams by the Army. Arguably it is the latter of these operations that has the highest profile outside of the DF. Manned by specialists from the Ordnance Corps, the EOD team's work includes the rendering safe of improvised explosive devices, commonly known as pipe bombs, which are used by both criminal gangs and dissident republicans. The teams also facilitate the safe disposal of historical munitions uncovered by members of the public, as well as making safe criminal and dissident republican weapons caches discovered by An Garda Síochána.⁹

Non-Framework Operations

Non-framework ATCP operations include special search and clearance operations conducted by Engineer Corps specialists who have adapted battlefield skillsets for use in a domestic environment. They also include Naval Service diving operations, normally search and recovery operations or underwater vessel inspections,¹⁰ as well as the provision by the Army of cash, prisoner and explosive escorts. The 2020 Annual Report also notes the wide range of military support provided to An Garda Síochána during what are referred to as VIP visits: normally visits by foreign heads of state or members of the British Royal family. The White Paper on Defence notes that such support can include the provision of land, air and maritime security cordons, as well as ground-based air defence.¹¹

Contributing to National Resilience: Aid to the Civil Authority

The 2021-2023 Strategy Statement also outlines how the DF will deploy capabilities to approved ATCA operations in response to major emergencies, including severe weather events and pandemics. The primary difference between ATCP and ATCA operations is that during the latter the DF deploy unarmed assets, be they personnel, aircraft, naval vessels, transportation or engineer equipment. Broadly, the current ATCA operations conducted by the DF can be divided into four categories. These are:

Support to the Primary Response Agencies

The Government's 2006 Framework for Major Emergency Management (MEM) lists the State's Primary Response Agencies (PRA) as An Garda Síochána, the Health Service Executive and the Local Authorities. These PRAs, who provide and operate the State's emergency services, are charged with managing the response to emergency situations which arise either locally or regionally¹². The Office of Emergency Planning, staffed by civil-military personnel, and which was established to support the work of the Minister for Defence chaired, Government Task Force on Emergency Planning¹³, lists the types of major emergencies that the PRAs plan for. These include severe weather, flooding, chemical spills, transport accidents, nuclear incidents and animal disease outbreaks¹⁴.

9 For more information on EOD Teams see "Responding, Enabling and Serving- The Ordnance Corps at Home", Signal, Vol 11, No. 1 (2012): 37-45.

10 For details of Diving Section ATCP operations see "Beneath The Waves", Signal, Vol 17, No. 2 (2019):25.

11 Department of Defence, White Paper on Defence, Dublin, 2015: 36.

12 "A Framework for Major Emergency Management", 2006:11.

13 "Office of Emergency Planning." gov.ie. Last modified June 8, 2021. <https://www.gov.ie/en/campaigns/624e4-emergency-planning/>.

14 "Types of Emergencies." Gov.ie. Lat modified June 8, 2021. <https://www.gov.ie/en/publication/d6537-types-of-emergencies/>.

The MEM Framework lists the DF as a secondary responder who can provide a significant support role for the PRAs across a wide spectrum of activity during a major emergency. The Framework outlines how this support is dependent on the exigencies of the service as well as on prior agreed arrangements through Memorandums of Understanding (MOU) and Service Level Agreements (SLA) between the Department of Defence, the DF and other relevant Government Departments or agencies. The White Paper on Defence notes that by developing these MOUs and SLAs, clarity is provided in relation to DF capabilities in providing support during various MEM situations¹⁵.

A typical MEM ATCA operation in support of the PRAs is a severe weather event. As an example, Met Éireann describes how Storm Emma and an accompanying cold spell struck Ireland between the 28 February and 04 March 2018. The result was one of the most significant snowfall events of recent years resulting in widespread disruptions to road, rail and air travel, with work and school closures.¹⁶ During the five days in question, a period which included a red weather warning¹⁷, the DF deployed 2,637 troops across 22 counties on a range of transport and route clearance tasks that included transporting HSE staff to work and to visit patients in their homes, conducting patient transfers for the HSE, clearing snow for the local authorities and assisting An Garda Síochána with the provision of 4x4 vehicles¹⁸.

The ATCA operations conducted during Storm Emma in the southeast of the country by the Army's Third Infantry Battalion, were outlined later that year in Signal magazine.¹⁹ In the lead up to the storm the unit pre-positioned troops and stores from its headquarters in Kilkenny to Reserve DF barracks in Wexford and Waterford. When the storm hit, unit personnel at the request of the regional Emergency Management Coordination Committee and the National Ambulance Service (NAS) conducted patient and staff transfers for the HSE, with priority given to 80 patients requiring dialysis. They also delivered medical supplies to Wexford General Hospital and to outlying clinics throughout Wexford. As weather conditions deteriorated the battalion cleared routes with engineer plant and a snow plough and continued transport operations using snow chains on their 4x4 vehicles. Finally, as conditions started to improve, the battalion deployed manpower to road and path clearance in Enniscorthy, Bunclody and other villages throughout Wexford.

If a severe weather event is a typical ATCA operation in support of the PRAs, then a non-typical operation was taking place as this paper was being written. Following the "ransomware attack"²⁰ on the HSE in mid-May 2021, the DF, for the first time deployed what the Minister for Defence described as "military cybersecurity expertise" in the form of Computer Incident Response Teams (CIRT) to hospitals and other HSE facilities throughout the State to assist the Executive in restoring services to both its staff and patients. A total of 837 personnel deployed to 48 HSE sites after what was a debilitating cyberattack.²¹ The Teams, each of which consisted of 5 personnel, replaced the operating systems on 69,081 devices in use by the HSE. CIRTs had been established by the DF Communications and Information Services Corp in 2013 following the publication

15 Department of Defence, White Paper on Defence, Dublin, 2015: 42.

16 "Met Éireann." Met.ie. Last modified May 02, 2021. <https://www.met.ie/storm-emma>.

17 Issued when there are rare and very dangerous weather conditions resulting from intense meteorological phenomena.

18 Fitzgerald, Wayne. "Manpower & Mobility: Defence Forces Provides Aid to Civil Authority", *An Cosantóir* 78, No. 3 (2018): 12-14.

19 Tobin, Patrick. "Beast from the East": A Lieutenant's Perspective", *Signal*, 16, No. 1 (2018):37-39.

20 Lally, Conor. "HSE ransomware attack may cost lives, warns Coveney." *Irish Times*, May 20, 2021, accessed May 21, 2021. <https://www.irishtimes.com/news/crime-and-law/hse-ransomware-attack-may-cost-lives-warns-coveney-1.4570676>.

21 Griffin, Niamh. "CUH among hospitals to get Defence Forces help after HSE cyberattack." *The Irish Examiner*, July 10, 2021, accessed Oct 13, 2021. <https://www.irishexaminer.com/news/munster/arid-40334051.html>.

of the DF Cyber Defence Strategy²². On establishment, the Teams were designed to facilitate the ability of the organisation to detect and respond quickly to a cyber-security incident.

Non-MEM Tasks Arising from MOUs and SLAs

An updated list of MOUs and SLAs is published annually by the Department of Defence in their Annual Report and the 2020 iteration lists 24 MOUs and 27 SLAs²³. These documents do not deal solely with major emergencies. Other ATCA tasks for the DF, arising from their production, include the conduct of fisheries protection operations and the operation of the State's Fishery Monitoring Centre on behalf of the Sea Fisheries Protection Authority, assisting in staffing the National Cyber Security Centre, the provision of Fire Fighting Support to Dublin Airport, an Emergency Aeromedical Service (EAS), an Air Ambulance Service and support to both Met Éireann and the Environmental Protection Agency. Statistics for this category of ATCA operation are also reported on annually and as an example the Department of Defence's 2020 report highlight how the Air Corps provision of an EAS for the NAS, from Custume Barracks in Athlone, saw the completion of 366 missions. These flights provided rapid patient transport to an appropriate medical facility when the NAS deemed the normal land transit times to be clinically unacceptable²⁴. Another 2020 example of this category of ATCA operation, covers the State's maritime domain where the Naval Service and Air Corps Maritime Defence and Security Operations included the provision of 781 days of fisheries protection patrolling by the Naval Service, while Air Corps Maritime Patrol Aircraft conducted 152 patrols of the State's territorial and Exclusive Economic Zone waters. These operations led to the detention of 16 Irish and other European Union fishing vessels for a range of infringements.²⁵

Industrial Action

The White Paper on Defence outlines that it is government policy that the DF will engage with the Irish Prison Service in relation to support that will be provided by the military in the event of large-scale industrial action in the State's prisons. The same document states that the Air Corps will provide a rescue firefighting service to Dublin airport, if the Dublin Airport Authority is unable to maintain its normal firefighting services²⁶. Regarding industrial action within the HSE, the 2019 Annual Report notes that the DF deployed a total of 88 personnel on 7 separate occasions to Dublin, Cork and Kildare, due to industrial action by HSE ambulance personnel²⁷.

22 "The Asymmetric Threat: Cyber Security" Signal, 14, No 1 (2016): 27-33.

23 Department of Defence and Defence Forces, Department of Defence and Defence Forces Annual Report 2020, Newbridge: Department of Defence and Defence Forces, 2021:110-111.

24 Department of Defence and Defence Forces, Department of Defence and Defence Forces Annual Report 2020, Newbridge: Department of Defence and Defence Forces, 2021:94.

25 Department of Defence and Defence Forces, Department of Defence and Defence Forces Annual Report 2020, Newbridge: Department of Defence and Defence Forces, 2021:92-93.

26 Department of Defence, White Paper on Defence, Dublin, 2015: 45.

27 Department of Defence and Defence Forces, Department of Defence and Defence Forces Annual Report 2019 Newbridge: Department of Defence and Defence Forces, 2020:47.

COVID-19

Writing in the Irish Times on 19 June 2021, columnist Mr. Fintan O'Toole, reflecting about what he imagined as a post COVID-19 Ireland, described how the DF "put themselves at risk and worked themselves to the bone" in responding to the pandemic. Mr. O'Toole argued that this was an example of "the value of public service" in the State.²⁸ The first COVID-19 ATCA operation conducted by the DF began on 13 March 2020 when Cadets from the Military College acted as contact tracers for the HSE. Within a week the General Staff established a Joint Task Force (JTF) in McKee Barracks in Dublin to coordinate what was expected to be an unprecedented demand for ATCA support.²⁹ This foresight on the demands that would be placed on the DF proved correct and by 31 December 2020 a total of 53,930 troops, sailors and aircrew had been deployed on what is known in the DF as Operation Fortitude³⁰. In addition to contact tracing, the initial tasks requested of the JTF in March 2020, included the establishment and staffing of test centres, the transportation of patients who had no access to public transport and the deployment of Medical Corps personnel to hospital emergency departments³¹. By the end of 2020, these tasks had expanded to include non-clinical support to Residential Care Home facilities, the deployment of naval vessels as logistical platforms for test centres in Dublin and Galway, transportation of COVID-19 tests to Germany and PPE throughout the State and the siting in barracks of Temporary Body Storage facilities³².

The DF publish weekly updates on Operation Fortitude and as an example for the week of 21 to 27 June 2021, 1,504 personnel, 370 vehicles and 14 aircraft were deployed on COVID-19 related ATCA operations³³. Troops were provided to 13 vaccination centres in Galway, Limerick, Sligo, Dublin, Waterford, Athlone, Castlebar, Ennis and Letterkenny, while personnel were also deployed in support of the Mandatory Quarantine Scheme at national points of entry in Cork, Dublin, Shannon and Rosslare. Army and Naval personnel were also deployed at 6 hotels operating as mandatory quarantine facilities in Dublin. From a logistics perspective the Army and Air Corps also conducted convoys and flights to transport medical supplies, personnel and equipment, while logistical and inventory management support was provided to several HSE test facilities and vaccination centres throughout the State.

Brigadier General Brian Cleary, the first officer appointed as Commander of the JTF, describes how the establishment of a new formation headquarters, to plan exclusively for COVID-19 related operations, allowed these operations to take place, without interfering with the planning and execution of the framework and on request ATCP and ATCA operations outlined above. Throughout the COVID-19 crisis to date, these operations have, without exception, continued uninterrupted in tandem with Operation Fortitude related tasks.³⁴

28 O'Toole, Fintan. *New Ireland Anything is Possible*. The Irish Times Weekend Review. 19 June 2021:1.

29 Coyle, Lee. "Joint Task Force", *An Cosantóir* 80, No. 5 (2020): 30-31.

30 Department of Defence and Defence Forces, *Department of Defence and Defence Forces Annual Report 2020*, Newbridge: Department of Defence and Defence Forces, 2021:87.

31 Coyle, Lee. "Joint Task Force", *An Cosantóir* 80, No. 5 (2020): 30-31.

32 Department of Defence and Defence Forces, *Department of Defence and Defence Forces Annual Report 2020*, Newbridge: Department of Defence and Defence Forces, 2021:85-86.

33 "Irish Defence Forces." *military.ie*. Last modified June 30, 2021. <https://www.military.ie/en/members-area/members-area-files/ic-weekly-update-29-june.pdf>

34 Department of Defence and Defence Forces, *Department of Defence and Defence Forces Annual Report 2020*, Newbridge: Department of Defence and Defence Forces, 2021:2.

Conclusion

In delivering their required high-level goal, to fulfil all roles assigned by Government, the DF plan, execute and sustain, daily framework and on request ATCP and ATCA operations. This paper has demonstrated how these operations, which are conducted nationwide in a manner that is agile, flexible and adaptive, to what can often be continuously changing circumstances, represent a significant part of the DF contribution to national resilience. The deployment on these operations of well trained, equipped, motivated and led soldiers, sailors and aircrew plays a fundamental role in making Ireland a safer and better place to live and in the view of the author, justify the investment that the Government makes in the DF. In stating this, the author is reminded of the opening sentence of the 2015 White Paper on Defence: “The security of the State and its citizens is a primary responsibility of Government”.



The Challenge of Resilience in Future Communications, Navigation and Surveillance (CNS) Systems Supporting Air Traffic Management (ATM)

Lt Col Ray Martin

Abstract

For nearly two decades there has been a struggle to modernise ATM and navigation systems. Many have bemoaned the slow pace of change and delays in introducing technologies that have the potential to reduce costs and drive efficiencies. However, there is new impetus and, in Europe, the EU is driving change through regulations. This will modernise the three pillars on which ATS and air navigation is based – Communications, Navigation and Surveillance (CNS).

While traditionally the three pillars have been separated, modern technology will allow the use of modern communications and satellites to fulfil the required functions. This poses challenges. In the future, a failure of the satellite signal could affect navigation, surveillance and, potentially, communications. This interdependency could create vulnerabilities, which, if realised, would have the capacity to affect the three functions of the entire system.

The paper considers the challenges posed by the new CNS methods. It will examine the threats to the system such as intentional interference and considers the potential impacts on navigation and the ability to access airports. It will also consider factors to be accounted for when developing contingency procedures to ensure that connectivity is maintained and that there is a resilient system. It considers how to maintain military effectiveness in such contingency arrangements.

Introduction

Most readers are familiar with the concept of Air Traffic Control (ATC) but this is just one part of a system of systems referred to as ATM/CNS. Air Traffic Management (ATM) is “the aggregation of the airborne and ground-based functions (air traffic services, airspace management and air traffic flow management) required to ensure the safe and efficient movement of aircraft during all phases of operations.”¹ Associated with ATM are three critical enablers – Communications, Navigation and Surveillance (CNS) systems.²

For decades there has been a struggle to modernise international ATM/CNS and many have bemoaned the slow pace of change.³ However, there is new impetus and the EU is driving change to modernise the CNS pillars of ATM and air navigation.

Simultaneously, there is increased focus on resilience in the ATM/CNS system, which Eurocontrol describes as:

*The intrinsic ability of a system to adjust its functioning prior to, during, or following changes and disturbances, so that it can sustain required operations under both expected and unexpected conditions.*⁴

Development of resilience within the ATM/CNS system is vital to ensure that the system is capable of absorbing short- and longer-term disturbances to ensure the safety of air travel in a cost-effective way.

¹ European Union. Regulation (EC) No 549/2004 of the European Parliament and of the Council of 10 March 2004 laying down the framework for the creation of the single European sky. (Brussels: European Union, 2004).

² Ibid.

³ “Strengthening the Single European Sky.” Iata.org. Last modified 16 February 2021. url: <https://airlines.iata.org/news/strengthening-the-single-european-sky>.

⁴ EUROCONTROL. A White Paper on Resilience Engineering for ATM. (Brussels: EUROCONTROL, 2009), 2.

Future ATM resilience is closely linked with scalability⁵, which may be achieved through standardisation of processes, data distribution, digitalisation and virtualisation. These could allow ATC move away from having to be provided from centres within the areas they serve, in a similar way to the manner e-commerce has separated the marketplace from the physical store. This virtualisation would allow, for example, the total European ATC resources to be matched to wherever the demand is and allow transfer of operations should an ATC centre have to close unexpectedly. Virtualisation and digitalisation depend on data networks and it will be vital to ensure the integrity of such networks against cyber threats and ensure internal integrity through trusted use and the appropriate sharing of data. However, the focus of this paper is not on operational ATM but on the CNS enablers, which, to date, have been largely separated.⁶

Communications between ATC and aircraft have been traditionally radio based with specific transmitters and receivers serving individual ATC centres. Voice communications between controllers were largely built on direct phone lines with diverse routings. Similarly, data communications have been based on fixed and diverse lines.

Navigation systems typically have ground and airborne elements. A large infrastructure of ground-based navigation aids such as VHF Omni Range (VOR) and Non-Directional Beacons (NDB) provide enroute and approach navigational assistance while Instrument Landing Systems (ILS) provides landing assistance. An airport has normally ILS serving its runways supported by NDBs and/or VORs. One navigation aid failure does not affect other navigation aids and flight operations can be supported in degraded states. Such navigation aids come with disadvantages. They can be costly in real estate footprint, equipment purchase, commissioning and maintenance. They must be flight checked regularly. ILS has sensitive areas which reduce airport capacity in very poor weather. They all use electromagnetic spectrum which could be sold for other purposes.

Surveillance is provided by various forms of radar – primary and secondary. Secondary radar systems (SSR) require aircraft to operate a transponder which provides information on the aircraft's identity and altitude (Modes A and C). A more advanced form – Mode S – allows transmission of additional and more accurate information. Primary radar, which sends out a signal that is reflected by the aircraft and can detect aircraft without any airborne equipment, is probably no longer required for civil ATM except to detect non-SSR-compliant aircraft near airports.

Current technology allows modern communications and satellites to replace the above “legacy” CNS systems. This presents challenges. Today, should one pillar of the CNS system be disrupted, only that function is affected, without compromising the other two. For example, if a ground-based navigation aid fails, then another one may be used for aircraft navigation or an ATC controller using radar and traditional radio can guide the aircraft successfully. In the future, disruption of a satellite signal could disrupt navigation, surveillance and communications. This interdependency may create vulnerabilities affecting the three functions of the entire system – producing the possibility of single points of failure.

This paper looks at the challenges posed by the new CNS methods and considers some risks to resilience posed by disruption of navigation satellite signals.

⁵ Scaling to meet demand is difficult in ATC. To meet the demands of busy periods ATC is overstaffed during quiet periods. Scaling up rapidly for increasing traffic levels is difficult due training lead-in times.

⁶ ICAO. Annex 10 to the Convention on International Civil Aviation, 5th Edition. (Montreal: ICAO, 2014).

Towards Future CNS

Data and voice ground communications are changing, moving from discrete physical connections to virtual technologies. The drive for ATM scalability will push towards greater virtualisation. Data communication is already replacing some voice communications between ATC controllers and aircraft, providing a significant increase in capacity. Extra capacity will mean traffic will grow increasing reliance on datalink, failure of which could result in an over-load on frequency capacity and controller workload when reversion occurs.⁷

The future civil surveillance system will see the removal of older Mode A and Mode C secondary radars. Civil primary radars will also decrease in number. Surveillance will be largely based Mode S and ADS-B – both of which rely on data provided by aircraft. For ADS-B the position of the aircraft is calculated by the aircraft systems from satellite data and then broadcast by the aircraft and displayed by the surveillance system.

The greatest changes are likely to be seen in the navigation infrastructure. Global Navigation Satellite Systems (GNSS) such as GPS are now part of daily life. They are key to future aviation navigation through position, navigation and time (PNT) services. With accurate time signals and known satellite locations, aircraft systems can compute their position accurately in three dimensions, allowing navigation without need for ground systems. GNSS has the potential to support aircraft navigation in all phases of flight and replace all legacy ground systems currently in use. This has clear cost benefits.

Development of the CNS system is a global issue, but resilience needs to be considered on several levels and across stakeholders.⁸ A disruption to the CNS system affecting just one airport may have severe impacts on the airport and its customers. It could have a minor impact on a national level but almost no impact on a European level. A similar event at a larger airport could have systemic impacts throughout the aviation network while a widespread event could have impacts at all levels.

Risks to Navigation Satellite Signals

The future Performance Based Navigation (PBN)⁹ mandated by the EU will rely almost totally on GNSS to provide both enroute navigation across countries and the more precise requirements when operating at/near airports. This also mandates the removal of some, or all, of the legacy systems. The final decision in respect to which navigation aids are retained remains with the States and stakeholders but the possibility of a more prescriptive EU approach to removal of legacy systems should not be discounted. The only role for legacy systems will be to provide some resilience through a Minimum Operational Network (MON).

⁷ EUROCONTROL. European GNSS Contingency/Reversion Handbook for PBN Operations. (Brussels: EUROCONTROL, 2020).

⁸ LeCoze, J. "Resilience, Reliability, Safety: Multilevel Research Challenges." In *Exploring Resilience A Scientific Journey from Practice to Theory*, ed Wiig S and Fahlbruch B (EdS), 7-13. Springer Open (2019). doi: <https://doi.org/10.1007/978-3-030-03189-3>.

⁹ European Union. Commission Implementing Regulation (EU) 2018/1048 of 18 July 2018 laying down airspace usage requirements and operating procedures concerning performance-based navigation. (Brussels: European Union, 2018).

The European Commission observes that:

- GNSS signals can be disrupted with limited resources since they are received on ground with extremely low power.
- GNSS services can be spoofed with false information leading to errors in the PNT solution.
- GNSS services may suffer from severe degradation of performance and even services outages.
- GNSS services, as every space-based services, are also susceptible to space weather events.¹⁰

While there are other risks, this paper focuses on the specific risks to GNSS signals.

Space Weather

Space weather, mainly due to solar activity “is not just a source of error for GNSS, in extreme cases it has the ability to deny access to GNSS.”¹¹ Therefore there is a spectrum of effects depending on the intensity of the solar event. Routine ionospheric effects cause interference to GNSS signals and are continuously mitigated using augmentation systems and correcting signals but even so some aircraft lose useable navigational information. Increased ionospheric activity can lead to more sustained losses. Some estimate that larger solar events causing disruption to GNSS high accuracy services will occur several times per decade at Irish latitudes.¹²

At the extreme end, the UK Government identified a reasonable worst-case scenario (Carrington Event), with an annual probability of 1 per cent. The predicted impacts include “disruption of satellite operations, including to Global Navigation Satellite System outages (GPS).¹³ This would probably result in severe and sustained impact for a number of days. Permanent damage to some satellites could be anticipated. The Royal Academy of Engineers recommends that:

All critical infrastructure and safety critical systems that require accurate GNSS derived time and or timing should be specified to operate with holdover technology for up to three days ... [and that] ... Criteria should be established for the re-initiation of flying when it is safe to do so.¹⁴

Since the Carrington event of 1859, there have been smaller events, such as those of 1921, 1972, 1989 and 2003, which affected land-based infrastructure with the later ones significantly affecting satellite performance.¹⁵

¹⁰ European Commission. “CALL FOR TENDERS No DEFIS/2020/OP/0007. TITLE Alternative Position, Navigation and Timing (PNT) Services. Brussels: European Commission”, October 26 2020. Accessed July 31 2021. url: <https://etendering.ted.europa.eu/document/document-old-versions.html?docId=79819>.

¹¹ Hapgood, M. “Satellite navigation—Amazing technology but insidious risk: Why everyone needs to understand space weather.” *Space Weather*, Vol 15 Issue 4 (2017): 545-548. doi:10.1002/2017SW001638.

¹² UK Government. *Space Weather Preparedness Strategy Version 2.1*. (London: Department of Business and Innovation, 2015)

¹³ *ibid*

¹⁴ Royal Academy of Engineering. *Extreme space weather: impacts on engineered systems and infrastructure*. (London: Royal Academy of Engineering, 2013)

¹⁵ Gibbs, M. “Space Weather Services.” *Openspace 26*. Rheagroup.com. Accessed July 20, 2021.

Interference

With their low power, GNSS signals can be easily jammed. This could be just a local problem affecting one airport or runway due to accidental jamming (eg poorly designed electrical installations) or intentional jamming whether intended to cause aviation disruption or not.^{16 17}

On a wider level, intentional jamming¹⁸ of satellite signals occurs daily in large volumes of European airspace. This prevents the use of GPS signals for navigation and affected aircraft must navigate using legacy systems or be guided by radar controllers.

Dependence on satellites for PNT and other functions means that interference may produce benefits for an adversary. Space is no longer considered as uncontested and US space doctrine identifies that:

*The value of the space domain arises from an ability to conduct activities with unrivaled [sic] reach, persistence, endurance, and responsiveness, while affording legal overflight of any location on the earth.... A successful attack against any one segment (or combination of segments), whether terrestrial, link, or space, of the space architecture can neutralize a space capability; therefore, space domain access, maneuver, and exploitation require deliberate and synchronized defensive operations across all three segments.*¹⁹

PNT services, and the assets providing them, which are critical to military operations and the functioning of modern societies, must be regarded as valuable targets. Therefore, the availability of satellite-based navigation in times of heightened tension could be questionable. Gray²⁰ comments that “the dual use problem ... applies with even greater force to space than it does to biological or chemical facilities. There is really little difference between commercial, scientific, and military space systems.” He says that the “advantages and disadvantages of growing space dependency look very different if, on the one hand, outer space is assumed to be a sanctuary from hostile military action, or, on the other hand, it is assumed to be an integral part of the general battlespace”.²¹

Recently, EUROCONTROL identified that “a massive rise in GNSS Radio Frequency Interference (RFI) incidents occurred in 2018 (an over 2,000 per cent increase as measured by voluntary incident reporting) and has been sustained ever since.”²² Most, but not all, of the activity was near conflict zones but the effects extended to hundreds of kilometres. An estimated 38.5 per cent of European traffic was affected, while about 5 per cent needed assistance to navigate.²³ The effects of the jamming may appear to be more than those required for purely military purposes.

If jamming is encountered, GNSS navigation including arrivals and departures at an affected airport is impossible. The daily interference being experienced over wide areas of the European ATM network demonstrates the utility of jamming, and a willingness to jam GNSS signals regardless of the impact on civil aviation. Ireland may be an unlikely target for similar jamming

16 Jamming affecting aviation is known to have occurred where individuals have tried to avoid tolls or hide their location from employer tracking.

17 Goward, D. “GNSS – From a single point of failure to multiple points of success or How to void a PNT Zombie Apocalypse. Keynote address to Institute of Navigation”. Resilient Navigation and Timing Foundation, January 29 2019, Accessed July 07, 2021. url: <https://rntfnd.org/wp-content/uploads/Goward-ITM-Talk.pdf>.

18 Spoofing – where faulty data is introduced also causes disruption and is a form of intentional interference

19 Spacepower (SCP) Headquarters. Space Capstone Publication, June 2020. United States Space Force.

20 Gray, C. Another Bloody Century Future Warfare. (London: Phoenix, 2006), 310.

21 *ibid*, 311

22 EUROCONTROL. Think Paper #9 - 1 March 2021 Does Radio Frequency Interference to Satellite Navigation pose an increasing threat to Network efficiency, cost-effectiveness and ultimately safety? (Brussels: EUROCONTROL, 2021), 1.

23 Most effects were in enroute areas where civil airliners could resort to the use of internal inertial navigation systems, which can provide navigation for periods in the absence of external references. Such systems are not used for terminal operations near airports.

but could suffer collaterally from neighbourhood activity given that the radius of effect is of the order of 300km.²⁴ Military forces also train in jamming methods and may use jamming to protect the security of training and testing activities.²⁵

What Would be the ATM Impact of Loss of Navigation Satellite Services?

The ability to navigate would be degraded or impossible. Future navigation will be almost totally dependent on GNSS. Land based DME²⁶ stations may provide some functionality but this may be variable, particularly at lower heights. Recognising this risk, the PBN Implementing Rule²⁷ requires a minimum operational network (MON) of legacy systems to support flight operations during non-availability of PBN systems.

Flying during GNSS outages will depend on the ability of the MON to support operations including take-off, landing and descent through cloud at airports. Navigation in the vicinity of regional airports could be limited, particularly if they only maintain ILS as the legacy system.²⁸

This would have implications for the delivery of services/security operations in those areas of the State. Maritime patrols may be constrained by the non-availability of suitable alternate aerodromes. This would affect fuel uploads, loiter time and possibly the viability of some missions.

Flight following using ADS-B technologies would not be possible. Emergency locator beacons may be unable to calculate or communicate positions. This could also affect the efficiency of alerting services and Search and Rescue response.

Navigation of drones would be impossible where this is based on GNSS data.²⁹ In most cases, other than operations within visual line of sight of the operator, drone operation would be severely limited if not impossible, leading to increased dependence on manned military flights using MON navigation methods if available in the area.

The loss of GNSS signal will not just affect navigation. Communications and surveillance also could be impacted.

ATC communications increasingly depend on datalinks, which themselves rely on timestamps provided by GNSS satellites. Without CPDLC³⁰, crews will resort to voice radio communications. This will increase demand on frequencies and reduce capacity, risking overload in some ATC sectors.

Surveillance services would also be affected. ADS-B is a required technology, which is becoming more prevalent. It uses the position provided by the aircraft computed from the GNSS solution.

²⁴ Berz, G. "Introduction." EUROCONTROL Stakeholder Forum Technical Webinar on GNSS. March 4 2021. Accessed July 30, 2021. url: <https://www.eurocontrol.int/event/eurocontrol-stakeholder-forum-gnss>.

²⁵ Saulay, J-P. "Can aviation continue to rely on satellite navigation?" in EUROCONTROL Stakeholder Forum Technical webinar on GNSS. Brussels: EUROCONTROL, March 4 2021. Accessed July 30, 2021. url: <https://www.eurocontrol.int/event/eurocontrol-stakeholder-forum-gnss>.

²⁶ Distance Measuring Equipment allows an aircraft resolve its position by measuring its distance from two or more DME stations, the positions of which are known

²⁷ European Union. Commission Implementing Regulation (EU) 2018/1048 of 18 July 2018 laying down airspace usage requirements and operating procedures concerning performance-based navigation. (Brussels: European Union, 2018).

²⁸ Some Irish airports have only one runway end served by ILS with other runways served by VOR or NDB.

²⁹ ITAF. Space in support of Air Force Operational Capabilities. (Rome: Italian Air Force, 2014).

³⁰ The most significant ATM datalink is known as Controller Pilot Datalink Communications (CPDLC) which allows clearances and instructions be passed to aircraft.

With a degraded GNSS signal this will be unavailable or possibly erroneous. In 2018, an aircraft received incorrect GNSS data (probably) due to jamming and followed the wrong track in its approach to land. The error was identified by radar controllers who guided it to the airport. Had the controllers used ADS-B for the aircraft position the error would not have been spotted. An ADS-B position displayed to the controllers would have been consistent with the faulty GNSS position provided to the aircrew.

Satellite derived positional data allows greater capacity over Atlantic tracks and improved knowledge of traffic entering the European area from both the East and the West. This will improve planning and airspace capacity but could open up new vulnerabilities.

There is a risk of building in future vulnerability into the transport infrastructure, for example increased reliance on Global Navigation Satellite Systems.... Decisions on future use of Global Navigation Satellite Systems in transport development need to be taken with the knowledge of this vulnerability and with proportionate mitigation in place.³¹

Mitigating the Effects

As 2030 approaches, when GNSS will become the primary means of navigation, key questions arise in relation to resilience. More generally, there is the question of the manufactured resilience of GNSS in relation to both effects of space weather and jamming/interference. While satellites are being made more robust and the use of multiple frequencies and a greater number of constellations may improve resilience, satellites and their signals will be affected by space weather.

Improvement against jamming is sought but the strength of satellite signals, likened to the light from a light bulb 20,000 km away is such that this vulnerability,³² identified decades ago, will remain. Improvements in anti-jamming technology will inevitably be matched and overcome by advances in jamming technology.

Unfortunately, “even if substantial actions were performed to improve the reliability of GNSS ..., the risk of GNSS services disruption will never be removed, even in a multi-constellation environment [my emphasis].”³³ This means there is a need for appropriate alternative Position, Navigation and Time (A-PNT) sources, which must be independent of satellites to avoid common points of failure. Some states³⁴ and the EU³⁵ are looking at this problem but development seems slow.

On a national level the question of how much, and where, aviation is to be maintained in the event of sustained loss of GNSS needs to be addressed. This needs to consider what are essential aviation activities for the State. This will determine the appropriate level of the MON. Such decisions may be informed by spatial policy, economic requirements and security and defence requirements.

³¹ UK Government. Space Weather Preparedness Strategy Version 2.1. (London: Department of Business and Innovation, 2015), 27.

³² Saulay, J.-P. 2021. “Can aviation continue to rely on satellite navigation?” in EUROCONTROL Stakeholder Forum Technical webinar on GNSS. Brussels: EUROCONTROL, March 4 2021. Accessed July 30, 2021. url: <https://www.eurocontrol.int/event/eurocontrol-stakeholder-forum-gnss>.

³³ European Commission. “CALL FOR TENDERS No DEFIS/2020/OP/0007. TITLE Alternative Position, Navigation and Timing (PNT) Services. Brussels: European Commission”, October 26 2020. Accessed July 31 2021. url: <https://etendering.ted.europa.eu/document/document-old-versions.html?docId=79819>, 6.

³⁴ United States Department of Transportation. NATIONAL TIMING RESILIENCE and SECURITY ACT ROADMAP to IMPLEMENTATION United States Department of Transportation Report to Congress January 2021. (Washington: US Congress, 2021)

³⁵ *ibid*

Locally, airports may need to make decisions in relation to continuity of service. While an airport may not be of national or European importance, continuity of service may be essential to its hinterland and to its own viability. There may be a local benefit of keeping legacy systems to assure continued operations during GNSS outages/interference.

The PBN Implementing Rule³⁶ requires providers of ATM to take the necessary measures to ensure that they remain capable of providing their services through other means where, for unexpected reasons beyond their control, GNSS or other methods used for performance-based navigation are no longer available.... Those measures shall include, in particular, retaining a network of conventional navigation aids and related surveillance and communications infrastructure.

Nevertheless, the drive to rationalise and remove legacy systems is strong. A draft recommendation of the (EU Commission's) CNS Advisory Group recommends that the EU "Improve cost-efficiency through rationalisation, including decommissioning of CNS facilities."³⁷ In its draft report that group states:

The MON to be determined in the CNS evolution plan should define a cost-efficient CNS infrastructure that guarantees agreed levels of performance and acceptable levels of safety and security to all users. However, it is not realistic or cost-efficient to expect that the MON will guarantee over time the full business continuity to all airspace users in all possible degraded conditions.

There will be an important equation between cost and business continuity. In the post-COVID period with cash-starved airlines, air navigation service providers and airports looking for savings, there is a risk posed by the lure of short-term savings. What is essential is that, in the development of the contingency network, the ability to conduct operations in support of the citizen is maintained at the required level.

Last Thoughts

Improbable or unimaginable events are not necessarily independent of each other. Interdependencies sometimes are only revealed during an adverse event. We have seen that, in the future ATM system, the previously separate CNS functions will share a single point of failure. Degradation in the navigation system will be accompanied and exacerbated by degradation in communications and surveillance systems. Therefore, resilience needs to be engineered into the system through suitable contingency measures, including a fit for purpose MON and a suitable alternative-PNT system.

What else might be affected by a loss of GNSS? In aircraft, other systems such as terrain proximity warning systems will be degraded. Experience suggests erroneous warnings to aircrew are likely, introducing new risks.³⁸ Surface (land or sea) navigation will be compromised. Position reporting at sea through the AIS³⁹ system may be lost or erroneous.⁴⁰ It is estimated that 10 per cent of European GDP depends on GNSS PNT⁴¹, pointing to a wider reliance that might only be apparent during a sustained loss of signal.

36 European Union. Commission Implementing Regulation (EU) 2018/1048 of 18 July 2018 laying down airspace usage requirements and operating procedures concerning performance-based navigation. (Brussels: European Union, 2018).

37 CNS Advisory Group. "DG Move workshop on CNS." DRAFT CNS Advisory Group Report presentation 07 May 2021.

38 Nicolau, N. "Can aviation continue to rely on satellite navigation? The Air Traffic Management perspective." in EUROCONTROL Stakeholder Forum Technical webinar on GNSS. March 4 2021. Accessed July 30, 2021. url: <https://www.eurocontrol.int/event/eurocontrol-stakeholder-forum-gnss>.

39 Automatic Identification System

40 Shaw, G. "The rising threat to the integrity of maritime navigation data." Maritime Executive. April 6. Accessed July 4, 2021. url: <https://www.maritime-executive.com/editorials/the-rising-threat-to-the-integrity-of-maritime-navigation-data>.

41 European Commission. "CALL FOR TENDERS No DEFIS/2020/OP/0007. TITLE Alternative Position, Navigation and Timing (PNT) Services. Brussels: European Commission", October 26 2020. Accessed July 31 2021. url: <https://etendering.ted.europa.eu/document/document-old-versions.html?docId=79819>

It is worth remembering that:

Traditional approaches to safety focus on anticipation and mitigation of risks, i.e., preparing for the expected. Resilience Engineering suggests that working conditions and processes may be designed to support coping with unexpected events.⁴²

Regular estimation on a national basis of the effects of GNSS outage, like all regular exercise could be a worthwhile contribution to aviation and societal resilience.

42 Woltjer, R. "Chapter 13 Exploring Resilience at Interconnected System Levels in Air Traffic Management." In *Exploring Resilience A Scientific Journey from Practice to Theory*, by B Fahlbuch and S Wiig (eds), 105-112. Springer Open. <https://doi.org/10.1007/978-3-030-03189-3>.



The Implications of Climate Change on The Defence and Security Landscape in Ireland

Capt Tadhg McCarthy

Abstract

Year on year, the impact of our changing climate is further acknowledged by another industry or diligent government. The simple fact is that our climate is changing at a rapid rate and that limited natural resources are simply that, limited. Governments and international organisations are beginning to take action, such an example being the ban of new fossil fuel cars from our roads by 2030. With industries based on finite resources, be it physical assets or personnel, and based on such resources, industries operate within the limits of them. Now the impact of the climate must be acknowledged as a possible resource limitation and also a catalyst for change in elements of society that impact on defence.

This paper will assess the implications of climate change on the defence and security landscape in Ireland, to do so in a balanced manner the global security impact of climate change must also be evaluated. A comprehensive view will investigate the follow considerations for climate change:

- Resource based conflict
- Economic Damage and risk to Infrastructure
- Loss of territory and border disputes
- Environmentally accelerated migration
- Demand for essential supplies
- International relations strain

Actions that the Defence Forces can take to become a positive combatant against climate change and potential for key role in the national response will be assessed. This will detail actions completed to date and potential future actions that can help contribute toward the national response.

The anticipation and necessary preparation to respond to future threats will be considered. This will process the factors detailed in the security landscape and identify what planning or procedures can be implemented to combat such threats.

Introduction

Before conducting an assessment of the implications of climate change on the defence and security landscape in Ireland, and despite a growing generational awareness of the issue that is climate change we must first define it. The Framework Convention on Climate Change in its Article 1, defines climate change as: ‘a change of climate which is attributed directly or indirectly to human activity that alters the composition of the global atmosphere and which is in addition to natural climate variability observed over comparable time periods’.¹ Climate change can occur through natural physical causes such as variations within the solar cycles or volcanic eruptions.²

Many of the references made to Ireland coping with security impacts of climate change refer to a country with good governance and positive relations with international organisations and other nations. In regions less secure, politically and economically more unstable, the likelihood of a breakdown in the natural safe and secure environment is more likely to occur. Were this to occur, conditions would be created that could lead to tensions between different ethnic and religious groups within countries resulting in political radicalisation.³

Resource Based Conflict

“Because climate change effects the environment and, by extension, natural resources, the dynamics that connect natural resources and insecurity are also those which may intensify with the effects of climate change. Thus, it is important to examine the relationship between natural resources and conflict in order to grasp how climate change may affect resource-based conflicts”.⁴ Discussions relating to the matter of natural resources and conflict have recently become increasingly popular with repeated evidence occurring globally. In 2001 the United Nations (U.N.) adopted United Nations Security Council Resolution 1376 (UNSCR) relating to the Democratic Republic of Congo, “its condemnation of all illegal exploitation of the natural resources of the Democratic Republic of the Congo should not be exploited to finance the conflict in that country”. In 2005, the U.N. passed UNSCR 1625 to “adopt a broad strategy or conflict prevention, which addresses the root causes of armed conflict and political and social crises in a comprehensive manner” and “reaffirms its determination to take action against illegal exploitation and trafficking of natural resources and high-value commodities in areas where it contributes to the outbreak, escalation or continuation of armed conflict.” This continued action by the United Nation Security Council emphasises the importance of resources relative to a conflict, and the need to safeguard them. Increased competition for resources, while it can be a primary reason, is not always the only cause of resource conflict.

1 United Nations, “United Nations Framework Convention on Climate Change” (1992), p.7

2 IPCC, 2018: Annex I: Glossary [Matthews, J.B.R. (ed.)]. In: Global Warming of 1.5°C. An IPCC Special Report on the impacts of global warming of 1.5°C above pre-industrial levels and related global greenhouse gas emission pathways, in the context of strengthening the global response to the threat of climate change, sustainable development, and efforts to eradicate poverty [Masson-Delmotte, V., P. Zhai, H.-O. Pörtner, D. Roberts, J. Skea, P.R. Shukla, A. Pirani, W. Moufouma-Okia, C. Péan, R. Pidcock, S. Connors, J.B.R. Matthews, Y. Chen, X. Zhou, M.I. Gomis, E. Lonnoy, T. Maycock, M. Tignor, and T. Waterfield (eds.)].(2018), p. 544

3 European Commission, “Climate Change and International Security, Paper from the High Representative and the European Commission to the European Council”, https://www.consilium.europa.eu/media/30862/en_clim_change_low.pdf , p.8

4 UNDP, “Climate Change Fuelling Resource Based Conflicts in the Asia-Pacific”(2012) p.14

Important conditions that shape how access to resources could become contested are:⁵

- Natural resource scarcity.
- The extent to which the supply is shared by a number of groups.
- Balance of power within sharing groups.
- The extent of dependence on this particular resource, or the ease of access to alternative sources.

Community-based natural resource conflicts can occur at multiple levels. These can range from the local level, but often escalate even involving global actors. They range from conflicts between a local population over land use, to conflicts among communities disputing control over woodland or fisheries, unable to agree about the equipment for logging or fishing. Community-based conflict can involve government agencies, domestic and multinational businesses, politicians, international agencies and non-governmental organizations.⁶

Disputes relating to resources will also resonate with a different topic as the levels escalate. The first level of the dispute could relate to the control or access to a resource which the local population are dependent on. At the next level, deeper long standing issues could surface beneath the resource dispute, such as recognition, rights or identity.⁷

The established legal proceedings that Ireland enjoys as a sovereign state and member of the European Union ensures that resource based conflicts are dealt with in a structured manner balancing the needs of industry and the environment.⁸ For the Defence Forces the Naval Service play a key role in fisheries protection in Irish waters. In an overseas environment Irish peacekeepers require to maintain a situational awareness of the locality and region they operate in. Including socioeconomic issues, such as resource based conflicts that have the potential to escalate and provide a platform for other deeply rooted conflicts that could result in more serious actions or events.

Economic Damage and Risk to Infrastructure

While there are some regions in the world that are more susceptible to the effects of climate change than others, it is being recognised globally that the measurable results of climate change are becoming more obvious “the average rate of sea level rise in recent decades has been faster than the average rate in the last thousands years”.⁹ The change in median sea levels and typical climate characteristics within a region have far reaching effects. Infrastructure is developed to meet the demands of the environment in which it is based, roads developed in Ireland are not designed for high temperatures. In July 2021 the heatwave reached 30.7C in Mount Dillon County Roscommon,¹⁰ requiring roads to be gritted to stop them melting. Roads are constructed within ‘normal’ design parameters that will vary

5 Antonia Engel, Benedikt Korf, “Negotiation and mediation techniques for natural resource management” (2005, Rome) <http://www.fao.org/3/a0032e/a0032e04.htm#bm04>

6 Ibid

7 Ibid

8 Michael Clifford, “Ireland can't be trusted to police it's fishing quotas says European Commission, Irish Examiner, 20 April 2021, <http://www.fao.org/3/a0032e/a0032e04.htm#bm04>

9 AIP Conference Proceedings 1977, 040030 Climate change risks to infrastructures: A general perspective (26 June 2018), <https://aip.scitation.org/doi/pdf/10.1063/1.5043000> p.4

10 RTE News, “Hottest Day of the year as temperatures exceed 30C” 22 July 2021, <https://www.rte.ie/news/2021/0721/1236329-weather-hot-wednesday/>

from country to country. Irish roads are constructed to deal with much more rainfall but much less heat than a road in Dubai, for example.¹¹ To construct road infrastructure capable of coping with a wider range in temperatures would be far more costly and not always possible. The danger is that in extreme circumstances limited temperature range construction can lead to road closures similar to the closure of the English M25 in 2020, causing havoc for road users.¹²

While the road network in a country is the most visible form of essential infrastructure, which is key to all industry, including the deployment of military forces, it is only the beginning of essential services. Water, electricity, gas and communication services are essential to the harmonious and peaceful day to day operation of any nation or region, they can be located sub surface or on the surface and similar to roads are designed and constructed to operate effectively within a range of climatic conditions.

In July 2021 during the extended period of high temperatures the greater Dublin area water usage at its lowest was 535 Megalitres of water, 88.65 per cent of Irish Water's current safe and sustainable limit that can be treated for the region which is 603.5 Megalitres per day. For a three day period in July the water usage in the region was 601.4, 602.7 and 604.8 Megalitres of water, 99.65 per cent, 99.86 per cent and 100.21 per cent of the Irish Water daily safe and sustainable limit.¹³ The high demand made of the Irish Water system comes at a time when they are continuing with their planned upgrades of Ireland's dated and leaking water network. "Prof Conor Murphy of the University of Maynooth says the recurring debate about supplies every time rainfall is low shows there is little resilience in the system".¹⁴

The implications of damage to infrastructure, similar or worse to that referred to, contains many far reaching implications. Infrastructure operators and utilities companies risk revenue losses from assets that fail to operate effectively in new conditions or are damaged. The risk of increased disruption to services impacts on businesses, and by extension investors may assess a region to be less viable to invest in. Damage to infrastructure would also impact on private citizens who would face loss of essential services, electricity, heat, water supply and communications. The government, local authorities and service providers would be placed under pressure to assist respond to such scenarios.¹⁵

The Defence Forces is equally at risk of damage to infrastructure from climate change, and associated loss of services. Damage to military infrastructure either flooding, or fallen trees in high winds presents a security threat that could possibly be exploited and must be responded to. Damage to key military infrastructure or civilian infrastructure could limit the operational capability of the military, for example if personnel cannot reach their barracks, aerodrome or naval base for deployment to respond to a request of aide to the civil authority. Damaged infrastructure would also increase the probability of deployment of the Defence Forces in aide to civil authority role, on flood operations or in combating wild fires.

11 AA Roadwatch, "Spanish Roads don't melt, so why do ours?" 21 July 2021, <https://www.theaa.ie/blog/spanish-roads-dont-melt-why-do-ours>

12 Ibid

13 Irish Water, "Water Shortages and Restrictions" 30 July 2021, <https://www.water.ie/help/supply/water-shortages/>

14 Tim O'Brien, "Dublin's water leakage rates 'don't sound like a developed world city'" Irish Times 20 July 2021, <https://www.irishtimes.com/news/ireland/irish-news/dublin-s-water-leakage-rates-don-t-sound-like-a-developed-world-city-1.4625087>

15 Dawson RJ (ed.) (2015) A Climate Change Report Card for Infrastructure. LWEC Report Card. Living With Environmental Change <https://nerc.ukri.org/research/partnerships/ride/lwec/report-cards/infrastructure/>, p.17

Loss of Territory and Border Disputes

Loss of territory is yet another negative impact of climate change, that is clearly quantifiable and impacts some regions worse than others. “Low-lying, socio-economically disadvantaged small island developing states are among those most vulnerable to climate change harms – including rising sea levels and extreme weather events”.¹⁶ The threat posed by this is not just the population being forced to move from their homes but escalates to nations losing their land entirely.¹⁷ Loss of territory is a catalyst for environmentally accelerated migration.

Many international and regional borders are recognised with reference to geographical features on the land, making it easy to determine a border location as opposed to coordinate based border, where a GPS or survey equipment would be required. When borders refer to geographic features they are unfortunately subject to movement over a period of time, however climate change can accelerate the rate at which a river for example would change its course.

“Two key border concepts are accretion and avulsion. Accretion changes are slow, predictable, largely equitable in territorial impact, and both sides maintain river access. Avulsion processes are sudden, produce inequitable territory impacts, and may prohibit future access to the river. States accept slow, incremental meanderings of rivers (accretion) but not rapid, large-scale river shifts (avulsion).”¹⁸

The outcome of border disputes caused by a moving river or glacial border for example, similar to the status of the border, can vary. Nicaragua and Costa Rica has shared a border along San Juan River, with sole rights to the river belonging to Nicaragua and commercial access allowed to Costa Rica according to the river course in 1858. In 2010 a conflict arose when Nicaragua deployed construction and military personnel on the Costa Rican bank of the river to facilitate a dredge of the river in order to restore the 1858 river course. Costa Rica were victorious when they pursued a legal case to the international Court of Justice, with Nicaragua being directed to take corrective action.¹⁹

Environmentally Accelerated Migration

With the majority of the world’s population located near water, there are repeated warnings of the implications that a rise in sea level would have on millions of people. “Research shows that even if the world’s population were to remain at its current level, the risk of flood-related displacement would increase by more than 50 per cent with each degree of global warming”.²⁰

For countries with extensive land mass environmental displacement would be the reality, where the support of the state would still be present, for many though environmental migration is the only option. “Relocating means having no home to go back to. It means leaving your land and your country for good and severing ties to all that is important to you as a people, Such a move would threaten our sovereignty, our culture, our identity and all our fundamental human rights.”²¹

¹⁶ Essex Human Rights Review Vol. 9 No.1, Susannah Willcox, “A Rising Tide: The Implications of Climate Change Inundation for Human Rights and State Sovereignty”, (June 2012, Essex) <https://www.corteidh.or.cr/tablas/r29029.pdf>, p.2

¹⁷ Ibid

¹⁸ James R. Lee, Kisei Tanaka, The International Journal of Climate Change: Impacts and Responses, “Climate Change, Conflict and moving borders”, (2016, Illinois), p.30

https://www.researchgate.net/publication/311911474_Climate_Change_Conflict_and_Moving_Borders/link/5b4cb2a4aca27217ff98e7f7/download

¹⁹ Ibid

²⁰ Internal Displacement Monitoring Centre, “Global Report on Internal Displacement 2021 Internal Displacement in a changing climate”, https://www.internal-displacement.org/sites/default/files/publications/documents/grid2021_idmc.pdf#page=7 p.88

²¹ United Nations Human Rights, Office of the High Commissioner, “Losing your land to climate change”, <https://www.ohchr.org/EN/NewsEvents/Pages/LosingLandtoclimatechange.aspx> (23 October 2017)

Annually since 2008, on average 22.5 million people have been displaced each year by weather and climate-related disasters. By the end of this century climatic conditions, global temperatures and sea levels are expected to rise significantly.²² As outlined above, the implications of land loss due to climate change would have the potential to force environmentally accelerated migration of a population from a region. Routinely members of the Defence Forces will deploy to assist members of the population impacted by flooding, luckily after a period of time most of the population can return to repair and rebuild their lives as best they can. In an overseas mission for the Defence Forces compliance to the mission mandate is paramount and dependent on the mission this may refer to assisting the local government in maintaining a safe and secure environment. Climate based migration or displacement in an already unstable region can heavily impact on the operational situation, potentially threatening the safe and secure environment and as such merits monitoring should it occur.

Demand for Essential Supplies

The global reliance on hydrocarbon energy, or fossil fuels, is shifting, with an increase in the usage of renewable energy albeit at varying pace, with some countries excelling while others are slower to convert over. With our continued reliance on hydrocarbon energy it is recognised that the majority of hydrocarbon reserves are located in regions susceptible to the impacts of climate change.²³ These regions are faced with complex socioeconomic issues that are likely to increase the risk of destabilisation of routine functions in society. While globally the transition to renewable energy continues, climate change risks the continued access hydrocarbon energy supply. The consequence of this would impact all industry reliant on these fuels, including a large number of defence capabilities.

The establishment and development of partnerships with renewable energy technology providers both nationally and internationally, is required to identify means of offsetting the reliance on hydrocarbon fuels and maintaining operational capability using renewable energy resources.²⁴

The progressive move toward increased renewable energy infrastructure should continue to be monitored within the state. Any potential security impacts of such infrastructure developments should be coordinated. In that the development of renewable energy infrastructure introduces change that could be limiting or altering conditions surrounding vital installations that the Defence Forces plays a role in protecting, impacting on access by air, sea or land. As time progresses the locations of renewable energy generators and the associated infrastructure could themselves become vital installations worth contributing toward the protection of.

International Relations Strain

Citizens, organisations and governments who are forced to deal with the consequences of regional or global climate change will inevitably resent those who it is perceived to be responsible for having caused or accelerated climate change.²⁵

With impacts of climate change mitigation requiring time to take effect, it is likely that whatever relationship strain that has been caused by one party to another may not be resolved quickly, and as previously observed it is likely that other agendas could continue to fuel any discord in the meantime.²⁶

22 Ibid

23 European Commission, "Climate Change and International Security, Paper from the High Representative and the European Commission to the European Council", https://www.consilium.europa.eu/media/30862/en_clim_change_low.pdf, p.8

24 Gov.ie, "Department of Defence and Defence Forces Strategy Statement 2021-2023", p.9

25 European Commission, "Climate Change and International Security, Paper from the High Representative and the European Commission to the European Council", https://www.consilium.europa.eu/media/30862/en_clim_change_low.pdf, p.8

26 Antonia Engel, Benedikt Korf, "Negotiation and mediation techniques for natural resource management" (2005, Rome) <http://www.fao.org/3/a0032e/a0032e04.htm#bm04>

The balancing of financial and investment based decisions, could aide in improving relations between the accelerators and victims of climate change positions. “By avoiding investment in high-carbon assets that become obsolete, and prioritizing sustainable alternatives, we create a new investment model that builds capacity and resilience while lowering emissions.”²⁷

The role for the Defence Forces within international relations strain would be limited, but it remains an issue that can fuel regional security destabilisation and as such would warrant monitoring for situational awareness.

Conclusion

The implications of climate change on the defence and security landscape in Ireland are complex and continually developing. The number of actors, both state and non-state organisations, are vast. Gradually each actor is further acknowledging the impact of climate change on their respective organisation and partner organisation that impacts them. For the nation it is the responsibility of the Defence Forces to ensure that it can defend the state against armed aggression depending on Government assessment of the security and defence environment. The Defence Forces provides aid to the civil power and authorities when requested, conducts fisheries protection and participates in multinational peace support, crisis management and humanitarian relief operations. The recently retired former Chief of Staff of the Defence Forces, Vice Admiral Mark Mellett DSM recently completed an interview where it was stated, his belief that climate breakdown is already creating conflict and destabilisation across the globe and that climate change is the biggest threat to Ireland.²⁸ The Department of Defence and Defence Forces Strategy Statement 2021-2023 highlights climate action as a high level defence policy goal and as testament to the Defence Forces continued efficiencies is reported as having reduced total energy consumption by 21 per cent since 2009.²⁹ Climate change is real, and presents a very genuine security threat that must be responded to.

²⁷ Gustavo Sosas-Nunez, Ed Atkins, "Environment, Climate Change and International Relations" <https://www.e-ir.info/wp-content/uploads/2016/05/Environment-Climate-Change-and-International-Relations-E-IR.pdf> (2016, Bristol) p.217

²⁸ Niall O'Connor, "Head of the Defence Forces Says Climate Change is single biggest threat to Ireland" The Journal.ie <https://www.thejournal.ie/climate-change-security-risk-to-ireland-mark-mellett-5507407-Jul2021/> 30 July 2021

²⁹ Gov.ie, "Department of Defence and Defence Forces Strategy Statement 2021-2023", p.9



Better Not Re-Invent the Wheel: How Ireland Might Benefit From Australia's Comprehensive Approach to its Army Reserve

Colonel Ronald Ti (Australian Army Reserve)

Abstract

This article will highlight measures taken to incentivise and enable reserve force service in the Australian Defence Force, with a focus on the Army Reserve. Even with the significant economic, geographical, and cultural differences between Australia and Ireland as they are reflected in the Australian and Irish Defence Forces, some of the measures presented here may be relevant to Ireland's situation. The interested Irish reader must decide the extent to which some, all, or none of the points raised here are relevant to the Irish Reserve Defence Force in 2021.

Note: The views expressed in this article are the author's personal views and do not represent the viewpoint of the Australian Department of Defence.

Introduction

This article considers the question: 'how can the abilities, talents, and service-orientated nature of members of the Reserve Defence Force (RDF) be better harnessed and integrated into an Irish total force package?' The current shortfalls in Defence Force Reserves reflecting wider manpower shortages in the Irish Defence Forces are long standing, ongoing, persistent, and chronic.¹ Discussion of the causes of this situation together with possible solutions was presented in the 2019 Defence Forces Review (Carroll, 2019),² which was then followed by a more comprehensive journal article by the same author (Carroll, 2020).³ Based on the prominence given to the publication of these views, together with this author's own impressions and conversations, it would seem that the views expressed by the author of these articles regarding the current state of the RDF are indeed widely-held. Taking what was presented as an accurate reflection of the challenges facing the RDF, this article will argue that the key to unlocking the abilities, talents, and service-oriented natures of reservists (not just in Ireland but worldwide) lies in adopting a comprehensive approach that integrates, amongst other factors, effective reserve force policy, legislation, public and private sector partnership, and, ultimately, financial incentivisation.

Aim of This Paper

Firstly, this paper will focus on Australian Army Reservists, as these currently form the largest proportion of reservists within the Australian Defence Force (ADF).⁴ It will discuss key factors which have aided the recruitment and retention of Army reservists and highlight recent measures which have not merely been nominal, but genuinely attempted to integrate reservists into an ADF total force package. These include the application of a number of initiatives, in particular Army reserve force integration (through Army's 'Plan Beersheba'), key legislative changes supporting all tri-service ADF reserves, (particularly through the Defence Reserve Service (Protection) Act

¹ And currently in the Irish media. For recent examples see: 3 June 2021, <https://www.irishexaminer.com/opinion/commentanalysis/arid-40304219.html> or 29 June 2021: <https://www.irishexaminer.com/news/arid-40325327.html>

² Jonathan Carroll, 'Relying on the goodwill of the individual, and luck: the problematic nature of utilising the Army Reserve skills base in the Single Force Concept', 2019 Defence Forces Review, ISSN 1649-7066, pp 30-41.

³ Jonathan Carroll, 'Conceptually Ambitious, Hardly Novel, and Currently Failing: The Irish Army Reserve in the Single Force Concept', The Journal of Military History and Defence Studies Vol 1. Issue 1.(January 2020), pp 193-252.

⁴ In 2019, there were 12,059 Army Reservists with 2,950 in training. The principal reserve formation, 2nd Division, had 10,500 personnel out of an establishment of 12,500. Source: MAJGEN K Campbell, COMD 2 DIV, Defence Reserves Association National conference presentation 2019, quoted in 'The Australian Reservist', Issue 33, Nov 2019. Downloaded from: https://dra.org.au/conference-2019-item/41046/growing-the-pie-the-total-workforce-model-in-army/?type_fr=1085

2001,⁵), and enhanced reserve force funding. Australia's unique taxation treatment of ADF reserve salaries is also highlighted. Overarching measures have included consistent Australian government support (which has enjoyed bi-partisan support from Australia's two principal political parties) as well as popular societal recognition of the importance of reserve service to Australia's national security. In particular, the ADF also enjoys high levels of community support and trust within contemporary Australian society with recent surveys indicating that it is '...easily the highest ranked institution in society, followed by the police and universities...'⁶. In summary, this paper will present and discuss some of the measures undertaken in Australia to address the kinds of challenges facing the Irish RDF.

An Important Disclaimer

It is worth stating from the outset what this article will not discuss. The author of this article has little direct experience of either the permanent Irish Defence Forces or the RDF. There will be no 'recommendations' or 'advice' as to what Ireland 'should' do in order to resolve the RDF's critical issues of recruitment and retention. It will be left entirely to the discerning reader to consider what factors appear to have succeeded in the ADF experience, draw his or her own conclusions, and then apply any 'lessons learnt' to the Irish RDF situation, all whilst accounting for the obvious differences in geography, history, and culture between the ADF and the Irish Defence Forces.

Avoiding 'Stranded Assets'

In economics, 'stranded assets' are defined as those assets which '...have suffered from unanticipated or premature write-downs, devaluations or conversion to liabilities...'⁷. When applied in a Defence context, '...we may define Stranded Capability as those assets that "have suffered from accelerated or premature dilution of their effect or purpose"...'⁸. The existential challenge for reserve forces everywhere is to avoid the aforementioned 'dilution of effect or purpose', thereby continuing to remaining both relevant to the mission and ready to respond with applied capability. That this was the subject of an opinion piece by a high-ranking current Army Reserve Brigade commander as recently as May 2020, speaks not only to it being an ongoing issue for the Australian Army Reserve but for reserve forces everywhere. This appears to be the crux of the problem: how to avoid the 'Stranded Capability' potential of military bodies such as reserve forces? This manifests as decline into entropy brought on by factors such as a lack of strategic direction, a lack of resourcing, or the lack of a clearly defined role?

5 For details see: <https://www.legislation.gov.au/Details/C2006C00054>

6 Department of Defence, 'Guarding against uncertainty: Australian attitudes to defence 2015', External expert panel to the 2015 Defence White Paper, Defence Publishing Service, Canberra, 2015, p 93p 103-106. Accessed via: <https://www.defence.gov.au/Whitepaper/docs/GuardingUncertainty.pdf>

7 See: <https://web.archive.org/web/20140327230917/http://www.smithschool.ox.ac.uk/research/stranded-assets/>. The Smith School is a subsidiary of Oxford University, UK, see: <https://www.smithschool.ox.ac.uk/>

8 Mike Calms, 'Stranded capability: the value of the Army Reserve asset in 2020', from 'The Cove', 7 May 2020, accessed via: <https://cove.army.gov.au/article/stranded-capability-the-value-the-army-reserve-asset-2020>

Legislation: The key to Securing ADF Reserve Service

Australia's Defence Reserve Service (Protection) Act 2001 ('The Act'), provides a solid foundation for enabling participation in reserve service. It provides legal safeguards for reservists undertaking periods of reserve service obliging employers to release employees for reserve service. The Act obliges employers to grant reserve service leave and prohibits an employer from compelling an employee to utilise recreational leave or other type of leave. Anti-discrimination provisions are written into both the Act, and under Australian workplace regulations⁹. With regard to fulltime tertiary students, The Act also provides for non-discrimination in case of study and periods of service rendered during the academic year. The Act has significant coercive powers written into it should an employer refuse to grant a reservist leave to render service under a written Notice without good reason and given reasonable warning, providing sanctions in terms of the Commonwealth Crimes Act. To date no prosecution has occurred, however, the point being that this sanction does exist, sitting in the background as a very large, if hitherto untested, 'big stick'. In practice, consultation, coordination, and de-confliction is very strongly emphasised, with a number of bodies and mechanisms set up to harmonise military and civilian sides. These include a National Defence Reserve Support Council¹⁰, which acts as a point of contact for employers, and which also coordinates strategic communications and employer interactions. A good example of the latter is Exercise 'Boss Lift' which immerses employers in the ADF in order to give employers better understanding of the situation of their reserve employees. This has included an overseas deployment of employers to Malaysia, where the Army Reserve currently maintains a company-size unit on rotation at the Royal Malaysian Air Force base in Butterworth, conducting jungle warfare training in the surrounding area. Each Australian State or Territory has its own DRSC which coordinates yearly awards for supportive employers: these are presented at highly visible functions with extensive paid publicity coupled with highly favourable strategic messaging.

The Australian Army's 'Total Force'

All Australian Army reservists who are suitable may volunteer for overseas or operational service. There is no extant legislation in Australia making this illegal. If a reservist has a suitable skills-set, he or she may offer to render continuous full-time service either inside or outside Australia without restriction. It should be noted that whilst rendering operational service, reservists will be paid according to the equivalent full-time regular rank and skill pay level. For example, the ADF does not propose to pay deployed Reserve medical specialists at the same rate as a 2 star Irish Defence Forces Private¹¹. To do so would represent a grievous act of corporate self-harm, disrupting a critical pillar of the ADF's centre of gravity construct for deployed medical support. Under recent ADF Total workforce arrangements, all operational positions are now offered to all reservists who are suitably qualified, undergo the preparation training, and who voluntarily apply. Army Reserve medical and health personnel comprise a key group providing critical capabilities who have been singled out, specifically through targeted incentives. ADF Reserve support is not limited to Combat Service Support or Combat Support roles, as shown by recent deployments of Army Reserve commandos in Afghanistan undertaking full kinetic operations during winter months, in order to rotate Regular Army elements out of theatre for rest and leave.

⁹ See: <https://www.fairwork.gov.au/tools-and-resources/fact-sheets/rights-and-obligations/defence-reservists-rights-and-responsibilities-at-work>

¹⁰ For information on the DRSC, see: <https://www.defencereservessupport.gov.au/>

¹¹ Jonathan Carroll, 'Conceptually Ambitious, Hardly Novel, and Currently Failing: The Irish Army Reserve in the Single Force Concept', *The Journal of Military History and Defence Studies* Vol 1. Issue 1.(January 2020), p 199.

The ADF Total Workforce Model (TWM)

The ADF TWM was implemented in 2016 in response to recruitment and retention issues occurring across the entire ADF workforce spectrum. At that time, the situation was exacerbated by Australia's resources sector boom contributing to increased ADF separations. Summarised briefly, the TWM provides up to seven Service Categories (SERCAT 1-7) allowing a combination of flexible alternatives, dependent on the employment category, of full, part time, casual, and 'hybrid' employment.¹² In the case of the latter, this may be a 'shared' employment arrangement between the ADF and a civilian sector employer. The case of trade trading, for example, vehicle mechanics, or even medical specialists, are both occupationally diverse examples of ADF TWM arrangements. In the case of medical specialist trainees, employment is shared in partnership between the major tertiary level hospital and the ADF. This arrangement, in particular, provides clinically current, experienced health professionals with lower rates of 'skill fade'. Interoperability between regular and reserve forces is provided by expediting intra-force administrative movements, with conversion from reserve to full-time service done relatively seamlessly, enabling a high degree of mobility between forces.

Army's 'Plan Beersheba'

Plan Beersheba was a significant restructure of the Australian Army that was announced in 2011 and completed in 2017.¹³ Much of the imperative behind the restructure lay in the impetus to reorganise combined arms teams within Army and not reserve force integration per se¹⁴. A principal effect of Plan Beersheba on the Army Reserve was the much closer pairing of Reserve brigades with regular multirole combat brigades in order to provide three reinforcing battlegroups comprised of Army Reserve personnel. The readiness cycle of these battlegroups mirrors that of their paired regular Army brigade.¹⁵ Major changes in the composition of Army Reserve units themselves also occurred, generally characterised by separation of Reserve personnel and sophisticated systems (reflecting the lower rates of occupational exposure of reserve personnel to systems thereby reducing both training liabilities and risk). When coupled with the ADF-wide TWM, Plan Beersheba has resulted in greater functional integration of reserve and regular elements within the Australian Army.

Proof of Concept:

The ADF Reserves in a National Bushfire Emergency

Every summer, much of the Australian continent is regularly swept by large wildfires. The situation overwhelmed civil authorities in the southern summer of 2019-2020 resulting in the first peacetime 'call out' of ADF reserves. This resulted in the largest Aid to the Civil Authority (ATCA) operation ever undertaken by the ADF.¹⁶

¹² For a summary, see: <https://www.defence.gov.au/PayandConditions/ADF/ADF-TWS.asp>

¹³ <https://news.defence.gov.au/media/media-releases/army-delivers-final-component-plan-beersheba>

¹⁴ For background on the combined arms doctrine reasons for Beersheba, see: Craig Bickell, 'Plan Beersheba: The Combined Arms Imperative behind the Reorganisation of the Army' in Australian Army Journal, Vol X, number 4, Summer edition, Canberra 2013, pp 38-49.

¹⁵ MAJGEN Kathryn Campbell, COMD 2 DIV, Defence Reserves Association National conference presentation 2019, quoted in 'The Australian Reservist', Issue 33, Nov 2019. Downloaded from: https://dra.org.au/conference-2019-item/41046/growing-the-pie-the-total-workforce-model-in-army/?type_fr=1085

¹⁶ 'ATCA' is an Irish military acronym; Australia uses the term 'Defence Aid to the Civil Community' (DACC).

In this instance:

ADF numbers involved in the bushfire support efforts surged from under 900 to over 6,500 personnel over several weeks in January and early February 2020...the ADF response featured thousands of members of the Army Reserve called out for mandatory service on 4 January 2020...Rather than calling for volunteers, the government was enacting provisions of the Defence Act 1903 to order reservists to report for duty in a national emergency. Reserve units and formations activated...transferred to...full-time service and deployed...as formed bodies¹⁷.

Theoretical issues which have been raised in Ireland regarding discipline or call out legality as well as reservists potentially ignoring the call out were not apparent during this operation¹⁸.

In essence, Operation Bushfire Assist (OP BA) stress tested key aspects of the ADF TWM as well as command and control systems operating over the spectrum of both regular and reserve army formations, enabling valuable lessons which will enable the future deployment of the Army Reserve should the situation require it. In today's Volatile, Uncertain, Complex, and Ambiguous (VUCA) geopolitical environment, all defence strategic and force planners would do well to study their own potential threat situation and prepare force structures and capabilities accordingly. In this regard, Australia recognises that a reserve capability is worth nurturing, funding, and integrating, to prepare for a future event when every capability will matter. For a smaller country like Ireland in much closer proximity to geostrategic areas of Great Power interest, it would seem prudent to prepare in a similar manner.

Financial Incentives

A unique aspect of the ADF reserves is that all Reserve pay is exempt from income tax, leaving Reserve members with their full gross pay. Earnings of Reserve members are excluded from the definition of 'salary or wages' under the Superannuation Guarantee (Administration) Act 1992, and all ADF reserve income is exempt from tax under the Income Tax Assessment Act 1997. In the context of the ADF reserves being an organisation holding significant numbers of former full-time, regular, ADF personnel, this works to confer some advantage to these personnel who in many cases will be collecting taxable pensions for which ADF Reserve salary is, for all intents and purposes, 'invisible' income, leaving pensions and other social security benefits unaffected. This is a powerful incentive for ex-regular personnel to continue to contribute to ADF capability. Finally, it is also worth noting that voluntary, unpaid service is only possible in the ADF under a small and very limited set of circumstances. Put bluntly, the ADF does not consider routine uncompensated service a sound basis to underpinning Reserve capability.

A number of unique financial incentives exist on both sides of the employer-employee equation for ADF reserve service. The Employer Support Payment Scheme (ESPS) commenced in 2005, and provides weekly payments to either employers or employees, depending on the particular situation,

¹⁷ Mark Armstrong, 'Every Possible Capability: Some Implications of the Army Reserve Call Out for Operation Bushfire Assist 2019-20', Australian Army Research Centre, Canberra 2020, p 1 and p 29. Accessed via: <https://researchcentre.army.gov.au/library/seminar-series/every-possible-capability>. Paper downloaded from: <https://researchcentre.army.gov.au/library/occasional-papers/every-possible-capability-some-implications-army-reserve-call-out-operation-bushfire-assist-2019-2020>

¹⁸ Jonathan Carroll, 'Conceptually Ambitious, Hardly Novel, and Currently Failing: The Irish Army Reserve in the Single Force Concept', *The Journal of Military History and Defence Studies* Vol 1. Issue 1.(January 2020), p 197.

of an amount equivalent to Australian Average Working Ordinary Time Earnings (AWOTE).¹⁹ In the 2022 Australian Financial Year (FY), which extends from 1 July to 30 June annually²⁰, AWOTE will be equivalent to a taxable amount of \$AUD 1,711.60 per week, which at present July 2021 retail exchange rates (\$AUD 1.00=EUR 0.63) equates to approximately EUR 1,078.31 per week. ESPS is paid to either the employer (to compensate for the absence of the reservist) or directly to the reservist, should that reservist be self-employed. Currently, most State and Commonwealth government bodies provide up to 4 weeks' paid Reserve service leave. In the case of a reservist in the public service rendering 4 weeks' reserve service, he or she will be paid a full ordinary time salary in addition to 4 weeks' reserve pay, essentially receiving double pay, half of which is tax exempt. The Government department itself will receive the ESPS. This situation accounts for the high numbers of State and Commonwealth public servants, particularly police officers, health personnel, and teachers, serving in the Army Reserve. In the case of health professions, ESPS is higher, with rates varying according to profession. In FY 2022, this will range from \$AUD 5,403.33 (approx. EUR 3,404) per week for a registered nurse, to \$AUD 9,662.40 (approx. EUR 6,087.31) per week for a procedural specialist such as a surgeon or an anaesthetist.²¹ The scale of payments to health reservists gives an indication of the critical role of health reservists in providing ADF capability, particularly for operational service.

Conclusion

This short article has attempted to highlight specific measures which have been applied in Australia to achieve a number of reserve force outcomes. Amongst these are enabling recruitment, retention, and enhancing total force capability. Space limitations here do not allow for a more complete discussion of preliminary results, however, in the author's experience at both the unit and formation level, most of these measures appear to have been well accepted and to achieve what they have been intended to do. This is not to say that the debate over the role and employment of reserve forces in Australia has been resolved or settled: on the contrary, the debate is ongoing and, at times, vociferous. Nevertheless, a national discussion is present. Underlying the Australian approach has been the term: 'comprehensive' and as can be seen in this article, approaches have included integrated reserve force policy, effective legislation, public and private sector partnerships, and a range of financial incentives. Perhaps this should be the final thought for Irish readers: that a society-wide discussion leading to a comprehensive approach might be the best way forward for the RDF?

¹⁹ See: <https://www.defencereservessupport.gov.au/benefits/employer-support-payment-scheme/>

²⁰ The Australian financial year extends from 1 July to 30 June of each year.

²¹ Accessed via the DRSC 'CDF approval payment rate' factsheet, See: <https://www.defencereservessupport.gov.au/forms-publications/>



Lest We Remember: Military Commemoration and Strategic Culture in Ireland

Comdt Stephen MacEoin

Abstract

This paper asks why the National Army Civil War dead are not commemorated by the Irish State. Identifying a distinct gap in the literature regarding the Irish Civil War in general and the commemoration of the National Army war dead in particular, the research tackles some key assumptions regarding commemoration in Ireland, challenging in particular the assertion that historic amnesia towards military service in Ireland pertains to the British Army alone.

At national level, the commemorative ceremonies for the Irish State's own war dead reflect an ambivalence about asserting the State's origins, but also highlight a tension between the different traditions in Ireland. Approaching the problem through examination of both commemorative ceremonial and some of the key surviving structures of monumental material culture in the Irish commemorative landscape, this paper finds that this ambivalence is significant.

Drawing on themes such as inclusiveness, 'good history' and ethical remembering in commemoration, this study argues that there are inconsistencies in the Irish commemorative landscape which contradict the notion of real inclusiveness. It is suggested that the amnesia that surrounds the National Army war dead lacks moral intensity and falls short of the kind of inclusive commemoration that has rightfully managed to encompass the British Army war dead not just from the Great War, but from the revolutionary period in Ireland too. Moreover, it would appear that the Defence Forces itself has never really developed its own internal culture of commemoration since, United Nations service aside, there is almost complete amnesia regarding its dead from the Civil War, from the Emergency period and from the Troubles.

Finally, the paper examines how Ireland's strategic culture may be reflected in the status of its military in commemorative practices, with implications for the Defence Forces and its position within the Irish State and Irish society in general.

Introduction

Private James Clarke was a 19 year-old soldier in the National Army (NA) when his small party was ambushed by anti-Treaty forces near Tubbercurry, Co. Sligo, in late November 1922. He died "almost immediately from the wounds he received", leaving behind his parents and five siblings, who were "wholly dependent" on his income¹. His mother's application for a dependent's pension, dated 29 November 1923, which pleads that the family had received "not even his pay due to him at time of death or funeral expenses", is a tiny but poignant glimpse back at just one fragment in the reality of conflict in Ireland, almost one hundred years ago.

This paper seeks to explore how it is that one cohort of Ireland's Civil War casualties - the soldiers who died on the government side - have been effectively forgotten, even as Ireland approaches the conclusion of the so-called 'Decade of Centenaries' and the centenary of that war. A number of obvious questions arise. Why does Ireland not commemorate or even remember those who

¹ Military Archives. 1923. "Military Service Pension File 2D24 concerning award of pension to MaryClarke, mother of Pte James Clarke", Military Archives of Ireland.

died in the service of its armed forces, even while commemorating the Irish who fought in the British forces? How can we usefully explore these questions within the confines of history or even historiography? What, if anything, does the way in which Ireland commemorates its war dead tell us about the status of the military in Ireland and the State's strategic culture?

Commemoration in Ireland

The Irish Civil War of 1922-23 was, by any standards, a 'small war'. While some historians² are attempting to estimate how many people – military forces and civilians combined – died during the entire revolutionary period and reliable data is now available for the War of Independence³, it seems unbelievable that a figure for the Irish Civil War has never been accurately compiled. Historians also differ regarding the extent of the war's impact. Garvin has argued that the war, while bitter, was "rather like a large riot"⁴. Townshend points out that the war and indeed the wider Irish revolutionary period was comparatively unremarkable in the international context, in terms of the casualties during the Great War which preceded it: "the casualty list for three (or even six) years in Ireland was routinely exceeded in a single day's fighting in France during that war"⁵. That said, the trauma of civil wars is that they are more inherently divisive and destructive in a society than perhaps any other form of conflict. They therefore should not be "measured solely – or even primarily – in terms of fatalities"⁶ as Townshend argues. Dolan⁷, posing the question of why Ireland's revolutionary violence was so comparatively tame when it could have been far worse (in broader European terms), has similarly pointed out that even if lethal violence was limited for a variety of social and cultural reasons, this fact serves perhaps to highlight just how successful non-lethal forms of violence were in achieving their aims during the period.

In any case, while historians may differ as to what constitutes a war, scholars of strategic studies can perhaps afford to be more categorical. If, as Gray (echoing Clausewitz) has convincingly argued, "war is political behaviour using the agency of force"⁸, then the conflict that raged in Ireland from 28 June 1922 to 24 May 1923, was indeed a war. The Civil War was politics with other means in that its *jus ad bellum* on the State side was the democratic mandate provided by the ratification of the December 1921 Treaty, bolstered later by the overwhelmingly pro-treaty candidates returned in the general election of June 1922. Approximately 780 soldiers⁹ of the National Army (NA) died therefore in prosecuting what was ostensibly an extension of the political and democratic will of the Irish people, or at least the Irish people outside of the six counties that would become Northern Ireland. It is worth pointing out that the NA's direct antecedent was the Irish Volunteers/IRA and that the Army later became the modern Defence Forces (DF), under the 1923 Temporary Provisions Act. In other words, the NA was, by any measure of the term, the legitimate army of a democratic nation state. It would follow that the new Irish State might therefore seek to honour or at least to commemorate the men who died, often in horrific circumstances, serving according to the wishes of the Government and the majority of the people.

2 O'Halpin, Eunan, and Daithí O' Corráin. 2020. *The Dead of the Irish Revolution*. New Haven: Yale University Press.

3 O'Halpin and O' Corráin's volume addresses the gap up to the end of the War of Independence, with plans to continue the work to cover the Civil War and afterwards.

4 Tom Garvin, 1922: *The Birth of Irish Democracy*. (Dublin: Gill and McMillan, 1996) , 45.

5 Townshend, Charles. 2012. "The Irish War of Independence: Context and Meaning." In *Guide to the Military Service (1913-1921) Pensions Collection*, edited by Catriona Crowe, 111-116. Dublin: Óglaigh na hÉireann, P.112.

6 Ibid.

7 Dolan, Anne. 2020. "Killing in 'the good old Irish fashion'? Irish revolutionary violence in context." *Irish Historical Studies* 44 (165): 11-24.

8 Gray, Colin. 2012. *War, Peace and International Relations : An Introduction to Strategic History*. 2nd .Routledge, p. 7. See also Clausewitz, Carl Von. 1976. *On War*. Translated by Michael Howard and Peter Paret .New Jersey: Princeton UP.

9 This figure appears to be the most definitive one, from Langton, James. 2019. *The Forgotten Fallen, The Fallen of the Irish Civil War*, Volume 1. Dublin: Kilmaham Tales.



Figure 1: Plan view of the National War Memorial Gardens, Islandbridge. Courtesy of Heritage Ireland (OPW).

The Commemorative Landscape in Ireland and the Great War Dead

Before considering how the subject of this paper – the NA war dead – are commemorated, it is appropriate firstly to consider how the largest cohort of Irish war dead, those who served in the British forces in the Great War in particular, are commemorated in Ireland. A narrative¹⁰ had existed for quite some time that Ireland (i.e. the Irish Free State and later Irish Republic) had looked uncharitably at the commemoration of war dead with the British forces, despite the obvious fact that an estimated thirty-five to forty thousand were Irish. Some historians however, including notably Jeffrey¹¹ have challenged this notion that Ireland, at least before the Emergency/Second World War, had actively forgotten its war dead in the British forces. In May 2016, a ceremony took place at Grangegorman military cemetery, near what is now McKee (formerly Marlborough) barracks commemorating for the first time the soldiers on the British side who fought in the 1916 Rising. It seemed a world away from what has been characterised as the somewhat homogenous 1966 Easter Rising commemorations¹². The event represented perhaps a high point in terms of the inclusivity that the Irish State and indeed its people sought from the decade of centenaries.

If Irish service in the British forces was at times through the twentieth century muted in official Ireland, it could not be said to be so now. By far the most impressive war memorial in Ireland, in scale, design and impact is the Lutyens-designed National War Memorial Gardens at Islandbridge, Dublin, which was completely restored in the late 1980s. Turpin argues that Islandbridge is “the finest World War I memorial in the South, finer, in fact, than any of the

¹⁰ See for example Myers, Kevin. 2015. “Kevin Myers on Ireland’s Great War.” 01 09. Accessed 05 17, 2021. <https://www.irishtimes.com/culture/books/kevin-myers-on-ireland-s-great-war-1.2060463>.

¹¹ See Jeffery, Keith. 2000. In *Ireland and the Great War*. Cambridge and also Jeffrey, Keith. 2014. “Irish Varieties of Great War Commemoration.” In *Towards Commemoration: Ireland in War and Revolution 1912 1923*, edited by John Horne and Edward Madigan, 117-125. Dublin: RIA.

¹² See Daly, Mary, and Margaret O’Callaghan. 2007. *1916 in 1966: commemorating the Easter Rising*. Royal Irish Academy.

War of Independence memorials¹³” due in large part to Lutyens’ own ability. How is it then, that in Ireland, where a war of independence was fought against the British forces, where attempts at conscription in 1918 precipitated a political crisis and a landslide victory for the then Sinn Féin party, that the State’s monuments to the dead of its own forces, to those who essentially ensured its survival as a political entity, are so much less impressive?



Figure 2: DF personnel parade at Islandbridge for the Somme centenary, July 2016. Courtesy of DF Public Relations branch.

Evidence of Commemoration of the NA War Dead in Ireland

At State ceremonial level, there is no single event to commemorate the NA war dead. This is unlike, say, the Armistice Day Commemoration which takes place on each Remembrance Sunday in Islandbridge (in which the State participates, sending a DF National Colour Party), or unlike the State’s 1916 Rising Commemoration held at the General Post Office (GPO) each Easter Sunday. The only event at which the NA fallen could be construed to be part of is the National Day of Commemoration, which usually takes place at the Royal Hospital, Kilmainham on the Sunday closest to 11 July (the date of the 1921 Anglo-Irish Truce). First instituted in 1986, the National Day of Commemoration aims at “commemorating all those Irishmen and Irishwomen who died in past wars or on service with the United Nations¹⁴”. It therefore, in a very non-offensive and Irish way, potentially accommodates any Irish soldier or civilian who died anywhere, from Clontarf in 1014 to Fontenoy in 1745 to Normandy in 1944.

To remain cynical for a moment, the event might even accommodate Irish people who died fighting on the side of the so-called Islamic State of Iraq and Syria (ISIS) in recent conflicts, such as ‘Khalid Kelly’¹⁵. Terence Kelly, as he was born, was an Irishman from the Dublin Liberties who killed himself in a suicide bomb attack in Iraq in November 2016 while fighting for ISIS. He was one of perhaps 40 such fighters

13 Turpin, John. 2007. “Monumental Commemoration of the Fallen in Ireland, North and South, 1920-6.” *New Hibernia Review/Iris Éireannach Nua* 11 (4), p. 117.

14 Government of Ireland, 2021. “The National Day of Commemoration.” 02 09. Accessed 02 09, 2021. <https://www.gov.ie/en/publication/11b77d-national-day-of-commemoration/>

15 Reynolds, Paul. 2019. “RTÉ - The Irish who are fighting for ISIS.” 12 01. Accessed 02 08, 2021. <https://www.rte.ie/news/2019/0112/1022775-paul-reynolds-the-irish-who-are-fighting-for-isis/>.

who left from Ireland to fight with terrorist and anti-western groups in the recent past¹⁶, many of them presumably Irish citizens. The National Day also, technically, accommodates Irish soldiers who may have fought in the British Army against the Irish Volunteers in Dublin in 1916 - or with Franco in 1936. Indeed, this point was a bone of contention when the event was inaugurated at Dublin's Garden of Remembrance in 1986, drawing complaints from the Old IRA Association, who argued that the Garden designed by Dáithí Hanley to be "dedicated to the memory of all those who gave their lives in the cause of Irish freedom¹⁷" was supposed to commemorate only those who had died for Ireland¹⁸.

It seems obvious that the spirit - if not the word - of the National Day could hardly stretch to accommodate the memory of those Irish who, as individual exceptions, may have fought for causes completely at odds with Irish core values, such as ISIS. Nevertheless, Irish values have been seen to change over time. A clear example of such ambivalence was the 2012 pardon afforded to Irish personnel who deserted from the DF during the Emergency/Second World War period. Quite apart from the fact that the narrative¹⁹ assumed (without evidence) that the circa 5,000 men who deserted all went on to join the Allied forces, it was surprising that a state which has declared itself avowedly neutral should retrospectively decide that desertion of personnel from its own forces in time of war and severe risk to the State to fight with a belligerent force was something to be commended. The Irish State of today is far more accommodating and magnanimous in terms of its inclusiveness in commemoration, as we have seen, but it remains ambivalent. How does Ireland, therefore, define the limits of what is politically or morally acceptable in terms of commemoration? Or is pragmatism perhaps more highly valued than principle in the Irish context?

Aside from living State commemorative events, the presence or absence of the NA war dead in the material culture of Ireland's commemorative landscape can tell us much. For example, the only physical State memorials which could be taken to include the NA war dead are located at Dublin's Merrion Square and Glasnevin cemetery. The former location is of significance, since it is located directly across from Leinster House Lawn, the site of the original Collins-Griffith-O'Higgins 'cenotaph'. Officially entitled An Dún Cuimhneacháin, the National Memorial by artist Brian King in Archbishop Ryan Park at Merrion Square is again dedicated rather loosely as "The National Memorial to members of the Defence Forces who died in the service of the State²⁰". There is no accompanying inscription to indicate who died and in what conflict they were fighting. Glasnevin therefore holds the only designated national site for commemoration of the NA war dead, at the cemetery's dilapidated so-called 'Army Plot', but again without any explicit reference to the Civil War, where the State suffered by far its largest casualties.

Finally in this brief survey of the Irish commemorative landscape vis-à-vis the NA war dead, we turn to the DF itself. Within the organisational culture of the DF, it is striking to note how little room there is for commemoration of the Civil War dead. The official Defence Forces "Roll of Honour" exclusively takes

16 Lally, Conor. 2016. "The Irish Times: Khalid Kelly: gardaí investigate background of Islamic convert. Kelly began commitment to become Isis suicide bomber while in Longford, say gardaí." 11 06. Accessed 05 12, 2021. <https://www.irishtimes.com/news/ireland/irish-news/khalid-kelly-garda%C3%AD-investigate-background-of-islamic-convert-1.2856997>

17 OPW. 2021. "Heritage Ireland - The Garden of Remembrance." 02 04. Accessed 02 04, 2021. <https://heritageireland.ie/places-to-visit/garden-of-remembrance/>.

18 As documented by contemporary RTÉ news reports - RTÉ. 1986. "RTÉ Archives: First National Day of Commemoration." July 13. Accessed 02 05, 2021. <https://www.rte.ie/archives/2016/0707/800818-first-national-day-of-commemoration/>.

19 For example Michael, Jason. 2012. "The Irish Times - Pardon for WWII Allies deserters." 06 12. Accessed 02 09, 2021. <https://www.irishtimes.com/news/pardon-for-wwii-allies-deserters-1.719526> and also Kelleher, Lynn. 2012. "Irish Examiner - Call for healing ceremony for pardoned 'deserters'." 08 11. Accessed 02 09, 2021. <https://www.irishexaminer.com/news/arid-20203794.html>.

20 Catalogued as part of the Irish War Memorials project, see Pegum, Michael. 2021. "Irish War Memorials: National Memorial to the Defence Forces." 05 14. Accessed 05 14, 2021. <http://www.irishwarmemorials.ie/Place-Detail?siteid=337>.

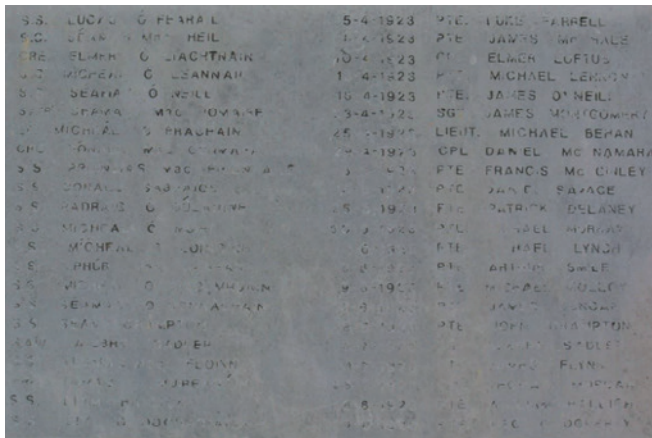


Figure 3: Detail from the Army Plot at Glasnevin cemetery showing extensive decay. (Photographed by the author).

into account those who died on UN Peacekeeping Operations²¹: there is no reference to the far greater number of fallen in the Civil War – or even to those who died in training and on operations (e.g. clearing of sea-mines) during the Emergency/Second World War for that matter. Nor, contrary to what one might expect, is there any single location where one can view an entire list of DF personnel who died on operations since the State’s foundation. This may well be because of the fact that the prevailing strategic culture within Ireland has cultivated a uniquely Irish version of what its armed forces are supposed to do, based on a notional “military neutrality²²”, what O’Halpin describes as “that most convenient, malleable and inexpensive of doctrines²³”. What has been described as Ireland’s policy of constructive ambivalence when it comes to foreign and defence policy²⁴ is perhaps also reflected in Irish political culture and in turn how historical events (such as Irish desertions from the DF during the Emergency) are perceived.

The official Roll of Honour demonstrates that UN operations have in some measure defined the Army’s operations and represent a ‘safe space’ for commemoration, while the narrative around the Civil War has all but precluded any mention of the proportionately far higher losses there. While later politically inconvenient, it is impossible to ignore the fact that those who fought and died on the NA side in 1922-23 were fighting for the State, “as a national military force under the control of a civilian government²⁵”.

21 Defence Forces 2021. “Overseas Deployments - Roll of Honour.” 02 10. Accessed 02 10, 2021.<https://www.military.ie/en/overseas-deployments/roll-of-honour/>; Office of the Head Chaplain. 2021. “Chaplaincy Service, Defence Forces Ireland - In Remembrance.” 02 10. Accessed 02 10, 2021.<http://militarychaplaincy.ie/in-remembrance/>.
 22 DoD. 2019. White Paper on Defence Update 2019. Newbridge: Department of Defence, p. 1.
 23 O’Halpin, Eunan. 2000. Defending Ireland: The Irish State and its Enemies since 1922. Oxford University Press, p. 353.
 24 Tonra, Ben. 2012. Irish Foreign Policy. Dublin: Gill & Macmillan.
 25 O’Halpin, Eunan. 2000. Defending Ireland: The Irish State and its Enemies since 1922. Oxford University Press, p. 27.

History, Moral Intensity and Ethical Remembering

It can be argued that Irish Civil War narratives have perhaps been informed by a moral value judgement on who ought or ought not to be commemorated, based on received knowledge about who was 'good' and who was 'bad'. War is never pretty and the atrocities committed by the NA at places such as Ballyseedy are unforgivable for those who perpetrated them. The danger here however, to quote Fitzpatrick, is that "commemoration lends itself to crude stereotyping" and not all 40,000 members of the NA can be "portrayed as bloodthirsty perpetrators of the Ballyseedy massacre²⁶". If we can usefully agree that no one side has the monopoly on violence, we should not be afraid to offer at least some informed judgement on what happened, in order that "historians should try to add moral intensity to the ways in which we commemorate and comprehend the past²⁷". O'Toole would seem to chime with this argument, suggesting that historians "can be said to serve society much better by confronting it with the unadorned evidence of the human costs of conflict²⁸".

Unfortunately, for each Ballyseedy, there was usually a Knocknagoshil, the latter event involving the death of five NA soldiers in a 'trap mine' and leaving Pte Joseph O'Brien with severe sight loss and a double leg amputation²⁹. For the 77 people (or more) brutally executed by the State in an attempt to suppress the anti-Treaty movement, there were an (as yet) unquantified number of executions by anti-Treaty forces³⁰. The problem, of course, is that State actors in uniform are immediately identifiable and rightly held to the highest standards of conduct, whereas misconduct by asymmetric forces is often not. The degree to which asymmetric operations in the War of Independence and the Civil War had less to do with political ambition and more to do with sectarian violence and score-settling against non-combatants is an uncomfortable aspect of our history and merits further examination. Historians such as Borgonovo³¹, for example, have detailed extraordinary episodes of violence such as the extra-judicial killing of thirteen Protestants in the Bandon Valley by IRA forces in April 1922, while Clark³² has attempted to grapple with the phenomenon of 'everyday violence' – including gender based sexual violence – in the Civil War which had lasting and traumatic effects, even if not lethal ones. Such activity also included the economic deprivation associated with the destruction of railways and road infrastructure and acts of cultural vandalism such as the burning of great Anglo-Irish houses and the deliberate destruction of the Public Record Office³³.

The above comments are not to somehow retrospectively tip the balance of violence and atrocity against the anti-Treaty forces, but rather to argue that it is simplistic to presume that the NA forces were likewise most guilty. The point is that only accurate, rigorous research and a strict interpretation of the sources can inform our historiography, which in turn ought to inform our commemorative activities in a morally sound and balanced way. Moreover, it is interesting to

26 Fitzpatrick, David. 2013. "Historians and the Commemoration of Irish Conflicts, 1912-1923." In *Commemoration: Ireland in War and Revolution, 1912-1923*. Dublin: RIA, p. 217.

27 *Ibid.*, p. 218.

28 O'Toole, Fintan. 2014. "Beyond Amnesia and Piety." In *Commemoration: Ireland in War and Revolution, 1912-1923*, edited by John Horne and Edward Madigan, 154-161. RIA, p. 157.

29 Pte O'Brien's wounds are described in detail in his pension application, see MSPC. 1923. "Military Archives, Military Service Pensions Collection - file ref 4P66, 5096 Pte Joseph O'Brien." 03 19. Accessed 02 10, 2021. <http://mspcsearch.militaryarchives.ie/detail.aspx?parentprifref=>

30 O'Halpin, Eunan. 2000. *Defending Ireland: The Irish State and its Enemies since 1922*. Oxford University Press.

31 Bielenberg, Andy, John Borgonovo, and James S Donnelly. 2014. "'Something of the Nature of a Massacre': The Bandon Valley Killings Revisited." *Éire-Ireland* (St. Paul) 49 (3)

32 Clark, Gemma. 2014. *Everyday Violence in the Irish Civil War*. Cambridge: Cambridge University Press

33 Which was arguably the biggest act of cultural vandalism in 20th century Ireland. See Crowe, Catriona. 2016. "The Courts Service Public lecture (video recording). The destruction of the Public Record Office in 1922 :Catriona Crowe." 11 23. Accessed 02 13, 2021. <https://www.youtube.com/watch?v=VkmcioW2MqQ>.

reflect on the degree to which the conduct of the official executions by NA firing squads (as opposed to NA outrages in places like Kerry) was state sanctioned and driven in the main not by soldiers, but by elected members of the Third Dáil, notably Ministers O'Higgins and Hogan³⁴. Ironically, their successors in Fianna Fáil would later mete out executions to IRA convicts in 1940³⁵. While it may be convenient to account for the phenomenon of State-sponsored violence purely by reference to a blunt and bloodthirsty military instrument, it is perhaps a little too convenient to forget that democratically elected members of national parliament were the ones who repeatedly ordered official executions to take place. These facts need to be accounted for in our historiography and a balanced consideration given as to how they might be commemorated. Ultimately, the NA war dead might have died to fulfil the political compromise of the nascent new state, but their death and commemoration became something of an inconvenience. Dolan's thoughts on the matter are very pertinent and sum up the issue succinctly:

*How does a mother, a father, a wife remember their private, their brigadier general, their son or husband killed in the street, shot by mistake, when they have died in the wrong war, against the wrong enemy and when the next government looks on them as traitors? Can a father still say his son died for Ireland when he had died to secure a compromise?*³⁶

Commemoration and Strategic Culture in Ireland

This paper has raised a number of questions regarding the attitude of the State since independence to the commemoration of its Civil War dead. In many ways it is difficult to see how the new State, with all of its contradictions and tensions, from partition; to the civil war political split; to severe economic challenges, could have dealt comprehensively and fairly with the bitter events of the war. The fact that commemorations took place in the 1920s at all (albeit to the memory of the 'great men' - Collins, Griffith and latterly O'Higgins - rather than to the NA war dead) is in some ways remarkable in itself. In this respect, the commemoration of Ireland's Civil War has been not just ambivalent or partial, but 'messy', with a multitude of unresolved questions and compromise solutions that are perhaps part and parcel of statehood and nation building. Nevertheless, as O'Toole argues, there are always options, since commemoration "is a matter of choice. It is not essentially about history - it's about culture [...] ideas of the 'historic' that are always shaped by present-day concerns and power structures"³⁷.

At least some of the State's attitude to what we as defence professionals call 'the military instrument' (as opposed to the diplomatic; information and economic instruments of national power in the DIME paradigm)³⁸ may have its roots in the particular character or cultural reference points of Irish people vis-à-vis the use of force and military service in general. One suggestion made here is that since Irish strategic culture is ambivalent, it is hardly surprising that commemorative culture regarding the State's own military should be likewise ambivalent. Strategic culture has been defined by Johnston as "an integrated "system of symbols [...] which acts to establish pervasive and long-lasting strategic preferences by formulating concepts of the role and efficacy of military force in interstate political affairs"³⁹.

34 O'Halpin, Eunan. 2000. *Defending Ireland: The Irish State and its Enemies since 1922*. Oxford University Press.

35 *Ibid.*

36 Dolan, A. *Commemorating the Irish Civil War: History and Memory, 1923-2000* 2006, p. 4.

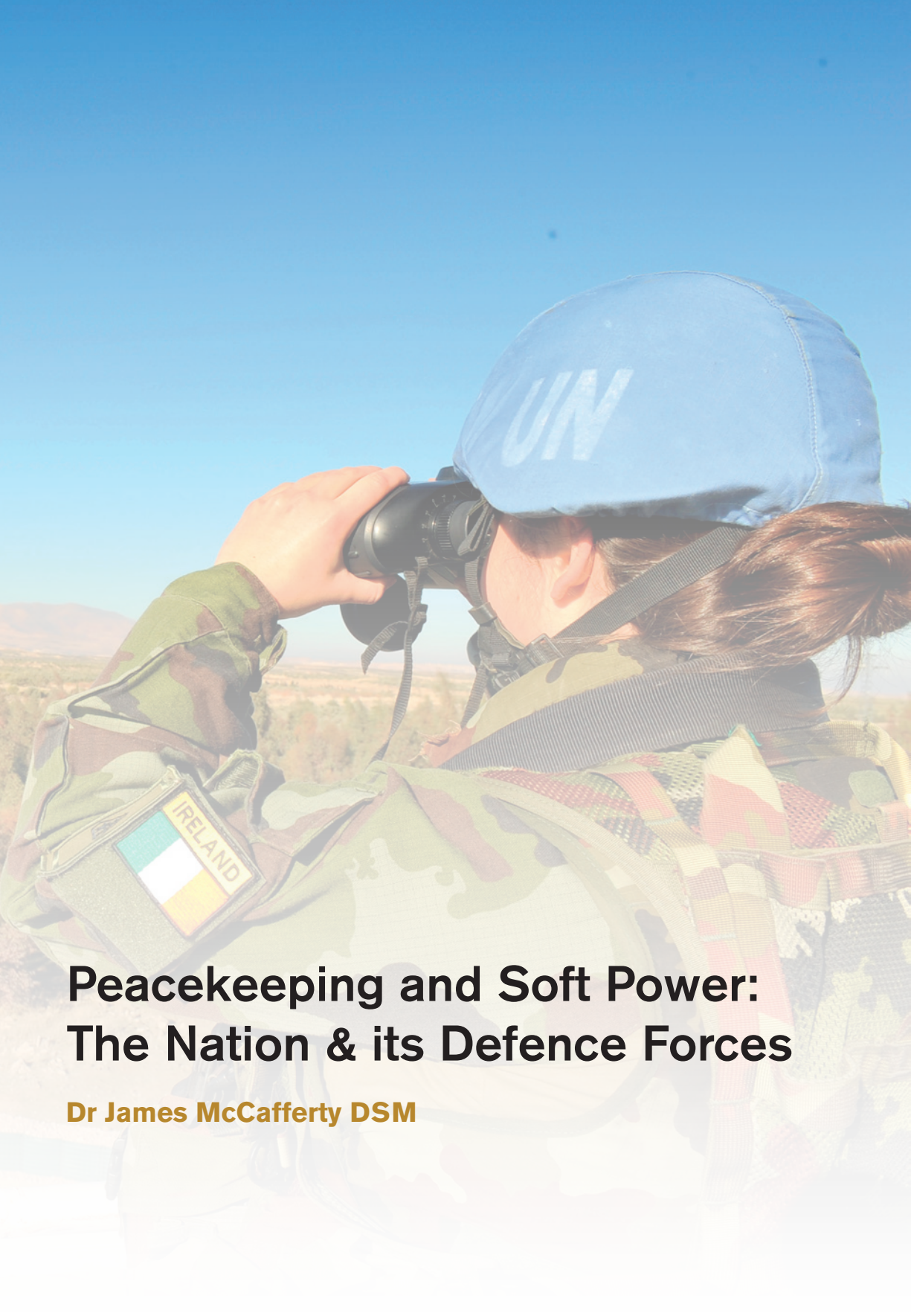
37 O'Toole, Fintan. 2014. "Beyond Amnesia and Piety." In *Commemoration: Ireland in War and Revolution, 1912-1923*, edited by John Horne and Edward Madigan, 154-161. RIA, p. 154.

38 See for example US Joint Chiefs of Staff (2018) US Joint Doctrine Note 1-18 Strategy.

39 Johnston, Alastair Iain. 1995. "Thinking about strategic culture." *International Security* 19 (4), p. 37.

Perhaps the clearest example of this ambivalence, as we have seen, is demonstrated in how the State can richly commemorate the Irish who served in the British armed forces in a variety of sometimes contentious conflicts, but chooses rather to ignore or at least side-line those who served in its own forces, excepting with the UN. Moreover, it would appear that the Defence Forces itself has never really developed its own internal culture of commemoration, since there is an almost complete amnesia regarding its dead from the Civil War, from the Emergency period and even from the Troubles. The explanation here is not immediately obvious - it may for example be largely explained by suggesting that the Irish State has simply followed pre-existing and pervasive modes of commemoration from the received British/Commonwealth tradition, while never taking the time to develop its own commemorative legacies and traditions due to the low status of the military in the Irish State. Further study in this area may yield some interesting results, with a direct learning outcome for the role and status of the Defence Forces and its position within the Irish State and Irish society generally.

In the meantime, we can probably do better to commemorate those who died in service of the State.



Peacekeeping and Soft Power: The Nation & its Defence Forces

Dr James McCafferty DSM

Abstract

Peacekeeping as Soft Power

Military forces are traditionally seen as existing to engage in warlike activities – or the exercise of hard power - and the soft power military functions of, for example, affording aid and protection to civil society may be overlooked. Soft power is, however, epitomised in peacekeeping, for which our Defence Forces has gained unparalleled experience since first so engaging with UN forces in the Republic of the Congo in 1960.

This paper will argue that peacekeeping redounds to the credit of the Irish nation, cements a positive relationship between the Defence Forces and Ireland's civil population, and as a projection of soft political power, benefits the entire nation in both tangible and intangible ways.

Cui Bono?

The benefits accruing to peacekeeping operations are principally twofold.

Firstly, the benefit to our international reputation: secondly, the relationship between Ireland's military and civilian populations is enhanced by publicity attaching to the deployment of peacekeeping forces. Peacekeeping ushered Ireland onto the international political stage. It also altered the relationship between the military and civilian elements of our society by increasing the esteem in which Ireland regards her Defence Forces. This paper will present, inter alia, two striking examples of increased esteem: the march-past in Dublin of the 32nd Battalion in July 1960 and the military funerals of the Niemba fallen in November of the same year.

The Defence Forces moved from being 'seen' only on Easter Parades to being a valued part of Irish society, not only esteemed, but augmented by better equipment and training to become a force more capable of defending the nation, acting in aid of civil power, affording aid and protection to our society.

Introduction

Traditional approaches to thinking about power and international relations tend to approach military force as being primarily a form of 'hard power', most commonly employed for coercive effect. Such views tend to underplay the 'other' roles undertaken by all militaries, many of which are often benign and may have altruistic intent. One such example of this is the use of military forces in support of traditional United Nations (UN) peacekeeping operations, a role for which the Irish Defence Forces have earned justified praise since their first major deployment, to the Republic of Congo, in 1960.

Today, ideas about power tend to be more nuanced than they were in the past. The notion of 'soft power', first advanced in this manner by Joseph Nye in the early 2000s, has been widely accepted.¹ As articulated by Nye, 'soft power' uses a different form of currency to 'hard power', the latter being associated with more traditional tools of power, such as economic might and military strength, which can be exploited to inflict costs or to provide incentives in order to influence the behaviour of others. Soft power generates influence in other ways. It is based on attraction to shared values and ideas, with third parties choosing to listen and be influenced because an individual, state or organisation is seen to represent ideas and ideals that

¹ Joseph Nye, *Soft power. The means to success in world politics*, (New York: Public Affairs, 2004).

are attractive, legitimate and that therefore ought to be taken into account. It is self-evident that Ireland lacks most of the tools traditionally associated with hard power. However, as a result of its history, its longstanding adherence to the rule of international law and to the peaceful resolution of disputes and, above all else, its contribution to international peace and security through support for UN peacekeeping missions, Ireland still has the capacity to exert influence on an international stage, based largely on its soft power.

Considered in these terms, peacekeeping can be seen as being soft power projection, employed altruistically. Nothing in our history has so contributed to thrusting Ireland on the world stage as a political player, or so redounded to Ireland's international credit, as has the Defence Forces' role in peacekeeping missions. This paper argues that our Defence Forces peacekeeping – or Ireland's soft power projection – not only redounds to the credit of the Irish nation, but also cements a positive relationship between the Defence Forces and Ireland's civil population, and as a projection of soft political power, benefits the entire nation in both tangible and intangible ways.

The Nation & the Defence Forces

A nation may be seen as a society – a people - with a system of political governance, supported by various structures and services of which - in our nation - the Defence Forces are one.

The Defence Forces' vision is to 'Strengthen our 'Nation' by inspiring pride and leading excellence and define their role with the motto: - 'Defend, Protect, Support',² and this description of their role is an apt summary. The Defence Forces support and serve the nation, accountable through their military hierarchy to the political hierarchy. The Defence Forces see themselves as being 'a steadfast pillar of the Irish State'.³

A definition of what constitutes a nation' comes in many formats, but as this discussion concerns the Irish nation an Irish source will be used. A nation consists of people who share a common territory, identify with it and each other: who share a deep sense of solidarity with this territory, and/ or a place within that territory, and with each other. The people who constitute a nation do not necessarily share the same moral values, the same cultural values or the same religion.⁴

2 <https://www.military.ie/en/what-we-do/#anchor-5> accessed 7 July 2021.

3 <https://www.military.ie/en/defence-forces-vision/defence-forces-vision.html> accessed 7 July 2021

4 Peter Share, Hilary Tovey & Mary P. Corcoran, *A Sociology of Ireland* (Gill & Macmillan, 2007) 348-362.

Relationships Between the Civil and Military Elements in Our Society

The origins of the Defence Forces lie in the Army that came into being in the period 1923 to 1925, was expanded in the Emergency period 1939 to 1945 and, when the Emergency ended, there began a period of retrenchment until the Congo mission of 1960.⁵

The relationship between the military and civilian elements of our population was not always a harmonious or respectful one prior to the Congo mission in 1960. The military were not quite seen as being like Kipling's 'brutal and licentious soldiery'⁶ but were distant from civil society, appearing only at events such as Easter Parades, or military funerals and providing rudimentary transport services in times of bus strikes. Enlisting in the Defence Forces was not seen as a particularly respected career move, as evidenced by a judge of the District Court in Ballina in November 1952, offering a defendant a choice of 'Join the Army or go to jail'.⁷ This relationship began to change: in July 1960, when the Congo mission was announced, the print and radio media of the day suddenly began to focus, favourably, on the Defence Forces and its preparations to embark on this great, exciting adventure.

Civil society demonstrated a newfound interest in, and appreciation of, the Defence Forces. On the day of the departure of the first elements of the 32nd (Irish) Infantry Battalion for the Congo, The Irish Independent observed in its leading article:

*The departure of our troops to the Congo to-day signifies in a special way Ireland's high standing among the nations; this is a tribute to our Army, whose officers have already given a good account of themselves in the Lebanon. More than that, it is an expression of the world's confidence in our country's impartiality, and therefore in our maturity.*⁸

The Irish Press captured the euphoric and enthusiastic atmosphere of the time when on 28 July 1960 it reported:

*All along the route from Castle Yard to Parnell Square, the green-clad troops, with bands playing and pennants flying were greeted by thousands of cheering citizens, young and old. The capital has never witnessed a greater outburst of enthusiasm and the cheering, which was continuous, mounted to a deafening climax as the troops passed the G.P.O. where the Taoiseach took the salute.*⁹

Then, following on the tragic events at Niemba, when the solemn military funeral of the Niemba fallen took place on the grey day of 22 November 1960, an estimated 300, 000 people lined the streets of Dublin from Bachelors Walk to Glasnevin Cemetery to witness in reverential silence – with some kneeling in prayer – the passing of the cortege.¹⁰ This funeral attendance was reported as being the largest since that of General Michael Collins.¹¹ It is, therefore, reasonable to deduce that this was an expression of the vastly increased esteem in which the Defence Forces were now held. Fifty years later, on the occasion of the fiftieth memorial Mass for the Niemba fallen,

5 Eunan O'Halpin, *Defending Ireland: The Irish State and its enemies since 1922*. (Oxford University Press, 2000) 53-65 & 161-183.

6 Rudyard Kipling In The Matter of a Private <http://www.telelib.com/authors/K/KiplingRudyard/prose/UndertheDeodars/private.html> Accessed 22 June 2021.

7 The Irish Times, 6 November 1952.

8 Irish independent, 27 July 1960.

9 Irish Press, 28 July 1960

10 Evening Press, Evening Herald , 22 November 1960

Irish Independent, Irish Times & Irish Press, 23 November 1960.

11 Ibid.

Archbishop Diarmuid Martin's homily included the following tribute – not only to the Niamba fallen, but also in praise of peacekeeping:

What we celebrate today is an important part of our recent history with many lessons for today. We celebrate peace-keeping. We celebrate a people of Ireland who care, a people of Ireland who felt and still feel an obligation to do something to defend the fundamental rights of others, not out of colonial or economic or selfish interests, but because that is the right thing to do as part of the human family.¹²

Stirring parades, memorials and tragic events do not of themselves make for a positive relationship between civil and military elements of our nation: these relationships must be nurtured by favourable publicity – such as the media coverage of the departures and repatriations of Irish peacekeeping contingents. However, parades and ceremonials fulfil an important purpose in keeping the Defence Forces in the public eye and ‘giving us the thrill of the parade’.¹³ Civil-military relationships must be bolstered by positive actions by the military that are of direct benefit – and are seen to be of direct benefit – to civil society. Examples of such positive actions are the deployment of Defence Forces personnel in flood defences and relief: snow and post-storm clearances and safe disposal of explosive material or devices. Air Corps helicopters and fixed-wing aircraft engaged in humanitarian missions such as air-ambulance or air-sea rescue: Naval Service vessels engaged in fisheries protection, carrying out humanitarian missions and, on occasion, inhibiting drug smuggling are very clearly of benefit to civil society. Most recently, Defence Forces personnel have been engaged in vaccination programmes, infection testing, contact tracing and support in Nursing Homes during the Covid-19 pandemic.

When it is seen that military personnel are acting in support of, or in aid of, civil authorities and hence civil society, the intrinsic ‘usefulness’ of trained military personnel is clearly evident. So, the Defence Forces demonstrate their value in very obvious ways and show that they do not exist solely as (sometimes decorative) military units. Such value demonstrations assist in cementing a positive and mutually appreciative relationship between the Defence Forces and the people of the nation that they serve – and show that the Defence Forces do not exist to solely serve in an altruistic role as peacekeepers and to project soft power on behalf of government.

Soft Power Projection: Cui Bono?

When the Defence Forces are engaged in peacekeeping; that is, carrying out soft power projection on behalf of our nation, there is a direct benefit to the forces themselves by way of enhanced training and gained experience.

The purpose of pre-deployment training conducted by the overseas battalion is to raise its level of preparedness in order to allow deployment on Peace Support Operations in the mission area.¹⁴

This pre-deployment training lasts up to two months, is broken down into four phases – involves the expertise and accumulated experience of the UN Training School – and culminates in a Mission Readiness Exercise.¹⁵

¹² <https://dublindiocese.ie/6112010-congo-victims-memorial-mass/> accessed 6 July 2021.

¹³ Eunan O’Halpin, *Defending Ireland: The Irish State and its enemies since 1922*, (Oxford University Press, 2000) 263-264.

¹⁴ <https://www.military.ie/en/overseas-deployments/pre-deployment-training/> accessed 23 June 2021.

¹⁵ *Ibid.*

When the early infantry battalions ‘marched-out’ to the unknown of the Republic of the Congo on early UN peacekeeping missions, they did not have the benefit of such in-depth pre-deployment training. They embarked instead with only the benefit of basic infantry training and such specialist training as was then available for soldier tradesmen or technicians. However, this training - even if seen as limited by today’s standards - was sufficient when peacekeeping in the Congo gave way to a form of peace enforcement effected by military force involving 35, 36, 38th Battalions and 1st Infantry Group.¹⁶ The early units in the Congo could not have received peacekeeping training or mission specific training since neither concept was in the Defence Forces experience or armoury. Nor could they have received training in soft power projection. Nevertheless, soft power projection developed and the benefits accruing to our nation have been gradually accumulating - culminating, it is argued - in our recent success in gaining our UN Security Council seat.

Various political leaders and statesmen have acknowledged the value of, and our service given to, UN peacekeeping by our nation over the past years.

In course of his address to Oireachtas Eireann on 28 June 1963 U.S. President John F. Kennedy referred to ‘Ireland’s greater role in world affairs at the United Nations and sending its most talented men to do the world’s most important work - the work of peace’. He paid tribute to ‘the twenty-six sons of Ireland who have died in the Congo and to all of you for your commitment and dedication to world order’. Notably, the US President also stated that ‘Ireland’s influence in the United Nations is far greater than your relative size’.¹⁷

During his official visit to Ireland in July 2009, the UN Secretary-General, Ban Ki-Moon, described Ireland as ‘An exemplary member of the UN’ and he noted ‘the Irish Defence Forces contribution to UN peacekeeping of more than half a century and their then participation in almost 50 per cent of UN missions’.¹⁸

While meeting with the Minister for Defence at UN Headquarters on 25 May 2020 the UN Secretary-General thanked Ireland for ‘Her long-standing contribution to UN peacekeeping’. He paid special tribute to the (then) almost 90 Irish peacekeepers who had lost their lives serving in the cause of peace and to the dedication of Irish troops who continued to perform under challenging circumstances, such as in the Golan Heights. The Secretary-General also highlighted ‘Ireland’s commitment in promoting recruitment, training, and deployment of women soldiers and police in peacekeeping missions’.¹⁹

It is self-evident that these examples clearly show the standing and high esteem in which Ireland and her Defence Forces are held internationally.

¹⁶ Unit Histories 35,36,38 IrBatts & 1 Inf Gp., Irish Military Archives.

¹⁷ <http://oireachtasdebates.oireachtas.ie/debates%20authoring/debateswebpack.nsf/takes/dail1963062800003?opendocument> accessed 7 July 2021

¹⁸ Dept. of Defence/ Defence Forces Annual Report 2009 p.38

¹⁹ <http://www.un.org/sg/offthecuff/index.asp?nid=3959> accessed 7 July 2021

Speaking at the 75th Session of the United Nations General Assembly on Saturday 26 September 2020, on the occasion of Ireland being elected to a two-year term on the UN Security Council, An Taoiseach Micheál Martin T.D. said inter alia –

We are humbled and honoured that you, the members of the General Assembly, have placed your trust in us... Building peace means ensuring that we promote sustainable, durable solutions to conflict. A key aspect of this is peacekeeping. Ireland has a longstanding and proud record of continuous service on UN peacekeeping operations.²⁰

This extract from An Taoiseach’s speech on that occasion clearly demonstrates the value that he, the Government and ergo our nation places on the function of peacekeeping and the role played therein by our Defence Forces and links this peacekeeping record to Ireland’s success in gaining a seat on the UN Security Council.

This success redounds not only to the credit of our Defence Forces, but also to our nation of which the Defence Forces are an integral part. The benefits, or values, of the honour of membership of such an important Council accrue to our nation as a whole. We are seen as an important player on the international stage, playing - with honour and distinction - a role essential to the maintenance of international peace. This role might be seen as conferring an intangible benefit to the nation: but, is national pride an intangible benefit or one that by its very nature enhances the esteem in which we hold our Defence Forces and value their contribution to national life?

And thus holding ourselves, and our Defence Forces, in well-deserved pride we become more nationally and internationally focussed which in turn benefits us by solidifying our sense of nationhood.

“When my Country takes her place amongst the Nations of the Earth” the Irish patriot Robert Emmet declaimed during his trial for treason in 1803.²¹ Surely, membership of the United Nations Organisation and a place on its Security Council is a fulfilment of Emmet’s aspirations.

And so; our nation benefits from our projection of soft power by way of our Defence Forces active participation in peacekeeping over the past sixty-three years. Our Defence Forces themselves benefit by way of enhanced training and experience. Such experience then, in turn, is transmitted, as it were, to our people when the Defence Forces act in aid of the civil power, or act in a humanitarian role to give support and succour in times of national emergency. These national and international functions strengthen and cement the bond between the Defence Forces and our population and enhances the esteem and the mutual respect in which each other is held.

Peacekeeping, or soft power projection by our Defence Forces, is a political instrument used by our nation – by us as a people - to benefit the international community of nations; in so doing it benefits both the international community and our nation.

²⁰ <https://dfa.ie/our-role-policies/international-priorities/our-international-partners/united-nation> accessed 7 July 2021.

²¹ <https://www.libraryireland.com/biography/RobertEmmet.php> accessed 7 July 2021.



‘Global Citizenship’ as Strategic Culture: Is a More Cosmopolitan Feminist Perspective Needed in Military Education?

Dr Niall Connors

Abstract

Crossing the domains of foreign policy, defence policy and gender theory, this paper is structured to examine the nature of modern conflict working towards a gender perspective on human security and an examination of military masculinity and military education. The paper explores interconnected perspectives in strategic policy and how concepts of Irish identity and perceptions of self inform a strategic cultural narrative of Ireland as a 'Good Global Citizen'. The paper argues that given the strategic deployment constraints of the 'triple lock', Defence Forces activities when deployed as peacekeepers are absolutely aligned with this strategic cultural narrative and reflect military deployments increasingly characterised as being for cosmopolitan purposes. The paper argues that this has significance for both policy and practice, with an opportunity presented to integrate a more cosmopolitan, agency-oriented, feminist perspective into military education programmes.

Conceptualising a Military Peacekeeper

In a UN context, peacekeeping has long been portrayed as a welcome alternative to the traditional use of military force with the blue-bereted peacekeeper characterised as 'benign, altruistic, neutral and capable of conflict resolution in any cultural setting – a warrior prince of peace'¹. International peace support groups have supported peacekeeping operations as an important alternative to conventional military operations, viewing peacekeeping as 'an important element of any ethical engagement in the world'², while feminist scholar Cynthia Enloe considers 'the form of military force that is inspiring perhaps the greatest hope is the United Nations peacekeeping force. It inspires optimism because it seems to perform military duties without being militaristic'³. Having first deployed as peacekeepers under a United Nation's (UN) mandate in 1958⁴, current Irish foreign and defence policy⁵ clearly articulates Ireland's ongoing commitment to both the UN and UN Peacekeeping Operations, albeit framed within the context of the 'Triple Lock'⁶. This commitment is further underlined through active engagement in international peace, security and human rights efforts with an increasing emphasis on a comprehensive whole of government approach. In this context, the Irish Defence Forces, when deployed overseas, find themselves operating in environments other than the 'conventional war fighting space' under mandates that have become more robust and complex. Former Defence Forces Chief of Staff, Vice Admiral Mark Mellett, has noted that:

Today, military forces are confronted with a myriad of issues and dilemmas. Many of these were not previously considered within the remit or concern of military commanders and their operational planning teams. Gender, sexual and gender-based violence, protection of civilians, advocacy, protection of human rights and the provision of humanitarian disaster assistance were issues largely either ignored by the military or not governed by doctrine until recent years.⁷

1 Sandra Whitworth, *Men Militarism and UN Peacekeeping*, (London, 2004), 12

2 Whitworth, *Men Militarism and UN Peacekeeping*, 12

3 Cynthia Enloe, *The Morning After: Sexual Politics at the End of the Cold War*, (Berkeley, 1993), 33

4 'Overseas Deployments', accessed July 27, 2021, <https://military.ie/en/overseas-deployments/>

5 Ireland, *White Paper on Irish Aid*, (Dublin, 2006), Ireland, *White Paper on Defence*, (Dublin, 2015), Ireland, *Global Ireland; Ireland's Global Footprint to 2025*, (Dublin, 2018), Ireland, *A Better World; Ireland's Policy for International Development*, (Dublin, 2019), Ireland, *Department of Defence & Defence Forces Strategy Statement 2021-2023*, (Dublin, 2021)

6 The Irish national declaration contained within the Lisbon Treaty of 2009 reads 'that the participation of contingents of the Irish Defence Forces in overseas operations, including those carried out under the European common security and defence policy requires (a) the authorisation of the operation by the Security Council or the General Assembly of the United Nations, (b) the agreement of the Irish Government, and (c) the approval of Dáil Éireann, in accordance with Irish law'.

7 Mark Mellett and Deirdre Carberry, 'Coping with Complexity – Performing in the Contemporary Operational Environment', *Defence Forces Review* 2017, 1-11:2

Basil Liddell-Hart recognised that 'the only thing harder than getting a new idea into the military mind is to get an old one out'⁸, and operating within this strategic space requires a posture and mind-set significantly different from conventional military operations. This mind-set can be viewed as more cosmopolitan, rooted in a 'moral view of the individual having allegiances to the wider world'⁹, and presenting global citizenship as a 'system of moral duties rather than [necessarily of] legal rights'¹⁰, essentially, a structure of valid moral obligations which hold true irrespective of a 'political organisation in place to promote or vindicate them'¹¹. The Ghanaian philosopher Kwame Anthony Appiah has conceptualised cosmopolitanism as having two strands;

One is the idea that we have obligations to others, obligations that stretch beyond those to whom we are related by the ties of kith and kind, or even the more formal ties of a shared citizenship. The other is that we take seriously the value not just of human life but of particular human lives, which means taking an interest in the practices and beliefs that lend them significance.¹² However, what does this mean for military education?

Ireland as a Good 'Global Citizen'

Addressing this question requires consideration of a central narrative in Irish Foreign policy discourse; the construct of Ireland as a good global citizen. Successive governments have positioned peacekeeping as a central pillar of Ireland's foreign policy and expressed the view that aid and development cooperation are 'practical expressions of Ireland's foreign policy commitment to peace and justice in the world'¹³ showing 'a demonstrable interconnection between the economic and social well-being of all the nations of the world and the maintenance of international peace and security'¹⁴. Historically therefore, Defence Forces activity when deployed overseas reflects a cosmopolitan value system rooted within what Gasper and Gomez refer to as the 'dimensions of human security', informed by a 'perception of an intensively interconnected global system which we share, and the ability to think sensitively about how other people live their lives'¹⁵.

The evolving complexity of the Defence Forces' overseas deployments has been driven by the nature of contemporary conflict, specifically what are characterised as 'wicked problems' with multiple causes that cut across political, economic, societal, cultural and environmental perspectives¹⁶. The changed nature of conflict and the consequent need to respond beyond traditional peacekeeping roles has meant that since the early 1990s the international community has pursued a more interventionist strategy to crisis management. This strategy is often portrayed as a humanitarian intervention and is centred on a broader cosmopolitan tradition recognising that the international community has legitimate interests in what was previously the domestic jurisdiction of states, particularly in the

8 Basil Liddell-Hart, *Thoughts on War*, (London 1943), 115

9 Gerard Delanty, *The Cosmopolitan Imagination*, (Cambridge, 2012), 51

10 Andrew Linklater, 'Cosmopolitan Citizenship', *Citizenship Studies*, 2(1) (1998), 23-41:26

11 Martha Nussbaum, 'Kant and Cosmopolitanism' in James Bohman and Matthias Lutz-Bachmann, eds, *Perpetual Peace: Essays on Kant's Cosmopolitanism*, (Cambridge, 1997) 37

12 Kwame Anthony Appiah, *Cosmopolitanism – Ethics in a World of Strangers*, (London, 2006) xv

13 Ireland, 'Challenges and Opportunities Abroad: White Paper on Foreign Policy', (Dublin, 1996), 229

14 Ireland, 'Challenges and Opportunities Abroad: White Paper on Foreign Policy', 229

15 Des Gasper and Oscar Gomez, 'Human Security Thinking in Practice: Personal Security, Citizen Security, and Comprehensive Mappings', *Contemporary Politics*, 21 (1) (2015), 100-116:112

16 Deborah Eade, *Development in States of War*, (Oxford, 1996), Lynn Davies, *Education and Conflict*, (Abingdon, 2004), Alex Bellamy, Paul Williams, Stuart Griffin, *Understanding Peacekeeping*, (2nd Edition, Cambridge, 2010), Mellett and Carberry, 'Coping with Complexity – Performing in the Contemporary Operational Environment'

context of human rights violations¹⁷. This cosmopolitan perspective has been reflected¹⁷ in a number of high-level UN reports¹⁸ and viewing peace operations in a cosmopolitan context presents an argument for the evolution of a more cosmopolitan military centred on an ethos of responsibility, acting in the interests of not just their fellow nationals, but in the interests of humanity, with their deployment advanced through existing transnational structures such as the UN¹⁹.

Towards a Gender Perspective on Human Security and Military Education

Human security has been a constituent element of the broader human rights narrative since the 1948 UN Declaration of Human Rights, however, the explicit conceptualisation of what we now understand to be human security originated within academic and policy debates during the 1990s²⁰. The paradigm emerged as the UN attempted to capture a post-Cold War peace dividend and focused its resources more on development, advocating that the concept of security must change from an exclusive stress on national security to a much greater stress on people's security, from security through armaments to security through human development, from territorial security to food, employment and environmental security²¹.

The wider debate on human security however, was largely shaped by two distinctive concepts: first a narrow perspective focused on Human Rights²², and second, a broader perspective focused on an individual's social and psychological vulnerabilities, their health, their wealth and their overall general well-being²³. The literature indicates that many consider that the wider security debate is gendered²⁴, in particular how power and violence contribute to our understanding of gender, the structural relationships between state power and masculinity and the 'institutionalised, masculinised hierarchical power relations that express themselves through the state'²⁵. Peoples and Vaughan-Williams posit that human security is differentiated from a state-centric model through focusing on 'soft security issues such as health and welfare, with connotations of feminine qualities, which

17 Javier Solana, Securing Peace in Europe, speech 12 Nov 1998, available at <http://www.nato.int/docu/speech/1998/s981112a.htm> (31 May 2019), Mary Kaldor, *New and Old Wars*, (Cambridge, 1999), Lorraine Elliott and Graeme Cheesman, 'Cosmopolitan Theory, Militaries and the Deployment of Force', Working Paper 2002/8, (Canberra, 2002), Paul Diehl, *Peace Operations*, (Cambridge, 2010), Walt Kilroy, *The Evolution of Civilian Protection in Peacekeeping Mandates: the Reality of UNMISS Operations in South Sudan*, *Irish Studies in International Affairs*, 29 (2018), 133-143

18 Brahimi Report (2000), New Horizon Initiative (2010), HIPPO Report (2015), Action for Peacekeeping (A4P) initiative (2018)

19 Andrew Linklater, 'Cosmopolitan Citizenship', *Citizenship Studies*, 2(1) (1998), 23-41, Richard Falk, 'The Complexities of Humanitarian Intervention: A New World Order Challenge', *Michigan Journal of International Law*, 17(2) (1996), 491-513, Lorraine Elliott and Graeme Cheesman, 'Cosmopolitan Theory, Militaries and the Deployment of Force'

20 The Human Security Network, characterised human security as "freedom from pervasive threats to people's rights, their safety or even their lives" Knight (2008, p.20). Andy Knight, (2008), *Civil-Military Cooperation and Human Security*, in: Christopher Ankersen, ed., (2008), *Civil-Military Co-Operation in Post Conflict Operations*, London, Routledge

21 United Nations, *Human Development Report*, (New York, 1993), 2

22 Keith Krause, 'The Key to a Powerful Agenda, if Property Delimited', *Security Dialogue*, 35(3) (2004), 367-368, Neil McFarlane, 'A Useful Concept that Risks Losing its Political Salience', *Security Dialogue*, 35(3) (2004), 368-369, Andrew Mack, 'A Signifier of Shared Values', *Security Dialogue*, 35(3) (2004), 366-367

23 Taylor Owen, 'Human Security – Conflict, Critique and Consensus: Colloquium Remarks and a Proposal for a Threshold-based Definition', *Security Dialogue*, 35(3) (2004), 373-387:375, Lloyd Axworthy, 'A New Scientific Field and Policy Lens', *Security Dialogue*, 35(3) (2004), 348-349, Kanti Bajpai, 'An Expression of Threat Versus Capabilities Across Time and Space', *Security Dialogue*, 35(3) (2004), 360-361

24 Judith Ann Tickner, 'Feminist Perspectives on Society in a Global Economy', in Caroline Thomas and Peter Willin, (eds.), *Globalisation, Human Security and the African Experience*, (Boulder, 1999), McKay, 'Women, Human Security and Peace-building: A Feminist Analysis', Hudson, 'Doing Security as Though Humans Matter: A Feminist Perspective on Gender and the Politics of Human Security', Hoogensen and Stuvoy, 'Gender, Resistance and Human Security', Thanh-Dam Truong, Saskia Wieringa, Amrita Chhachhi, (eds.), *Engendering Human Security*, (London, 2006), Columba Peoples and Nick Vaughan-Williams, *Critical Security Studies*, (London, 2010), Shirley Graham, 'A Gender Paradox: Discourses on Women in UN Peacekeeping', *Irish Studies in International Affairs*, 27 (2016), 165-187

25 Tripp, Ferree and Ewig, *Gender, Violence and Human Security*, 10

are to be distinguished from the traditionally male-dominated realms of military security'²⁶. However, this feminisation of human security or a widened security concept is not meant to be complimentary. It means that human security does not measure up, and traditional security sets the standard. As such, security must be rooted within the eradication of large-scale violent conflict, and anything else – 'everyday security' or the securities and insecurities of individuals themselves, such as health, food, economic or environmental issues – is not security, at least by the standards of those who matter.²⁷

For the purpose of this paper, the liberal feminist position²⁸ articulated primarily by Enloe, Tickner and Nussbaum²⁹, provides a critical approach that has challenged the focus on military solutions in conflict situations, re-oriented attention towards addressing structural problems before they evolve into conflict and opened new debates in respect of identity, violence, social justice and peacekeeping. Central to this approach is the problematising of aspects of the relationship between human security and the wider political economy, facilitating an insight into what Brock-Utne refers to as the contested concept of peace education.³⁰ Peace educators have long argued that a feminist perspective on human security prioritises human relationships, human needs and incorporates concepts of economic equity and social justice³¹, while a masculine perspective prioritises institutions and organisations. As a consequence, three central themes have emerged from feminist scholarship on human security; first the impact of armed conflict on gender relations and gender roles, second the impact of humanitarian interventions and peacekeeping operations on gender relations and third, the absence of women from decision-making positions in formal institutions which are central to peace-building.³²

In order to make a balanced evaluation of military education programmes however, it important to understand both the concept of masculinity and its construction in a military environment. Kronsell, viewing military organisations as institutions of hegemonic masculinity, argues that due to their connections with the survival of a nation, military institutions are potentially more influential than other societal institutions³³, while Mathers argues, '...militaries are gendered institutions. They make use of, rely on and perpetuate the assumptions that women and men not only can but must occupy different roles, and that the place which is right and proper for men to occupy is privileged above that of women'³⁴. From this essentialist perspective, many feminist scholars have begun to question the appropriateness of using military personnel for peace operations, arguing that a particular form of military masculinity associated with aggressive behaviour and a warrior perspective effects peacekeeping in a negative way, particularly when an organisation is oriented towards performing in both arenas i.e., conventional war fighting and peacekeeping.³⁵

26 Peoples and Vaughan-Williams, *Critical Security Studies*, 130

27 Hoogensen and Stuvoy, 'Gender, Resistance and Human Security', 210

28 Alison Jaggar and Paula Rothenberg, *Feminist Frameworks*, (2nd Edition, New York, 1984)

29 Cynthia Enloe, *Maneuvers: The International Politics of Militarising Women's Lives*, (Berkeley, 2000), Judith Ann Tickner, *Gender in International Relations: Feminist Perspectives on Achieving Global Security*, (New York, 1992), Martha Nussbaum, *Women and Human Development: The Capabilities Approach*, (Cambridge, 2000)

30 Birgit Brock-Utne, *Feminist Perspectives on Peace and Peace Education*, (New York, 1989)

31 Brock-Utne, *Feminist Perspectives on Peace and Peace Education*, Betty Reardon, 'Feminist Concepts of Peace and Security', in Smoker, P., Davies, R., Munske, B., (eds.), *A Reader in Peace Studies*, (Oxford, 1990), McKay, 'Women, Human Security and Peace-building: A Feminist Analysis'

32 Erin Baines, 'Rethinking Women, Peace and Security: A Critique of Gender in the Canadian Human Security Agenda', Working Paper No1, (Vancouver, 2005)

33 Annica Kronsell, *Gender, Sex and the Postnational Defense*, (New York, 2012)

34 Jennifer Mathers, 'Women and State Military Forces', in Carol Cohn, (ed.), *Women and Wars*, (Cambridge, 2013), 126

35 Lois Lorentzen and Jennifer Turpin, *The Women and War Reader*, (New York, 1998), Cynthia Cockburn and Dubravka Zarkov, (eds.), *The Post War Moment: Militaries, Masculinities and International Peacekeeping*, (London, 2002), Whitworth, *Men Militarism and UN Peacekeeping*, Claire Duncanson, *Forces for Good? Narratives of Military Masculinity in Peacekeeping Operations*, *International Feminist Journal of Politics*, 11(1) (2009), 63-80, Helena Carreiras, 'Gendered Culture in Peacekeeping Operations', *International Peacekeeping*, 17(4) (2010), 471-485

Gender however, has become a complex and contested term, often used by policy makers to argue from a perspective of opposed categories of masculinity and femininity rather than a more complex perspective of multiple masculinities and femininities. In a wider social science context, gender is understood as '....a social construction, with the meanings of femininity and masculinity changing with the social setting over time and space'³⁶. Cohn, in the context of conflict, narrows this understanding towards a structural relationship based on systems of power arguing that 'we need to remember that the many different phenomena which the word 'gender' is used to encompass become coherently linked only when they are seen as facets of the way in which gender functions as a system of power'³⁷. With this in mind, key phenomena such as gendered identities and gendered social structures are central to understanding the experiences of conflict for both men and women and further, understanding the associated power relations should be central to educating peacekeepers.

How does this perspective sit with Ireland's perception of self as a good global citizen and the context of overseas deployment of the Defence Forces? Enloe notes that different countries nurture and reward different manifestations of military masculinity with some country's 'militarised masculine norm being crafted to serve international peacekeeping, others to fit into humanitarian missions, while still others are intended to enhance combat roles'³⁸. Enloe views the Irish Defence Forces as having a masculinity that is privileged and celebrated³⁹, however if training and education programmes remain oriented towards conventional military operations, arguments questioning the deployment of military personnel on peace operations gain traction, particularly when considering the inherent contradiction between the 'warrior-soldier model, based on the promotion of assault and violence, and the peacekeeping-soldier model, based on benign and altruistic behaviour'⁴⁰.

The focus therefore narrows towards a position of military masculinity oriented towards peacekeeping; one that is multiple, dynamic and contradictory and which also integrates the skills and values traditionally positioned as feminine. The challenge is that although this 'peacekeeper masculinity does not fully challenge the hegemony of the warrior model, its challenge to gendered dichotomies associating masculinity with war and privileging them over femininity and peace, has the potential to be more significant than many feminists allow'⁴¹. This position is in line with research into Bosnian women's groups post-Balkan's conflict who advocated a re-gendered military containing the 'positive' military masculinities of bravery, ambition and steadfastness, allied to the traditionally feminine qualities of caring, patience and empathy therefore providing a model of soldier identity ideally suited to conflict resolution⁴². Modern peacekeeping operations have been increasingly characterised as military deployments for cosmopolitan purposes⁴³, but given the broader context of military masculinity and human security, the central challenge for military education is 'if we only prepare people for war it is far more likely that this is what we will get'⁴⁴.

36 John Brewer, *Peace Processes*, Cambridge, 2010) 69

37 Cohn, *Women and Wars*, 5

38 Cynthia Enloe, *Bananas, Beaches and Bases; Making Feminist Sense of International Politics*, (2nd Edition, Berkeley, 2014) 150

39 Enloe, *Bananas, Beaches and Bases; Making Feminist Sense of International Politics*

40 Carreiras, 'Gendered Culture in Peacekeeping Operations', 481

41 Duncanson, 'Forces for Good? Narratives of Military Masculinity in Peacekeeping Operations', 76

42 Cynthia Cockburn and Meliha Hubic, 'Gender and Peacekeeping Military: A View from Bosnian Women's Organisations', in Cynthia Cockburn and Dubravka Zarkov, (eds.), *The Post War Moment: Militaries, Masculinities and International Peacekeeping*, (London, 2002),

Duncanson, 'Forces for Good? Narratives of Military Masculinity in Peacekeeping Operations', Raewyn Connell, 'Masculinities, the Reduction of Violence and the Pursuit of Peace', in Cynthia Cockburn and Dubravka Zarkov, (eds.), *The Post War Moment: Militaries, Masculinities and International Peacekeeping*, (London, 2002), Duncanson, 'Forces for Good? Narratives of Military Masculinity in Peacekeeping Operations'

43 Elliot and Cheesman, 'Cosmopolitan Theory, Militaries and the Deployment of Force', 278

44 A Betts Fetherston, 'Voices from Warzones: Implications for training UN Peacekeepers', in Edward Moxon-Browne, (ed.), *A Future for Peacekeeping?* (Basingstoke, 1998), 172

Interconnected Perspectives in Strategic Policy

'The Global Island, Ireland's Foreign Policy for a Changing World' documents Ireland's 'Signature Foreign Policies'; combating poverty and hunger, advancing human rights, promoting disarmament, commitment to UN Peacekeeping and sharing our experience of peace and reconciliation on the island of Ireland⁴⁵. This 'just world' policy position also includes advocating for adherence to International Humanitarian Law in all circumstances and the implementation of the UN Security Council's Resolution 1325 agenda on Women, Peace and Security⁴⁶. In this context, 'The Global Island' acknowledges the interconnected challenges of justice and human rights in a globalised environment, but more significantly, acknowledges that interconnected challenges require interconnected solutions. Central to this position is that for Ireland, a 'policy of military neutrality remains a core element of foreign policy'⁴⁷ with participation by the Defence Forces on both EU and UN missions, together with participation in the 'Partnership for Peace'⁴⁸ and co-operation with the European Defence Agency, all viewed as key constituent elements of Ireland's foreign policy. While the evolution of Irish participation on UN peacekeeping missions is clearly understood, the orientation of the European Union Common Security and Defence Policy (CSDP) has pivoted to consider 'the external challenges of peacekeeping, conflict prevention and strengthening international security'⁴⁹, and more recently, to include disarmament, peace-making, humanitarian operations, military advice and assistance, conflict prevention and post-conflict stabilisation.

This interconnected perspective is also evident across a number of policy documents⁵⁰ framing Ireland's approach to International Development, narrowing towards a whole-of-government approach to both UNSCR 1325 and gender-based violence, noting that 'Ireland prioritises preventing and responding to sexual and gender-based violence in peacekeeping and in response to emergencies'⁵¹. This policy position recognizes 'the critical role of women and girls in conflict prevention and resolution, peace negotiations, peace building, and post-conflict reconstruction and governance'⁵² and underlines that Ireland is committed to 'integrating the objectives of UNSCR 1325 into its international development and foreign policies'⁵³.

Critically, Ireland's International Development policy progresses this conceptual position to one of action for defence policy; primarily through Ireland's National Action Plan for the implementation of UNSCR 1325, in which the Defence Forces have a key role. The current White Paper on Defence⁵⁴ proposes to engage with other stakeholders in progressing the UNSCR

45 Ireland, *The Global Island, Ireland's Foreign Policy for a Changing World*, (Dublin, 2015), 27

46 UNSCR 1325 reaffirms the important role of women in the prevention and resolution of conflicts, peace negotiations, peace-building, peacekeeping, humanitarian response and in post-conflict reconstruction and stresses the importance of their equal participation and full involvement in all efforts for the maintenance and promotion of peace and security. The United Nations (UN) Security Council has adopted ten resolutions on 'Women, Peace and Security' in order to guide work to promote gender equality and strengthen women's participation, protection and rights across the conflict cycle, from conflict prevention through to post-conflict reconstruction. Collectively they make up the Women, Peace and Security Agenda. These resolutions are: 1325 (2000); 1820 (2009); 1888 (2009); 1889 (2010); 1960 (2011); 2106 (2013); 2122 (2013); 2242 (2015), 2467 (2019), and 2493 (2019).

47 Ireland, *The Global Island, Ireland's Foreign Policy for a Changing World*, (Dublin, 2015), 29

48 The 'Partnership for Peace' (PfP) is a programme of practical bilateral co-operation between individual Euro-Atlantic partner countries and NATO. It allows partners to build up an individual relationship with NATO through choosing their own priorities for co-operation including in the areas of peace support operations, defence policy and planning, civil-military relations, education and training, civil emergency planning and disaster response, and cooperation on science and environmental issues (North Atlantic Treaty Organisation, 2016).

49 Ireland 2015 *The Global Island, Ireland's Foreign Policy for a Changing World*, (Dublin, 2015) 29

50 Ireland 2006, *White Paper on Irish Aid, Ireland, Global Ireland; Ireland's Global Footprint to 2025*, (Dublin, 2018), *Ireland A Better World; Ireland's Policy for International Development*, (Dublin, 2019)

51 Ireland, *A Better World; Ireland's Policy for International Development*, 15

52 Ireland, *A Better World; Ireland's Policy for International Development*, 16

53 Ireland, *A Better World; Ireland's Policy for International Development*, 16

54 Ireland, *White Paper on Defence*, (Dublin, 2015)

1325 agenda, and to 'explore the contribution of gender focused measures, particularly in relation to the appropriate deployment of female personnel'⁵⁵. In this regard, the document proposes an 'Action Plan on Women in Peace and Security' through stated efforts to strengthen women's leadership and participation in conflict and post-conflict situations, and to ensure that a gender perspective is incorporated into Ireland's engagement in all overseas activities and leverage Ireland's participation in global and regional fora to champion the implementation of this agenda⁵⁶.

In a European context, the action plan proposes to 'advocate for the inclusion of a gender perspective into EU Common Security and Defence Policy operations plans and crisis management concepts'⁵⁷ and further, as a member of the NATO Partnership for Peace (PfP), proposes to 'advocate for the NATO Action Plan on UN Security Council Resolution 1325 and associated resolutions'⁵⁸. At a strategic level therefore, while the Irish Government have adopted a position of looking to 'the UN to uphold and defend the universal values of peace, security, human rights and development which are set out in the UN charter'⁵⁹, the concept of self as 'good global citizen' that emerged post-independence, has expanded to intrinsically link policy positions across a number of domains, specifically Development, Aid and Defence.

Significance for Policy and Practice

UNSCR 1325 on Women, Peace and Security is central to this policy narrative and reflects a changing context in respect of gender, peace and security advocated by associated UN Security Council Resolutions. As a consequence, there has been a corresponding change in the nature and functionality of military organisations, driven by an evolving conceptualisation of nationhood and citizenship, resulting in the 'development of two distinct types of state militaries....armed forces that engage in the 'war on terror' and those that engage in 'peacekeeping' efforts'⁶⁰. In the case of the Defence Forces, while the expressed 'High Level Goal' of the Department of Defence and Defence Forces is 'to provide for the military defence of the State, contribute to national and international peace and security and fulfill all other roles assigned by Government'⁶¹, in practice, its military posture is oriented towards peacekeeping, an activity for which the organisation has a deserved highly respected reputation with a record of acting in the interests of 'the indigenous other'⁶² in the name of peace and human rights; acting in a role Beck considers 'new military humanism'⁶³.

This orientation reflects a military organisation, who traditionally looked towards the UN and now find themselves within a broader cosmopolitan tradition; where military organisations are 'employed less and less in the defence of the state and more and more on broader....humanitarian tasks'⁶⁴.

55 Ireland, White Paper on Defence, 31

56 Ireland, White Paper on Defence, 80

57 Ireland, White Paper on Defence, 80

58 Ireland, White Paper on Defence, 80

59 Ireland, One World, One Future; Ireland's Policy for International Development, 28

60 Kronsell, Gender, Sex and the Postnational Defense, 4

61 Ireland, White Paper on Defence, 7

62 Celestino Perez, 'The Soldier as Lethal Warrior and Cooperative Political Agent: On the Soldier's Ethical and Political Obligations toward the Indigenous Other', *Armed Forces and Society*, 38(2) (2012), 177-204:178

63 Ulrich Beck, cited in Noam Chomsky, *The New Military Humanism*, (London, 1999), 4

64 Elliott and Cheesman, 'Cosmopolitan Theory, Militaries and the Deployment of Force', 2

Gilmore characterised this as a gradual 'cosmopolitisation' process and argues:

*Contributions to UN peacekeeping, acting to protect vulnerable non-citizens, or helping to provide the initial foundations for the alleviation of structural violence, through peacebuilding, provide some indication of this process. At the same time these militaries also retain important traditional responsibilities for the defence of their state's territory, population and national interest.*⁶⁵

Kronsell posits that this perspective also supports a process of organisational transformation, where a military institution, as a learning organisation, continues to evolve; integrating and increasingly reflecting the norms of civil society.

Conclusion

Arendt distinguished between 'Work' and 'Action', highlighting that the end product of work is an artifact, whereas 'in acting....men show who they are, reveal actively their unique personal identities and thus make their appearance in the human world'⁶⁶. This concept of action is central not only to Defence Forces military engagement overseas, but reflects good global citizenship in action. In this context, military education models must recognise that modern military activity takes place not just within the military space, but also against a background of an increasing 'blurring of the dividing line between military and civilian activities in the postmodern world'⁶⁷. As a consequence, the future challenges military organisations will confront include 'providing the education so that future leaders can understand the political, strategic, historical and cultural framework for a more complex world'⁶⁸ and further, military education must prepare 'practitioners to exercise good judgement in their profession....over the duration of their career'⁶⁹. With this in mind, there is a significant opportunity to integrate a more cosmopolitan, agency-oriented, feminist perspective into military education programmes reflecting good global citizenship policy positions across a number of domains, specifically; development, aid, defence, and ultimately, military practice.

65 Jonathan Gilmore, *The Cosmopolitan Military: Armed Forces and Human Security in the 21st Century*, (Hampshire, 2015), 161

66 Hannah Arendt, *The Human Condition*, (Chicago, 1958), 179

67 Peter Foot, 'European Military Education Today', *Baltic Defence Review*, 5 (2001), 12-21:16

68 Lorry Fenner, Lee Howard, John Kruse, William Johnson, Thomas Hawley and Ryan Crumpler, R., *Another Crossroads? Professional Military Education Two Decades after the Goldwater-Nichols Act and the Skelton Panel*, US House of Representatives Committee on Armed Services Sub-Committee on Oversight and Investigations April 2010, available at http://democrats.armedservices.house.gov/index.cfm/files/serve?File_id=d4748d4a-b358-49d7-8c9a-aa0ba6f581a6 (31 May 2019), 16

69 John Kiszely, 'Post-Modern Challenges for Modern Warriors', *The Shrivenham Papers – Number 5*, (Shrivenham, 2007), 15



Should The Defence Forces Have a More Prominent Role in National Cybersecurity?

Lt Cdr Ferghal Tubridy

Abstract

When issues become political, they become part of the everyday discourse and decision-making process, but when issues become securitised, they are no longer debated as a political question, but dealt with at an accelerated pace. This was the case in the recent attack on the State where nefarious cyber actors brought the HSE to its knees. When one considers that the role of the Defence Force is to protect the State, how can one distinguish between the protection of sovereignty in the physical world and the virtual one? Internationally governments have acknowledged the requirement to integrate all the facets of cybersecurity holistically rather than in a fragmented manner. Consequently, best practice internationally can be seen as a whole of government approach to cybersecurity strategies through the integration of economic, social, educational, legal, law enforcement, technical, diplomatic, military and intelligence-related aspects of cybersecurity. Given this, one must thus ask, is the national interest best served by not allocating the DF a more integrated role in the cybersecurity of the State. The objective of this paper is to explore the context surrounding the Defence Forces role in national cybersecurity and create a debate amongst those who have an interest in the States national security policy by highlighting the risks and challenges to be addressed should the Defence Forces be tasked with a more prominent role in national cybersecurity.

Introduction

Ireland's reliance on Information and Communications Technology (ICT) as a critical enabler for economic prosperity and its digital uptake amongst business and the general population exposes the state to potential risk from state actors, non-state actors, and cyber-criminals. This is reflected in the opportunities 'cyberspace' provides for cyber-actors, cyber-espionage, and military hegemony. Heintl and others posit that the main threats internationally and to Ireland are from:

- Cyber-enabled state espionage (Including state-sponsored commercial espionage).
- Cyber-enabled influence operations.
- The strategic acquisition of critical emerging and disruptive technologies.¹

The consequence of these cyber-attacks can lead to a discontinuance of service, as underlined by the recent immobilisation of the Health Service Executive (HSE). The obvious effects of the attack on the HSE have been the loss of data and the delay in service provision. However, what may not be obvious is the 'cumulative effect' of how many lives will be lost due to the cyber-attack by the delay in critical health care provision. How would we want the state to respond if lives were lost due to a physical attack on the state? Would we outsource national security to the private sector as in the case of the recent cyber-attack, or should we use all the components of the State to respond in kind?

This paper will address the question: Should the Defence Forces have a more prominent role in national cybersecurity? Additionally, the paper highlights the risks and challenges associated with

¹ Caitriona Heintl, "Russia and China – Their impact on Irish security from a cyber perspective", May 30, 2020, <https://caitrionaheinlcyberpolicywatch.wordpress.com/2019/05/30/russia-and-china-their-impact-on-irish-security-from-a-cyber-perspective/> [amp/?twitter_impession=true](https://twitter.com/impession=true)

such a tasking.

According to Wallace, there is a gap in the cybersecurity of states.² The role of law enforcement is to shield society from internal threats within the social fabric, and the military's role is to defend the state against external aggression. Due to the transnational nature of the cyber activity, it would appear that most cyber-attacks originate from outside a state. This makes it difficult for law enforcement to deter or punish belligerents. Also, the military is not usually deployed internally due to traditional reasons concerning their role within the state. In response to this gap, the modus operandi of states internationally has been to integrate the traditional security mechanisms of the state - Police and Military - with National Cyber Security Centres to form a comprehensive, joined-up government approach.

Within Ireland, however, where the cyber defence of the State currently falls under the remit of the Irish National Cyber Security Centre and An Garda Síochána, a comprehensive and cohesive security construct for cybersecurity has not yet been realised. This is confirmed in the National Cyber Security Strategy and White Paper on Defence 2015.³ The military wing of state security, the Defence Forces (DF), is currently assigned a secondary role in protecting the state from cyber threats.⁴ The DF's primary role is only to sustain its ICT networks and, if permitted and resources are available, to assist in the national response.

However, when one considers that the role of the Defence Force is to protect the State, how can one distinguish between the protection of sovereignty in the physical world and the virtual one?⁵ Internationally governments have acknowledged the requirement to integrate all the facets of cybersecurity holistically rather than in a fragmented manner.⁶ Consequently, best practice internationally can be seen as a whole of government approach to cybersecurity strategies through the integration of economic, social, educational, legal, law enforcement, technical, diplomatic, military and intelligence-related aspects of cybersecurity. Given this, one must thus ask, is the national interest best served by not allocating the DF a more integrated role in the cybersecurity of the State.

The Role of Military in Cyberspace

In response to the above threats, militaries internationally are developing cyber offensive and cyber defensive capabilities. Sanger suggests that over thirty militaries have operationalised cyberspace, and countries such as "Russia, the United States, China, Israel, the United Kingdom, and France are preparing for contingencies in the cyber domain"⁷. However, some believe that the military should not have a role in domestic cybersecurity. Myriam Dunn Cavelty, suggest that states which are endeavouring to progress the military's roles in domestic cybersecurity face challenges, particularly around convincing policymakers that military participation would not signify a militarisation of cyberspace or internal security.⁸ Within Ireland, the national response to the increasing threat landscape has been to publish a new National Cyber Security Strategy 2019-2024.

2 Ian Wallace, "The Military Role in National Cybersecurity Governance" December 16, 2013, <https://www.brookings.edu/opinions/the-military-role-in-national-cybersecurity-governance/>

3 Department of the Environment, Climate and Communications, National Cyber Security Strategy 2019-2024, Dublin, 2019

4 Department of Defence, White Paper on Defence, Dublin, 2015

5 Joe Burton, "Small states and cyber security." *Political Science* 65, no. 2 (2017): 216–238, accessed July 19, 2021, doi: <https://doi.org/10.1177/0032318713508491>

6 HM Government, UK National Cyber Security Strategy 2016-2021, London

7 Sanger, E David. *The Perfect Weapon*. (London: Scribe, 2018)

8 Myriam Dunn Cavelty, "The Militarisation of Cyberspace Why less May Be Better". In conference proceedings 4th International Conference on Cyber Conflict (Tallinn:2012, NATO CCD COE Publications)

The strategy appears to have viable long term recommendations and ambitions; however, it appears to depend on resource allocation and does not envisage an enhanced security construct. When one considers the Global Cybersecurity Index 2020, it ranks Ireland 46 out of 53 countries in the Global Score.⁹ This would suggest that national initiatives and resource allocation both human and financial to current and previous cybersecurity structures are not working.

The practical consequence of the non-integration of the DF in the cybersecurity response is that when a significant cyber-attack occurs, the country will not be in a position to respond effectively. This is illustrated by the fact that resources to develop the resilience to recover from a cyber-attack and the ability to respond to cyber-espionage and influence operations - spanning the physical, cognitive, and digital spheres - is currently not available. The question must thus be asked, can Ireland afford not to have the best possible response to the cyber threat landscape when it appears that the most constructive response internationally is to integrate the military into the national cybersecurity construct. Libicki, exemplifies this point succinctly, when referring to the US Department of Defence, “should some digital Pearl Harbour ensue, the DOD will have to answer why it stood aside and did nothing to protect the country in this domain.”¹⁰

Furthermore, according to Hansen and Nissenbaum, when issues become political, they become part of the everyday discourse and decision-making process, “but when issues become securitised, they are no longer debated as a political question, but dealt with at an accelerated pace”.¹¹ Only time will tell if the recent attack on the HSE will provide the necessary focus for the government to address the vulnerabilities in the national cyber construct.

Offensive Capability in Cyberspace

When using the term ‘operationalise’ in military nomenclature, we interpret it to mean integrating land, sea, air, and space with cyberspace offensive and defensive operations to achieve campaign objectives. The use of offensive cyber activities allows for the disruption of the enemy's communications systems and critical infrastructure and hinders command and control using distributed denial of services techniques. A clearer understanding of offensive cyber operations is provided in the Tallinn manual: “The employment of cyber capabilities with the primary purpose of achieving [military] objectives in or by the use of cyberspace”.¹² However, Gray's insight is helpful here. He states that those who believe that the material element (in this case, cyber technology) will win the day are misled. The human element is significant, and consequently, this will be the main challenge facing militaries operationalising the cyber domain.¹³

The significance the US is placing on cyberspace is emphasised by their recent statement that “their focus will be on states that pose strategic threats particularly Russia and China, and they will defend forward to disrupt or halt malicious activity at its source”.¹⁴ Furthermore, they

9 Global Cyber Security Index 2020. International Telecommunication Union, Switzerland Geneva 202, URL: www.itu.int

10 Martin Libicki, “Cyberspace Is Not a Warfighting Domain,” *A Journal of Law and Policy*. No 8 (2012): 334, accessed October 21, 202, url: https://kb.osu.edu/bitstream/handle/1811/73111/1/ISJLP_V8N2_321.pdf

11 Lene Hansen and Helen Nissenbaum. “Digital Disaster, Cyber Security, and the Copenhagen School.” *International Studies Quarterly*, 4. (2009): accessed May 24, 2021, url: <https://www.jstor.org/stable/27735139>

12 Michael N Schmitt, *Tallinn Manual on the International Law Applicable to Cyber Warfare*. (Cambridge: Cambridge University Press 2017)

13 Colin Gray, *The Strategy Bridge: Theory for Practice*. (Oxford: Oxford University Press, 2010), 37-45

14 Richard A Clarke, and Robert K Knake, *The Fifth Domain*. (New York: Penguin Press, 2020)

are “cultivating a mindset of accountability in which military commanders treat the defence of computer networks as an essential requirement, not an afterthought to be dealt with only after something goes wrong”.¹⁵

Within the UK, the cyber response philosophy originates in integrating cyber activities through the tactical, operational, and strategic levels of the military command structure and the delivery of purposeful Command, Control, and Communications, to enable an operational advantage. From an implementation point-of-view, the MOD has produced a Digital Strategy for Defence. Furthermore, the military has created Cyber Protection Teams (CPTs), and industry has been engaged to conduct Cyber Vulnerability Investigations of Defence platforms and systems to operationalise the domain.¹⁶

The UK Ministry of Defence (MOD) has also recently signalled its intention to use activities in cyberspace as a military offensive tool. This was reflected in comments by the then Defence Minister Penney Mordant, who stated: “Cyber enemies think they can act with impunity, we must show them they cannot, we are ready to respond at a time and place of our choosing in any domain, not just the virtual world”. It also recently announced a dramatic spending increase and the overhaul of one of its divisions (Sixth Division) to focus solely on cyber activities. Lt. Gen. Jones, Commander of the British Field Army, has stated: “[the] Sixth Division will focus on cyber, electronic warfare, intelligence, information operations and unconventional warfare through niche capabilities such as the Specialised Infantry Battalions”.¹⁷ The UK military also uses the skills available from the Government Communication Head Quarters (GCHQ), whose mission is to “support defence by protecting defence personnel and assets and promoting an integrated approach to warfighting”.¹⁸

Cyber Defence as an Operational Domain Outside Military Operations

According to Bigelow, those realising cyberspace as a domain in military operations face a fundamental question – Is there a role for the Establishment of cyberspace as an operational domain outside of the context of traditional military operations?

Bigelow argues that the military's role outside of traditional military operations should focus solely on the protection of its networks and information systems.¹⁹ Thinking like this has also been reflected in the Irish Government White Paper on Defence 2015, where it states that, when it comes to the security of the state from cyber-threats, the Defence Force is currently seen as playing a secondary role.²⁰ The Defence Forces central role in cybersecurity is only to sustain its ICT networks and, if permitted and resources are available, it will assist in the national response.

However, this raises the question of how a nation responds were an attack to originate externally to

15 Paul Nakasone and Michael Sulmeyer, "How to Compete in Cyberspace Cyber Command's New Approach," Foreign Affairs. Council on Foreign Relations, August (2020).

16 Phil Davies and Richard Piggin, "The future challenges of Defence cyber." Atkins

17 Dan Sabbagh, "Army fights fake news with propagandists and hackers in one unit." The Guardian, July 19, 2019 Accessed June 2022.

18 <https://www.theguardian.com/technology/2019/jul/31/army-fights-fake-news-with-propagandists-and-hackers-in-one>

19 Brad Bigelow, "What are Military Cyber Operations other than War." In conference Proceedings 11th International Conference on Cyber Conflict (Tallinn: NATO CCD COE Publications, 2019).

20 Department of Defence, "White Paper on Defence." (Dublin, Irish Government, 2015), 73.

the country (which, in the case of a cyber-attack, is the most likely scenario) and result in damage to internal networks or critical infrastructure. Is there a difference between how to react to a physical attack in contrast to a cyber-attack? Is there *ius ad Bellum*? A state is within its rights to respond in kind where it suffers a physical attack. The inherent right of individual and collective self-defence is customary in international law and recognised by Article 51 of the United Nations Charter. By extension, it may be argued that reasonable and rational behaviour would require that the same rights should be afforded to a nation to retaliate should it be attacked through cyberspace as for a physical attack. Libicki, contends that for nations to have a retaliatory deterrence capability, they need to develop the capacity to “do unto others what they may do unto us.”²¹

The ability to respond following an attack, however, is a different matter. Some countries have the technical knowledge and capabilities and so will have the ability to respond in kind. Less technically advanced nations or those who have failed to invest in national cyber security will have to hope that their defensive mechanisms are robust enough to prevent such intrusions. Hence, we can argue that countries with offensive and defensive capabilities are less likely to be attacked.

Cyberspace and Neutrality

Current and past Irish governments have recognised that Ireland’s position as a ‘neutral’ state has allowed more active engagement in promoting peace and development through the United Nations (UN) and the European Union.²² However, since the virtual world is ubiquitous, it does not recognise borders or geographical locations, nor does it recognise the concept of neutrality. This raises the question of how we are thinking about the nature of the cyber domain, and how does this impact Ireland’s ‘neutral’ stance?

This further leads to the question of how a nation should respond were an attack to originate externally to the country, which, in the case of a cyber-attack, is the most likely scenario and result in damage to internal networks or critical infrastructure?

Two legal conventions deal with neutrality, both originating from the Hague conference in 1907. Conventions V and VII deal with neutrality regarding Land and Naval warfare, respectively. The primary obligations for states concerning ‘neutrality’ as defined in the conventions are:

- i. Refrain from engaging in war
- ii. Ensure its defence
- iii. Ensure equal treatment for belligerent states in respect of the exportation of war material
- iv. Not supply mercenary troops to belligerent states
- v. Not allow belligerent states to use its territory

When we consider those mentioned above and relate it to cyberspace, how does a ‘neutral’ country like Ireland preserve its ‘neutrality’ and comply with The Hague Convention V and VII? Is it possible to defend ICT infrastructure and restrict violations into ICT networks from belligerents

²¹ Martin Libicki, “Cyberdeterrence and Cyberwar.” (Santa Monica: RAND, 2009)

²² Department of Foreign Affairs, Ireland’s policy of neutrality. url: <https://www.dfa.ie/our-role-policies/international-priorities/peace-and-security/neutrality/>

(this presupposes knowledge)? Therefore, the question is whether the information communicated by belligerents through a neutral country's infrastructure constitutes a violation of the law of neutrality. The Finnish National Cyber Security Strategy maintains that "a state must see to it that its area will not be used in an attack against another state. It must, therefore, also try to prevent attacks beyond its national borders perpetrated by private entities."²³

It stands to reason that 'neutrality' may have had a sufficiently definite meaning in the days of threats and attacks in the physical space of 'Land, 'Sea', and 'Air'. However, the meaning and thinking attached to the concept of "neutrality" become problematic with threats and attacks arriving in cyberspace.

The Challenge of Attribution in Cyberspace

It is often difficult to attribute blame after a cyber-attack. This is due to the difficulty in finding supporting evidence unless individuals are caught in the act, as attacks can be launched from any internet-enabled device or computer or several at once. Lynn states: "missiles usually come with a return address; a computer virus does not".²⁴ According to Mueller, and others, 'True Attribution' is the distinction between identifying actors and assigning attribution to a group and connecting this foe with a known state or non-state actor.²⁵

Barrett states that "at least two attribution-related questions arise following a cyber-attack: what degree of certainty about a cyber attacker's identity must be attained before responding with lethal force?" and "assuming a successful identification, at what point does the just cause shift from self-defence to recovery and punishment?"²⁶

Formulating the appropriate response, either conventional or unconventional, is a challenging decision that requires careful consideration, as states can conceivably deny the attack, and an excessive response might lead to retaliatory action and even lead to a conventional response. To lessen a potential reaction from the victim, the aggressors often use spoofing techniques and deception to implicate other nations. The author suggests that the only solution to the challenge of attribution is to make the cyber defenses robust enough to deter an adversary from penetrating networks.

Ease of Access and Low Cost of Entry into the Cyber Domain

One of the main advantages of a state-supported cyberattack is that from the aggressor's point of view, such an attack exists in the 'Grey Zone', i.e. the space between war and peace. The ease of access into this Grey Zone, the low cost of computing devices, and the availability of skilled hackers have levelled the playing field. It has allowed states to compete with nations with technologically superior assets in the land, sea, and air domains, thus posing a significant asymmetric risk in cyberspace.

Cyber threats, however, are not the sole remit of state actors. Hacktivists, criminals, and other non-state actors such as ISIS are also actors in the cyber domain. The low cost of entry, the high

²³ Finnish_Government, Finland's Cyber Security Strategy (Helsinki: Secretariat of the Security Committee,2013)

²⁴ William J Lynn, "Defending a New Domain." Foreign Affairs, September/October (2010): 97-108.

²⁵ Milton Mueller, Karl Grindal, Brenden Kuerbis, & Farzaneh Badiei, "Cyber Attribution, can a New Institution Achieve Transnational Credibility?" The Cyber Defense Review, 4, no.1(2019):108

²⁶ Edward T Barrett, "Warfare In A New Domain: The Ethics Of Military Cyber-Operations." Journal of Military Ethics, 12, no (1), (2013): 4-17

probability of not getting caught, and if caught, they often operate in countries that turn a blind eye to such activities. This has encouraged state actors, non-state actors, and criminals who often act as proxies for states to enter the cyber realm. Shea indicates that a challenge facing nations is the availability to hire organised criminal groups that carry out malicious activities on behalf of nation-states. These proxies often receive intelligence from sponsored states to enable belligerent activity.

In recent times, countries such as the UK, USA, and the Netherlands are publicly attributing blame to cyberattacks. Gilles and Hartman state that acknowledging the cyber-attacks in public allows for more significant public awareness and discussion and the acknowledgement of a requirement for countermeasures.²⁷ Ivan, further states that the attribution of cyberattacks poses several problems, both technically and politically. The main issue is the lack of capability for certain countries. Many countries do not have the required cyber and intelligence capabilities and the political and administrative processes to attribute a cyber-attack effectively. In response, the EU is now focusing on applying a collective attribution toolbox to cyber-attacks. Responding as a collective to cyber threats will enhance the European Union's messaging against such belligerent activity.²⁸

According to Shea, another primary concern facing states with cyber offensive capability is that cyber-attacks on their country are often below the threshold of what a full offensive retaliatory response would permit.²⁹ Belligerents are aware of this threshold and often go close to the edge without crossing over. To do nothing in response to an attack would open up the doors for further cyber-attacks.

Consequently, nations must find a balance between determining the threshold of what would be an appropriate response. This is the challenge facing military leaders and strategists. In conventional warfare, the results of an attack are generally apparent in that infrastructure is damaged and lives are lost, and an appropriate response can be determined.

Personnel

The most significant challenge that is facing militaries operating in the cyber domain is 'personnel issues'. Today, high tech skilled personnel can demand a premium from various companies in the private sector. The challenge for the military is not only in recruiting individuals but also in retaining them. According to Leenen and others, militaries must adjust their thinking to attract and create an environment where cyber specialists and cyber warriors are valued.³⁰ The UK military has realised this and is actively seeking people who would not usually fit the profile of the traditional military personnel.³¹

27 Keir Giles & Kim Hartmann, "Silent Battle" Goes Loud: Entering a New Era of State-Avowed Cyber Conflict," in conference Proceedings 11th International Conference on Cyber Conflict (Tallinn: NATO CCD COE Publications, 2019), 1.

28 Paul Ivan, "Responding to Cyberattacks: The Prospect for the EU Cyber Diplomacy Toolbox", Brussels: European Policy Center, March 18, 2019.

29 James Shea, "Cyberspace as a Domain of Operations." MCU 9, 2. (2018): 136, accessed June 23, 2021, url: <https://apps.dtic.mil/sti/pdfs/AD1068701.pdf>

30 Louise Leenen, Mj Aschman, Adelai van Heerden, and Manti Grobler, "Facing the culture gap in operationalising cyber with a military context." in conference Proceedings 13th International Conference on Cyber Warfare and Security, Washington D.C National Defence University, March 8-9, 2018.

31 Ben Farmer, "New Army cyber warriors allowed long hair" The Telegraph. March 26, 2016 published, accessed 18 September 18, 2019. url: <https://www.telegraph.co.uk/news/2016/03/26/new-army-cyber-warriors-allowed-long-hair/>.

A secondary issue associated with personnel is that most individuals whom we would consider to be cyber literate are much younger than their superiors. Roislien has indicated that there is often a separation between cyber competence and military competence.³² However, if the military is to encourage individuals with the cyber capability to join up, there needs to be a mindset shift amongst senior personnel both in the military and civil departments. There needs to be a willingness to accept the benefits of having a diversity of thought and culture. Myers, puts it well, stating that militaries need “a strange intersection where a well-defined military culture of order and discipline meets hacker culture that, while not as disciplined, values curiosity, creativity, and intellectual challenges”.³³

Conclusion

As demonstrated through the malware attack on the Health Service Executive (HSE), the effects of a cyber-attack have highlighted that the kernel of technology in use in the public sector is disjointed and insecure. Furthermore, there is a significant skills void, and the processes and culture in place are antiquated. Continuing on this path will perpetuate increased risk both financially and to the public at large.

Best practice internationally has been to resource and integrate intelligence, military, and policing elements into an all-encompassing cyber response unit tasked with implementing a rigorous approach to national cyber security. If the Irish Defence Forces are to be a core contributor to this national cyber response, it will face several challenges, namely, by militarising cyberspace, it may lead to a sense of insecurity amongst adversaries. Thus fashioning a situation in which actions by one state, although intended to strengthen security, may lead to a retaliatory retort, which has the potential to decrease rather than increase the State’s security. This appears to be evident by the number of countries producing doctrine to operationalise cyberspace.

The challenge of attributing attacks to state and non-state actors, and finding a proportionate response to these attacks, can be especially difficult as it may result in a miscalculation of who is the belligerent and escalate what is already a problematic situation.


Further, the ease of access to ICT equipment and the availability of hackers to carry out unlawful activities has encouraged actors with financial limitations to enter cyberspace as a domain of opportunity to level the battlespace against resource superior nations.

Finally, the biggest challenge is recruiting and retaining skilled cyber personnel to operate within the military structures due to the opportunities in the civilian world to earn multiple incomes readily available in the military services.

32 Hanne Eggen Roislien, “When The Generation Gap Collides with Military Structure: The Case of Norwegian Cyber”. *Journal of Military and Strategic Studies*, 6, no 3 (2015): 24-26. Accessed June 24, 2021.

33 John Myers, “Bridging Startups and Military Cyber Cultures” March 24, 2017. Accessed June 24, 2011 url: <https://othjournal.com/2017/03/24/bridging-cyber-culture/>

Should The Defence Forces Have a More Prominent Role in National Cybersecurity?

A person wearing a white full-body hazmat suit, a respirator mask, and gloves is working in a storage unit. The person is leaning over a large white plastic bag, possibly containing hazardous materials. The background shows the metal shelves of the storage unit. The lighting is somewhat dim, and the overall tone is serious and professional.

**The DISARM Project: How the
Defence Forces Ordnance Corps
is Helping to Shape Explosive
Ordnance Disposal Capabilities
Through Collaborative Research,
Technology and Innovation**

Abstract

In the context of Explosive Ordnance Disposal (EOD) operations, disablement is the process of breaking the electrical continuity or the explosive train of an item of Explosive Ordnance, Improvised Explosive Device (IED) or of an IED containing a Chemical Biological or Radiological payload such that it cannot function as intended¹. The safety of EOD operators (EODOs) in conducting disablement operations is of the utmost primacy and the risk posed to those EODOs must be kept as low as reasonably practicable. To this end, remote or semi-remote disablement means are often utilised. The Defence Forces Ordnance School is the body tasked with training all EOD team members. In quarter 4 of 2020, Ordnance School staff commenced a pilot innovation study to investigate the design, development, practical testing and optimisation of a semi remote tool for the in situ EOD disablement and neutralisation of threaded explosive ordnance containing sensitive energetic materials. This project was titled DISARM standing for Disablement in Situ Alternative Remote Mechanisms and the initial DISARM platform prototype was produced and awarded the 2020 Defence Forces Chief of Staff's gold innovation team award. The DISARM project has evolved in 2021 to build on initial gains achieved in order to design and develop a suite (6 current sub projects) of alternative remote disablement techniques. These techniques are intended for use by EODOs to nullify the risks posed from explosive ordnance. The Ordnance Corps competed for and was successful in obtaining funding for research and innovation from the Department of Public Expenditure and Reform which will be utilised to expand the school's mechanical engineering design and development capabilities to produce further prototypes of industrial standard². The evolution of the DISARM project is presented here as a case study of how successful research, technology and innovation, both nationally and internationally, must be driven by the needs of the end user, in this case the operational requirements of Irish Defence Forces EOD operators.

Introduction: Defining the Necessity for Strategic Innovation

In the ministerial foreword to the White Paper on Defence, Minister Simon Coveney stated that Ireland is a State that is dependent on global trade for our economic well-being but that the Nation is vulnerable to a broadening range of modern global security threats. Such security threats are increasingly interconnected, more diverse and less predictable³. He further developed that no one country acting alone can adequately respond to them and that the White Paper contained a comprehensive security assessment that provided the context for future defence policy response. In setting out defence policy to meet these security challenges, it aimed to build on an all-embracing Government response hinged on effective engagement with international organisations. In this context, it situates defence policy within the State's broader security framework⁴. A key goal is to ensure that Ireland retains credible military capabilities that can meet anticipated future threats to the State's security, whilst ensuring that those capabilities remain flexible and responsive to the changing threat environment⁵.

1 Russell, K., 2014. Recent Advances on the Design of Lightweight Dismounted Disruptors. *Recent Patents on Mechanical Engineering*, 7(1), p. 77.

2 <https://www.ops.gov.ie/networks/funding/projects-funded-in-2021/>

3 Irish Times. 2015. <https://www.irishtimes.com/news/politics/oireachtas/coveney-says-ireland-vulnerable-to-security-threats-that-affect-world-1.2269296>. July 01. Accessed July 27, 2021. <https://www.irishtimes.com/news/politics/oireachtas/coveney-says-ireland-vulnerable-to-security-threats-that-affect-world-1.2269296>.

4 Irish Department of Defence. 2015. *White Paper on Defence*. Dublin: Irish Department of Defence, Stationary Office. p. v.

5 Irish Department of Defence. 2015. *White Paper on Defence*. Dublin: Irish Department of Defence, Stationary Office. p. v.

The White Paper further specifies the roles and tasks of both the Irish Permanent and Reserve Defence Forces detailing a number of strategic objectives. These objectives must be attained in order to contribute to peace and security both domestically and on a global scale. The first of these objectives is to provide aid to the civil power (ATCP) specifically to assist, when requested, An Garda Síochána, as the agency with primary responsibility for law and order, including the protection of the internal security of the State⁶. One such threat posed on both a domestic and international front is the IED. They are devices placed or fabricated in an improvised manner incorporating destructive, lethal, noxious, pyrotechnic, or incendiary chemicals and designed to destroy or incapacitate personnel or vehicles. They may incorporate military or homemade explosives⁷.

Irish Defence Forces Ordnance Corps EOD teams operate in ATCP, when requested by AGS to deal with IEDs or any incident of an EOD nature. The primary responsibility of the EOD team is the preservation of life achieved by carrying out the render safe procedure (RSP) in a safe, efficient and effective manner. EOD operations are carried out in line with a set of well-established principles and philosophies. The Ordnance Corps' EOD Philosophy is framed in relation to General Routine Order 43/55, in particular paragraph 46 which states: "The safeguarding of life including his/her own is the primary objective of the EOD Officer. Consistent with the safeguarding of life, render safe procedure (RSP) will be carried out with due regard for the prevention of damage to property"⁸. The EOD threat landscape is ever evolving. Thus, EOD capability must constantly evolve and adapt to combat these hazards. The development of the DISARM project will enable and expand this strategic capability.

Enabling Strategic Response through Establishment of a Research, Technology & Innovation Capability for the Irish Defence Organisation

A recent joint feasibility study published in 2020 by the Defence Forces and the Department of Defence cites: *'The security environment globally is changing dynamically and the Defence Organisation, through the Department and the Defence Forces, need to be able to adapt to that change and become more agile in addressing new security challenges and integrating technology to support capability development to address new and emerging threats'*⁹. It stipulates the requirement for this joint approach to be effectively aligned with both the current and future state of the art in relation to Defence Technology. This approach must also enable and assist the development of novel and emerging technologies. The aim of this strategy is to marry those technological developments to their potential applications in support of Defence Forces operations during both domestic and deployed operations. This approach will require structures, systems and processes connected to the wider Irish public sector innovation programme¹⁰. Simultaneous developments across the European Union place defence capability development at a new level of importance. To this end, significant levels of research

⁶ Irish Department of Defence. 2015. White Paper on Defence. Dublin: Irish Department of Defence, Stationary Office. p. 35.

⁷ NATO. 2020. NATO Glossary of Terms and Definitions AAP-6, NSA., NATO. P. 66.

⁸ Irish Department of Defence. 1955. "Consolidated General Routine Orders G.R.O 43/1955." Dublin: Irish Department of Defence.

⁹ Defence Forces & Department of Defence. 2020. Feasibility Study: Establishment of a Research, Technology & Innovation Capability for the Irish Defence Organisation. Feasibility Study, Dublin: Vedette, 1-90. Accessed July 27, 2021. P. 2.

¹⁰ Defence Forces & Department of Defence. 2020. Feasibility Study: Establishment of a Research, Technology & Innovation Capability for the Irish Defence Organisation. Feasibility Study, Dublin: Vedette, 1-90. Accessed July 27, 2021. P. 2.

funding are available for capability development in support of the Common Security and Defence Policy (CSDP)¹¹. As such, a situation of potential has arisen whereby the indigenous defence organisation can integrate agile innovation into its capability development processes, whilst simultaneously supporting and assisting Irish research institutes and enterprises in accessing those available funding streams¹². The development of Irish bomb disposal capabilities is further described in the following sections through this lens of agile innovation.

Successful Irish Defence Organisation Led Innovation

Defence innovation is defined as the 'transformation of ideas and knowledge into new or improved products, processes and services for military and dual-use applications'. It differs markedly from military innovation where the prime focus is on warfighting¹³. In other words, the defence innovation field is wider and encompasses the civilian domain. There has been a proliferation of organisations with the specific objective of developing advanced military technologies and attendant doctrinal and operational strategies in the past decade. This has been especially prominent in the United States where dozens of innovation entities exist as part of what is defined as the national security innovation base. This development augments an already strong innovation bench anchored by well-established organisations such as the Defence Advanced Research Projects Agency (DARPA). These efforts are now being mirrored globally with China second in effort and ambition to the U.S¹⁴.

The European Union (EU) has also recently expanded its commitment considerably to defence matters. In 2017, it launched a preparatory action on defence research, the aim of which is to support defence-related research and development with EU funds for the first time. In 2020, the EU agreed both on the European Defence Fund parameters and on a budget of €7.953 billion for defence research and development for the defined period of 2021–27¹⁵. This of course presents a largely untapped source of potential revenue stream for Irish defence organisation innovators. All aspects of Irish defence organisation activities could benefit with the EOD field being no different.

EOD doctrine necessitates the usage of remote operated vehicles to either disable or neutralise the threat posed from IEDs first in order to negate the risk posed to the human operator. In the absence of remote means, semi-remote means are used with manual actions being the last resort. Remote means refer to methods that do not require an EODO to approach a threat. Whilst the usage of a Remote Operated Vehicles (ROVs) is a key enabler in EOD operations, EODOs train for all eventualities and remote means are not always available or desirable due to the tactical situation¹⁶. Semi-remote actions refer to EOD techniques that require the physical delivery of the technique to the device by the operator. The positive EOD action is then initiated from a safe distance and normally within the confines of the established secure incident control point

11 Defence Forces & Department of Defence. 2020. Feasibility Study: Establishment of a Research, Technology & Innovation Capability for the Irish Defence Organisation. Feasibility Study, Dublin: Vedette, 1-90. Accessed July 27, 2021. P. 2.

12 Defence Forces & Department of Defence. 2020. Feasibility Study: Establishment of a Research, Technology & Innovation Capability for the Irish Defence Organisation. Feasibility Study, Dublin: Vedette, 1-90. Accessed July 27, 2021. P. 16.

13 Cheung, Tai Ming. 2021. "A conceptual framework of defence innovation." *Journal of Strategic Studies* 1-28. doi:<https://doi.org/10.1080/01402390.2021.1939689>. p. 2.

14 Cheung, Tai Ming. 2021. "A conceptual framework of defence innovation." *Journal of Strategic Studies* 1-28. doi:<https://doi.org/10.1080/01402390.2021.1939689>. p. 1.

15 Bruno Oliveira Martins, Jocelyn Mawdsley. 2021. "Sociotechnical Imaginaries of EU Defence: The Past and the Future in the European Defence Fund." *Journal of Common Market Studies* 1-17. doi:<https://doi.org/10.1111/jcms.13197>. p. 1.

16 NATO. 2015. "AEODP-07-EOD equipment requirements and equipment." New York: NATO Standardisation Office.

(ICP)¹⁷. Semi-remote means are regularly employed in mine-action/clearance and include tools such as Hook & Line, EOD disruptors or injectors and explosive donor charges¹⁸. It is also highly unlikely that humanitarian agency operators conducting clearance operations globally will have access to such expensive equipment as the Irish Ordnance Corps for example. Hence the usage of semi-remote means are highly utilised in these domains¹⁹.

Interestingly, the joint feasibility study highlights a number of relevant case studies in which the Defence organisation has enabled research, technology and innovation (RTI) and Defence capability development. Three of the seven case studies highlighted involved the Defence Forces Ordnance Corps as a valuable source of end user expertise and collaboration²⁰. Of particular note is the design and continuing evolution of the Irish Ordnance Corps Bomb Disposal Robot and the resulting mutual collaboration between the Ordnance Corps and the companies responsible for providing them. This development has been a true success in terms of operational capability development and delivery. In 1972, Irish Defence Forces Bomb Disposal teams were faced with a rapidly evolving threat due to the proliferation of IEDs. It was apparent at this time that remote handling equipment was required. The first operational prototype was developed and became known as EL-VIS²¹. The efforts undertaken in the development of this machine were invaluable in the following decades during the development of the HOBO robot which was in service with the Defence Forces Ordnance Corps from the late 1970s until 2018. This ROV was manufactured in Ireland by Kentree Ltd with over 200 HOBOS produced and it is known to have been deployed in at least 22 countries with 34 agencies, including the United Nations²².

Over the years the nature of the threat faced by EOD personnel has evolved necessitating the constant requirement for ROV development. In order to maximise the benefits of a digital upgrade, the Ordnance Corps commenced the process of mechanical upgrade in order to maximise the benefits of a robust multifunctional robotics platform. To this end, REAMDA (Robotic Electronic And Mechanical Development Agency) was established in 2001 having evolved from an Irish Robotics company predecessor. Since then it has specialised in supplying military and engineering products to customers in both domestic and international markets but the main customer is the Irish Defence Forces Ordnance Corps. In 2012, the company commenced the upgrade contract resulting in the development of the REACHER ROV. This highly versatile robot features a sliding turret and a low-profile arm, which can be manipulated into numerous positions, including over obstacles, below ground, and under vehicles²³.

The REACHER ROV can be remote-controlled from distances up to 1 kilometre, with human operators shielded from harm. It also comes with a number of accessories and special features, one of which is a two-way drawer which can be used to house another REAMDA device – the Remote Disruptor Platform (RDP) which is a marsupial robot, with other tools and equipment deliverable from a payload drawer. The RDP was originally developed as an accessory to HOBO to deploy

17 NATO. 2015. "AEODP-07-EOD equipment requirements and equipment." New York: NATO Standardisation Office.

18 Torbet, Nick. 2019. Task Management Standard Operating Procedures (SOPs). The HALO Trust. P. 6.

19 Torbet, Nick. 2019. Task Management Standard Operating Procedures (SOPs). The HALO Trust. P. 6.

20 Defence Forces & Department of Defence. 2020. Feasibility Study: Establishment of a Research, Technology & Innovation Capability for the Irish Defence Organisation. Feasibility Study, Dublin: Vedette, 1-90. Accessed July 27, 2021. pp. 87-90.

21 RACO. 2012. "Responding, Enabling and Serving-The Ordnance Corps at home." SIGNAL 11 (1): pp. 37-45.

22 RACO. 2012. "Responding, Enabling and Serving-The Ordnance Corps at home." SIGNAL 11 (1): pp. 37-45.

23 Global Ambition. 2020. <https://globalambition.ie/how-rd-helps-reamda-to-protect-the-irish-defence-forces/>. Accessed July 14, 2020. <https://globalambition.ie/how-rd-helps-reamda-to-protect-the-irish-defence-forces/>.

under vehicles to search for and disarm suspicious devices²⁴. Throughout the development of all aspects of HOBO, REACHER and associated ancillaries, the companies involved have sought the advice, opinions and observations of the EOD operators of the Ordnance Corps²⁵.

The levels of EOD operator competence are detailed in NATO publication AEODP-10²⁶. This level of global standardisation in terms of competence enables multinational interoperability. In a similar vein, it enables a multinational approach to counter common operational capability gaps. The mutual targeting of these capability deficiencies can lead to significant innovation in the field of EOD research and development. This would not only contribute to the safety and security of EOD operators and teams within the Irish state, but also operators of all levels of training on the global EOD competency framework. Some of the solutions generated by the DISARM project may have application on all levels of the competence scale from Explosive Ordnance Clearance Operator right up to CBRN EOD operator capability. This is particularly relevant when the innovative scalability and simplicity of some of these potential solutions is considered.

DISARM project Research and Development Objectives

The aim of this project is to provide a suite of additional capabilities by which an EODO remotely or semi-remotely disables an item of explosive ordnance in situ. That is to say the EODO will have a capability to conduct disablement and in the case of a number of IED designs, neutralisation of the device or HME on scene within the safety of the established cordon and evacuation. The initial project design considerations were divided into both desirable and essential factors as follows:

- The solutions generated must be lightweight thereby reducing the load and fatigue of an EODO operating in full personal protective equipment (Med Eng Bomb Suit).
- The solutions must be user friendly and easily deployable by one operator from the location of the ICP to the device location.
- The solutions must require minimum attachment to the device in question thereby minimising the EODOs time in the vicinity of an intact/armed IED.
- The solutions must be easy to clean and disinfect for preservation of forensic integrity.
- The solutions must be easy to decontaminate in the case the IED component in question is a constituent part of a CBRN dispersal device.
- The solutions must be small in logistical footprint so that it can be easily incorporated into existing EOD team kits.
- The solutions should require no electrical power input bar from the EODOs direct application through normal semi-remote means such as Hook and Line.
- The solutions should be easy to construct and made of cost effective expendable materials.

²⁴ REAMDA. 2020. <https://reamda.com/>. Accessed July 14, 2020. <https://reamda.com/>.

²⁵ Global Ambition. 2020. <https://globalambition.ie/how-rd-helps-reamda-to-protect-the-irish-defence-forces/>. Accessed July 14, 2020. <https://globalambition.ie/how-rd-helps-reamda-to-protect-the-irish-defence-forces/>.

²⁶ NATO. 2014. "NATO Allied Explosive Ordnance Disposal Publication AEODP-10, Edition C, Version 1, Explosive Ordnance Disposal (EOD) Principles and Minimum Standards of Proficiency ." New York: NATO Standardisation Office. P. 1.

- The solutions should be simple in design, to be useable by operators globally of all Conventional Munitions Disposal (CMD) and EOD levels of competence.
- The project will involve three mutually supporting phases of which it is currently in phase two:
 - Theoretical examination and analysis.
 - Design and development of the required mechanical platforms and systems.
 - Practical experimentation, range testing and optimisation of designs.

The theoretical examination analysed the problems posed from a most probable and most dangerous point of view in relation to tackling the operational problem posed by IEDs worldwide. The usage of existing design platforms such as SolidWorks software was maximised. Materials analysis and investigation will also be examined within each sub project. Above all, each solution designed will be aimed at producing platforms that are both lightweight and user friendly in order to reduce EOD operator fatigue or eliminate the necessity to commit a human operator down range in the first place. The extent of agreement between the theoretical design and the practical solution will be examined and optimised through practical testing before final proof of concept testing. The following six sub projects were proposed but the project will evolve and adapt with real life operational and industrial constraints as they arise:

1. Evolution, end user troubleshooting, redesign and practical optimisation of an existing semi remote IED disablement tool (DISARM PLUS).
2. Evolution, end user troubleshooting, design and practical optimisation of a semi remote Conventional Munition Disposal disablement tool (DISARM MINUS).
3. The design development and integration of a remote command wire cutting tool capable of adaptation to the existing EOD large ROV.
4. The design development and integration of a remote cutting tool capable of adaptation to the existing EOD small Remote Operated Vehicle (ROV).
5. The design, development, practical testing and optimisation of an EOD ROV liquid solution delivery mechanism for the remote desensitisation of sensitive homemade explosives.
6. The design, development, practical testing and optimisation of an EOD stand-alone diamond wire cutting platform enabling IED access procedures.

Integration of existing research programmes (Levels 7 and 9 Mechanical Engineering) continue to be included in furthering the research and technology objectives of the DISARM project.

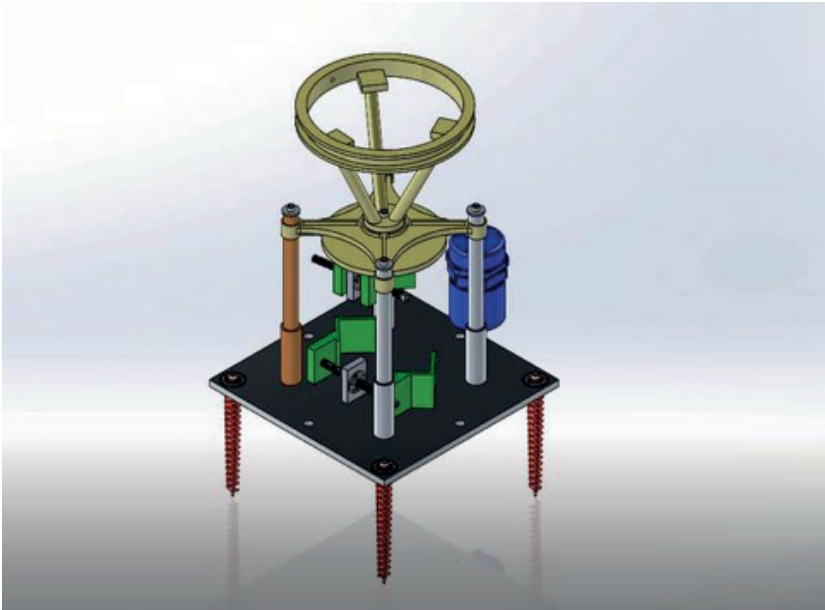
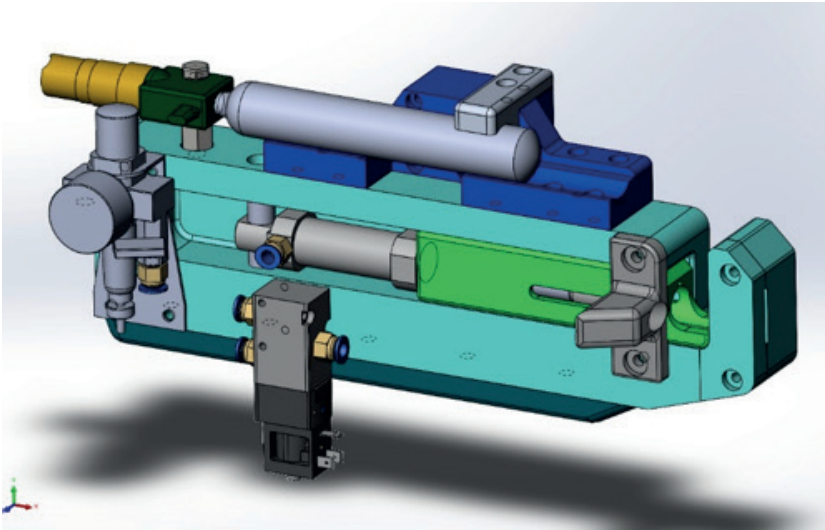


Figure 2: The DISARM PLUS EOD tool design concept.

Figure 3: The design concept for a Remote Operated Command Wire Cutting tool.



Conclusion

The establishment of a Defence organisation driven RTI capability can yield significant benefits in terms of defence capability, defence value-for-money, national prosperity and the creation of a defence research & innovation ecosystem²⁷. In this regard, the Defence Forces Ordnance Corps has a well-established global reputation for innovative excellence and collaborative outreach with an array of industrial and academic partners. Recent examples of successful R&D collaborations include the HORIZON 2020 funded ROCSAFE project (Remote Operated Chemical Biological Radiological Nuclear explosive Scene Assessment and Forensic Evaluation)²⁸ and the development of Anti Bio agent Decontamination Wipes in conjunction with Aquila Biosciences²⁹. These strategic partnerships have led to a multitude of symbiotic development initiatives often yielding significant improvements at the tactical and operational level. The DISARM project continues to build upon existing partnerships and synergies with academic and industrial partnerships, notably REAMDA, NUI Galway and Institute of Technology, Carlow.

The potential for scaling up this project is excellent. The operational lessons learned in the development of Irish Ordnance Corps Improvised Explosive Device Disposal strategies and doctrine, coupled with the evolution of associated tactics, techniques and procedures can enable a sensible approach to the development of sustainable, successful and innovative collaboration with other partner organisation and agencies. These lessons can also contribute towards strategic collaboration with industry both domestically and internationally in which the initial concepts right through to the development of final product are influenced heavily by the operational needs of the end users. In this context, the Irish Defence Forces has successfully engaged with industry throughout the years as partner, client and test-bed for innovative concepts and technological development.

Such symbiotic efforts can only lead to the development of an effective, efficient and safe Counter Improvised Explosive Device capability. These efforts will also further enable the ability of the Ordnance Corps of the Irish Defence Forces and its related organisations to fulfil their strategic tasks and objectives both now and into the future. The DISARM project is presented here as a suite of Defence Forces Ordnance Corps devised practical engineering solutions to an array of strategically complex explosive engineering problems.

²⁷ Defence Forces & Department of Defence. 2020. Feasibility Study: Establishment of a Research, Technology & Innovation Capability for the Irish Defence Organisation. Feasibility Study, Dublin: Vedette, 1-90. Accessed July 27, 2021. P. 2.

²⁸ European Commission. 2020. <https://cordis.europa.eu>. September 13. Accessed July 27, 2021. <https://cordis.europa.eu/project/id/700264>.

²⁹ NUI Galway. 2020. <http://www.nuigalway.ie>. April 07. Accessed July 27, 2021. <http://www.nuigalway.ie/about-us/news-and-events/news-archive/2020/april/aquila-bioscience-delivers-pathogen-removing-technology-to-irish-frontline-workers.html>.

The DISARM Project: How the Defence Forces Ordnance Corps is Helping to Shape Explosive Ordnance Disposal Capabilities Through Collaborative Research, Technology and Innovation

ABSTRACTS

2 Joint Command & Staff Course

MA In Leadership, Management and Defence Studies

Does the Defence Forces Need to Change its Information Security Doctrine?

Comdt Noel Barbour

In modern society, we have come to live in a dramatically increased communication centric environment and the last twenty years has been transformative in many respects. Cyberspace is the newest edition to the domains of war joining sea, land, air and space. Unlike the other domains, cyberspace is human-made and arguably it is wrongly treated as an equal among domains of war. Society has grown to depend on the growing intensity of information flow to successfully function. It is likely that cyberspace will become the primary domain in the coming ten years and our behaviours and military doctrine pertaining to it must be aligned properly to ensure protection from the incumbent threat it brings.

In recent times cyber-attacks and attacks on information systems has been folded into concepts such as “hybrid operations” and “grey war” tactics. As an example, Russian hybrid warfare is not a new concept but importantly, successes have come through audacity and “combining so many forms of power” pointing to the need for us to become better at defending our troops from its effects. This is likely to entail changes to our National Security strategy with knock-on changes to military frameworks (doctrine) that support it. A future, rejuvenated cyber security apparatus has a part to play in the promulgation of information security knowledge as the key DF agency tasked with dealing with DF computer security incidents, but it should not stop here as will be explored herein. This thesis is an investigation of the current status of Information Security doctrine as it exists today in the Defence Forces.

The Defence Forces has no Capability plan to guide its navigation of activities between the strategic objectives laid down in DF White Paper and its Equipment Development Plan under which equipment is specified, tendered, and purchased. A clear capability plan is a key requirement in any organisation.

Is the Defence Forces Chaplaincy Service Meeting the Needs of Defence Forces Members?

Comdt Pádraig Brennan

This thesis aims to answer the primary research question: Is the Defence Forces Chaplaincy Service (DFCS) meeting the needs of Defence Forces (DF) members? The DFCS provides pastoral care and spiritual guidance to members of the DF. The relevance of this study is to ascertain if the DF is positioned to deal with a cultural and religiously diverse society and organisation. If the DF wishes to remain an employer of choice, and attract citizens from throughout Irish society, it must acknowledge the increasingly secularised nature of that society. The DFCS faces two problems; firstly, how do they remain relevant in meeting the needs of DF members, and secondly, how does the DFCS cater for the needs of personnel from other faiths, and those of no faith.

The objectives of this research are to study and understand the DFCS and see how this service can be delivered to DF members in an effective, equitable and appropriate manner. A further research objective is to provide recommendations to the DF leadership about the future of the DFCS within a culturally sensitive and religiously diverse organisation. A mixed-method research methodology, integrating both qualitative and quantitative research, was designed to achieve the research aim and objectives.

The findings recognise the significant contribution of the DFCS to DF members, especially during operational deployments overseas. However, support from participants to acknowledge and accommodate personnel of all faiths, and those of no faith, infer that the DFCS is not meeting the needs of all DF members, specifically, non-religious DF members. This is reinforced by the finding that participants support the DF appointing non-religious military chaplains to cater for the needs of the non-religious. Essentially, the DFCS is meeting the needs of some DF members, but the needs of a significant and growing cohort of DF members are not being met.

“Being Before Doing” – An Exploration of a Coaching Style of Leadership for NCOs In The Irish Defence Forces

Comdt Máirtín Coffey

The aim of this research was to explore a coaching style of leadership for NCOs in the DF and how this may impact on leader development both to the individual and to the organisation. A sub-topic of this aim, was the contribution of executive/leadership coaching for NCOs and how this would contribute to leader development. Coaching is still in its infancy in the DF and there are few studies completed on the subject. This is the first study that has been completed for the NCO cohort in the area of coaching. The rationale for choosing the NCO rank was that they are key enablers in our organisation. Their role in the education of soldiers and officers is key to leader development.

An interpretivist philosophy and a qualitative methodological approach was the research methodology. The semi-structured qualitative interview was selected as the data collection method to explore the experiences of a purposive sample of military leaders of senior NCO and senior officer rank that had experience of or education in leadership coaching. The experience and knowledge of those interviewed led to information rich data and interesting findings.

These findings suggested that a coaching style of leadership for NCOs would be beneficial both to the individual and the organisation and have a positive impact on leader development in the DF. Using the skills of a coaching style of leadership such as listening, empathy and self-awareness allows a leader to have a collaborative approach, empower those around him and gain ‘buy in’ for mission accomplishment. The analysis of data in this research further suggests that executive/leadership coaching for senior NCOs would be constructive. Executive/leadership coaching would have the ‘cascade down effect’ of contributing to leader development in tandem with the development of a coaching style of leadership for NCOs. The military chain of command lends itself to this ‘cascade down effect’ and a coaching style of leadership fits very well with the leadership philosophy of mission command.

An Analysis of the Reasons why Members of The Defence Forces are Leaving Prematurely Using an Organisational Commitment Perspective

Comdt Alan Courtney

The Defence Forces is experiencing an unprecedented exodus of personnel from its ranks. Has this been carefully orchestrated by the successful implementation of targeted policies over recent years? Have these policies eroded organisational commitment by getting rid of the things that had made people stay before? Organisational commitment has three aspects, affective commitment which is the 'want to stay' aspect, normative commitment is the feeling employees 'should' stay and continuance commitment is a 'need' to stay (Van Der Werf, 2018). This thesis examines whether any or all of the three aspects of organisational commitment are more or less prevalent in the reasons cited for departure from the DF by respondents to the 2015 DF Climate Survey, the follow on 2017 DF Focus Group research or from the semi-structured elite interviews and questionnaires with recently retired personnel conducted as part of this research.

The literature review examined a wide range of work which started with an examination of the civilian-military relationship in Ireland to explore whether there was a pattern emerging in the relationship between the state and the military since its foundation. The theory of organisational commitment resonated and came to the fore as an area requiring further exploration. Human Resource Management, talent management and turnover theory all formed part of the review as well as change management theory which may be the key to reversing the current trends.

There is evidence to support the notion that personnel do not enjoy life in the Defence Forces as much as they used to and have less of an emotional attachment to the organisation (AC). In addition, many have been negatively impacted by the recent changes in terms and conditions damaging the reciprocal relationship or psychological contract (NC) and that is now easier for them to leave, both economically and socially (CC).

The thesis proposes that the Defence Forces is evolving from a retention-based organisation to a recruitment focused one. On that basis, change is required. This thesis recommends that by embracing human resource, talent management and change management practices the organisation can navigate this turbulent period.

Developing Tomorrow's Leaders Today: Building Mission Command Competency in US Army Signal Corps Officers

Major Matt De La Guardia

Mission command has been the US Army's doctrinal approach to command and control for nearly two decades, but it remains a challenging philosophy for many leaders to apply. Signal Corps officers must possess both technical and leadership competency to effectively apply mission command.

This thesis seeks to identify factors that may hinder company grade Signal officers from applying mission command to their daily operations. It takes a qualitative approach to the research through a post-positivist, constructivist ontology and presents a theoretical framework that identifies key actions in each learning domain that contribute to leader development and the effective application of mission command. Through structured interviews with Signal Corps officers and theory-driven analysis, the thesis identified opportunity for additional focus on mission command and earlier inclusion of academic leadership theory in professional military education. It also identified as the importance of competence and of senior leaders' willingness to accept risk and ability to foster shared understanding.

Further research may be needed to explore whether recent changes to mission command doctrine will affect officers' ability to apply mission command and what specific changes military education courses might adopt to best prepare company grade Signal Corps officers for battalion staff appointments.

Recent Developments in Pilot Flight Training Systems: Can They Enhance Resilience in 301 Sqn Helicopter Pilots?

Comdt Colin Duffy

The Defence Forces is experiencing an unprecedented exodus of personnel from its ranks. Has this been carefully orchestrated by the successful implementation of targeted policies over recent years? Have these policies eroded organisational commitment by getting rid of the things that had made people stay before? Organisational commitment has three aspects, affective commitment which is the 'want to stay' aspect, normative commitment is the feeling employees 'should' stay and continuance commitment is a 'need' to stay (Van Der Werf, 2018). This thesis examines whether any or all of the three aspects of organisational commitment are more or less prevalent in the reasons cited for departure from the DF by respondents to the 2015 DF Climate Survey, the follow on 2017 DF Focus Group research or from the semi-structured elite interviews and questionnaires with recently retired personnel conducted as part of this research.

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Making A Case for Ireland to Adopt a Policy to Enforce Protection of its Maritime Cultural

Lt Cdr Ultan Finegan

Ireland is an island nation and has a long history of ships sailing on its coasts. Many of those ships foundered due to weather and war and lie on the oceans floor. It behoves Ireland to ensure respect is given to those ships and their lost crews and prevent the wrecks being interfered with in an unauthorised way that could cause damage to the Oceans floor on Irelands Continental Shelf. Despite this requirement for wreck preservation, Ireland has not designated an agency at sea to monitor the wrecks and ensure they are protected.

The aim of this thesis is to make a case for Ireland to amend its legislation to enable proper protection of the wrecks that lie on the Continental Shelf that lies under Irelands responsibility and subsequently appoint the Naval Service as the agency responsible for monitoring and intervening in unauthorised interference with wrecks at sea. This is as a result of both the literature review and the interviews highlighting that despite having legislation in place for the preservation of wrecks at sea it does not properly protect them and also the fact that there is no agency appointed to protect them. The literature review also highlighted that the creation of a designated agency can be utilised to define maritime governance and that the methods to complete this requirement requires Ireland to conduct maritime wreck preservation reform.

This research adopted a qualitative research design with a social constructivist approach.

Data was collected utilizing a focus group to form the questions for the conduct of semistructured interviews of the selected group that included a Senior Naval Officer, members of the Department of Foreign Affairs and Department of Arts Heritage and the Gaeltacht, the Irish Coast Guard and an Irish academic expert and Barrister in law.

The findings of this research indicate that maritime wreck preservation reform is required as it would resolve the current approach in Ireland towards maritime wreck preservation. This is due to the disperse allocation of maritime responsibility across all government departments that has no central coordinator with authority. The findings of the research further reflect that wreck preservation is a vital component of Ireland's seafaring history and requires protection as modern ships become more capable of causing damage to both them and the oceans floor.

The key finding of this research is that a case does exist for Ireland to enhance its wreck legislation and also to appoint the Naval Service with powers at sea regarding the unauthorised interference with wrecks.

How Effectively is The Cadet School Able to Develop Leaders of Character?

Comdt Conor Gorey

The mission of the Cadet School is to produce officers of character and competence. Character is central to the military leader; it is a requirement of mission command and it is a force multiplier in Peace Support Operations that the Defence Forces are engaged in. Character is the sum of our values and attributes and having a balance between character and competence is a requirement for the military officer. The 93rd Cadet Class saw a threefold increase in the number of cadets in training and posed new challenges to the Cadet School in achieving its mission. This thesis examines how effectively the Cadet School is able to develop leaders of character. It examines our understanding of what character is, where it sits in our leadership architecture and how it is developed through our training structures, with a focus on the Cadet School.

The review of the literature reinforces the importance of character for the military officer. The role that the Defence Forces Values play in providing a framework for character education was validated by drawing comparisons between academic and international military writing on character and values. A potential gap was identified in the manner in which we educate and train cadets to become leaders of character and competence. The literature suggests that to develop character requires providing the student with a set of skills for personal development, such as reflective practice. The system should support this through a developmental model that promotes a self-directed development relative to their stage of psychosocial development.

Qualitative research with a post-positivist focus was used to draw on the experiences of the cadets who have been commissioned in the recent past and those involved in their education and training. An inductive, thematic analysis through a focus group was used to establish the understanding of the cadets and validate and challenge the findings of the literature review. This was then progressed through a series of semi-structured interviews using a thematic analysis with staff from the Cadet School and then related to the experiences of the US Military Academy, West Point, and the Defence Forces Values in Action program. The findings indicate that the Cadet School provides character development through the cumulative experience of the Cadetship, the ethos of the Cadet School, the instructors who provide role models for the students and the variety of crucible moments that influence a cadets character development. What it lacks is a prioritised program for character development that provides explicit structures and the language needed to describe and develop character. As a result, cadets do not have the language or tools needed to develop to the greatest possible extent in their 15-month Cadetship. This lack continues into their early career as a commissioned officer.

The findings and recommendations of this thesis outline the many strengths and identifies some of the fundamental challenges of the current system. It proposes that a character development model could be developed and applied to the Cadet School that would provide greater support to the student and instructor in ensuring that character and competence are developed equitably. This model could then be expanded to support the Defence Forces Values in Action program, which seeks to translate the DF Values from words to deeds.

Innovation in The Military Leadership Curriculum The Voice of Military Educators

Comdt Ian Harrington

It has long been my opinion that the Irish Defence Forces are a source of vast governance (which includes doctrine and regulations), capabilities (including training institutions and military educators), and resources (including their people's experience, knowledge and creativity), often unappreciated by society and underappreciated by their own members.

This last facet - creativity, leading to innovation in the workplace - is something I frequently observed during my career in the Defence Forces, but its source and development appear not to be formally recognised. For an organisation with a well-deserved and proud tradition of adaptability, cohesion and reliability, it seems incongruous that innovation would not be a valued and central plank of the organisation. And yet, my daily observations of innovative practice did not seem to be reflected in the language, mindset and literature of the Defence Forces.

Using a mixed-methods approach (surveys of current and former Defence Force educators, combined with semi-structured interviews of elite strategic leaders within the organisation), this research reveals that, in fact, when compared with external public-sector innovation literature, the Defence Forces - in particular within military education - allow for, encourage, teach and value innovative practice among its members.

However, the educators were found, when all data was analysed, to be largely unaware that the work practices being employed by themselves and their colleagues on a regular basis are largely innovative in nature. The absence of an innovation module in military syllabi appeared to be a factor along with an underutilisation of the very word "innovation". Innovation is therefore frequently being employed but remains unrecognised. In short, my research data indicates that the Defence Forces is an organisation rich in innovative practice, innovative people and indeed innovative culture, but that this culture remains unseen, unrecognised and perhaps, therefore, still underutilised. If innovation were to become more visible, acknowledged and encouraged, it is quite possible that an organisation which has already embraced the areas of leadership and innovation, could indeed excel at maximising the potential of its governance capabilities and resources.

“Seachnaíonn súil ní nach bhfeiceann”.

(An eye evades a thing it does not see.)

To What Extent Can Leadership Be Shared at Team Level in The Army Ranger Wing?

Comdt Conor Kingston

The Army Ranger Wing (ARW) is the Defence Forces Special Operations Unit and as such requires a specific model of leadership that meets the requirement of the unit. The ARW are tasked with challenging, complex and often high-risk operations that require the members and the teams they constitute to be highly trained, technically expert and fluid. To maximise these individual and team skills, the team leaders must rely on their team members to offer their skills in the planning and execution of operations. This is achieved using a concept of shared leadership, whereby responsibility for decision making moves seamlessly through the team. This thesis examines the theory and practice of shared leadership in the ARW at team level.

The review of the literature discusses how shared leadership is prevalent at the elite level of military and sporting professions. This is due to the fact that it requires all team members to be of an elite level, to have professional expertise in their field and to have the experience and training to take responsibility for an aspect of the operation should this be required. The literature also highlights the need for a low power distance in order for effective sharing, which means that this model is not well suited to conventional military units. Shared leadership also requires that the leader actively promote the development of team members by demonstrating trust and encouraging participation in the planning and leadership of the team. The importance of shared leadership in the face of complexity and danger is also highlighted. In these environments' leaders can become overwhelmed by the complexity and volume of information being given to them. The benefit of shared leadership is that the complexity is shared amongst all team members, and the burden on the commander is lessened, allowing them to focus on fewer, more critical issues.

Qualitative research with an interpretive focus was used to draw on the experiences of members of the ARW, the US Special Operations and from Mr Stewart Lancaster, who has played and coached rugby union at an elite level. A thematic analysis was used to interrogate the findings of the literature review, examining each theme through the experiences of an elite operator. The questions were structured to allow each interviewee the opportunity to share their experiences of shared leadership across a myriad of operations and in various contexts. The use of semi-structured interviews meant that often the ideas that were established in the literature were challenged and different factors emerged that affected the sharing of leadership. The requirements for effective sharing of leadership are expert members of the team, a willingness to delegate and accept responsibility, a flat leadership structure, low distance from power and an acceptance of the fluidity of the role of the leader. These elements are evident in both elite military and elite sports.

The findings of this thesis outline the strengths of the shared leadership model in the ARW at team level, as well as the stringent requirements for its effective use. It proposes that shared leadership be formally recognised as part of the Defence Forces Leadership Doctrine so that its use is acknowledged and made available to those units for which it may be relevant.

How Do Governance Structures Effect Irish Defence Relationships?

Lt Cdr Conor Kirwan

Defence is the product of three key ingredients: Government policy; the development and delivery of military capability as an instrument of Government policy; and vital defence administration undertaken by civil servants in the Department of Defence.

Governance, established through constitutional arrangement, government policy decision or tradition, establishes how matters of national defence are directed and controlled. Thus, clarity in governance is vital to addressing unhealthy conflict and tension. Governance structures specify the distribution of rights and responsibilities among the different participants in an organisation and lay down the rules and procedures for decision making.

This thesis aims to answer the central research question: what effect does Ireland's defence governance structures have on civil-military relationships? The research was conducted from a constructivist perspective using a qualitative approach. Eight elite interviews were undertaken with participants, serving and retired, from across the Defence Organisation.

The findings highlight that Ireland's military-bureaucratic structures closely align those of other Westminster-based defence establishments, with the exception of our command arrangements. In Ireland, as in comparator countries, specific structures and governance arrangements significantly strengthen the oversight function of defence bureaucrats over the military. Bureaucratic overlap into the operational domain is particularly contentious and a source of frustration for the military. This research finds that opinions diverge over whether boundaries have been overstepped and the routine business of the Defence Forces is being unnecessarily interfered with.

Findings also point to the influence of culture on civil-military relationships. While some cultural similarities exist between the military and civil service, both military and civil servants carry 'cultural baggage' which they must be aware of if relationships are to be strengthened.

How Should The Irish State Respond to the Radicalisation of Irish Citizens in Support of Islamist Terrorism?

Comdt Niall McCorry

The chaos of the Syrian Civil War and the rise to prominence of the Islamic State group surfaced the issue of Islamist radicalisation in Ireland. In spite of several high-profile cases of radicalisation in recent years, Ireland does not appear to have formulated a coherent response, unlike most other European countries. This thesis aims to answer the central research question: how should the Irish state respond to the radicalisation of Irish citizens in support of Islamist terrorism?

A review of the literature on radicalisation was conducted, based upon the models of radicalisation set forth by Wiktorowicz (2004) and Precht (2007) which have identified possible indicators of radicalisation. The literature on the subject is somewhat sparse relating to the Irish context; therefore, the counter-radicalisation strategies of the United Kingdom (UK) and Denmark were examined for international comparison.

The study was carried out as a qualitative, phenomenological research project using mixed methods. Initially, data was collected through documentary analysis of relevant Irish, UK, and Danish government publications. This was followed by the conduct of semi-structured elite interviews with a carefully selected group of participants. The expertise and professional knowledge of the interviewees helped to produce rich data and led to interesting findings.

It is apparent from documentary analysis and interviews that this country does not have a proactive approach to security issues in general, and radicalisation in particular. Interviewees were strong in their support for the adoption of more clearly defined measures to counter-Islamist radicalisation specific to the context in this country. However, while the comparisons drawn from the UK and Denmark illustrate the utility of their respective approaches to countering radicalisation, there is no clear consensus on the best path forward for this country.

The complex individual nature of the radicalisation process, and the impact of external influences, were recognised as key considerations. The need for widespread consultation, at the expert level, on the crafting of the state's response was also emphasised, given the risks involved in a poorly conceptualised approach. Community cohesion emerged as an important topic, and may form the basis for an effective response, along with training for the appropriate professionals on how to deal with cases of radicalisation, and sensitisation of the population to the danger of the issue.

Do Words Really Never Harm Us? An Exploration of the Relationship Between Stereotypes, Linguistic Bias and Gender Inequalities in The Irish Naval Service

Lt Cdr Elaine Moloney

The Defence Forces is committed to increasing female participation to 12 per cent by 2023. However, numbers have never surpassed 8 per cent. This study aims to shine a light on a possible explanation or contributing factor of this by exploring the relationship between stereotypes, linguistic bias, and gender inequalities in the Irish Naval Service (NS). Building on Beukeboom and Burgers' Social Categories and Stereotypes Communications (SCSC) framework, the study asks do gender stereotypes and gender biased language exist in the NS, if so how prevalent are they and what are their consequences on gender inequality in the organisation.

Beukeboom and Burgers' SCSC framework provides an integrative framework that illustrates how everyday language both creates and maintains stereotypes and social categories. This can inevitably lead to discrimination, consequently impacting gender equality

Based on a review of the literature on stereotypes and linguistic biases, a survey was distributed to members of the NS. A purposive sample of women in the organisation were also asked to submit critical incident reports. Qualitative and quantitative analysis of the responses highlighted a reliance on gender roles within the organisation which ascribe men a higher status than women and which view women as mothers. Consequently, women appear to be unfairly disadvantaged when it comes to career progression and advancement.

Analysis also suggested that men were inclined to portray themselves in a more favourable light while also highlighting the negative behaviours of women. These findings supported the notion that gender stereotypes and gender biased language are active in the organisation and suggested a relationship between their use and gender inequalities in the organisation. On this basis, the main recommendation is that the organisation adopts an integrated and continuous training programme that raises greater awareness of stereotypes, linguistic biases, and the negative consequences of their use. Further research is needed to identify further areas that stereotypes, and linguistic biases could be contributing to gender inequalities in the organisation.

‘Do We Practice What We Teach?’ An Examination of Potential Barriers to Effective Leadership Development in The Defence Forces

Comdt Diarmuid O’Donoghue

The Defence Forces teaches a great game when it comes to leadership. A great deal of time and effort has gone into the drafting and promulgation of the Defence Forces leadership Doctrine and the syllabi for both Cadet and Potential NCO training. But what happens next? How do our junior leaders, when they receive their commission, or are promoted to corporal, develop their leadership skills within the organisation? Do barriers exist to this further leadership development? This study aims to examine whether barriers exist in the development of junior Officers and NCOs in a post training environment. Furthermore, it seeks to ascertain what those barriers may be and can they be overcome.

After analysing the extant literature regarding leadership and its applicability to the military setting, certain themes of cohesion, mutual knowledge, trust, and habitual association came to the fore. Gaps in the literature were identified in that the literature primarily deals with leadership on the macro or strategic scale, whereas extraordinarily little documentary theory is devoted to the development of leadership at the tactical level. Furthermore, the pre-supposition that small groups, or teams within in the military setting were pre-existing and cohesive were evident. To build on these gaps a qualitative research methodology was adopted to discover the experiences of those junior leaders in their further leadership development. Utilising a social constructivist ontology with an interpretivist epistemology allowed this study to garner a wide breadth of rich data, eliciting the experiences of junior Officers and NCOs. The research was conducted through two focus groups, one for Lieutenants and the other for Corporals. Ultimately the study demonstrated that barriers exist in the further development of junior leaders under three broad themes of organisation, structure, and culture.

The organisation does not provide for any formalised leadership development at the junior level save for career courses, nor does it have a peer mentoring system. In terms of structure, the Defence Forces adopts an ad-hoc nature to its organisation and thus sections and platoons are not formed entities with the consequential building of, cohesion mutual knowledge and trust. In addition, the culture of the Defence Forces is that of being reluctant to change, risk-averse and placing more credence on staff and administrative appointments than on troop leading. These barriers are overcome, albeit temporarily, through involvement in recruit training and overseas service. This however is more by accident than design. The implications of these barriers are such that not all junior Officers or NCOs are able to avail of leadership development opportunities. The imposition of a more defined structure, achieved through proper planning and a priority of leadership roles over administrative ones, could perhaps serve to mitigate against potential barriers to leadership development.

Climate Change: A Threat to International Peace and Security – A Time for Action?

Comdt Aidan O'Mahoney

In 2011, then Secretary General of the United Nations Antonio Guterres identified Climate Change as the defining challenge of our time, a challenge which interacts with other global mega trends such as population growth, urbanisation, and growing food, water and energy insecurity, and crucially one that has important implications for the maintenance of international peace and security. The security implications surrounding Climate Change have attracted growing attention since the early 2000s, with an ever increasing number of researchers, academics and policymakers focusing their attention on the subject. These security implications are exacerbated by the huge number of people who have been displaced by the effects of Climate Change, in particular on the continent of Africa. But to what extent does this migration caused by the effects of Climate Change lead to instability?

The review of the literature has highlighted that there exists general agreement as to the Potential impacts of Climate Change, and the risks that it poses to international peace and security. The literature however, is heavily contested by academics, with direct links between Climate Change and violent conflict yet to be conclusively established. There is broad agreement that Climate Change and resultant migration is a contributory factor that leads to instability, however, in addition to migration, there are a number of climate related and non-climate-related factors that can also lead to instability.

A social constructivism framework with an overarching qualitative approach was adopted for this research. Data was collected by conducting semi-structured interviews with subject matter experts, selected on account of their unique position, experience and education.

The study indicates that there are a number of climate-related and non-climate-related risk factors that can lead to instability, however, rather than act in isolation, they interact and reinforce one another. Migration is one of these risk factors, but alone, there is limited evidence to suggest it directly leads to instability.

All Vision No Substance; Are Unmet Expectations a Key Factor in the Voluntary Turnover and Discharge of Enlisted Personnel in The Naval Service

Lt Cdr Tony O'Regan

The aim of this thesis is to examine the early voluntary turnover of enlisted personnel within the Irish Naval Service. The purpose of the study is to explore current challenges facing the organisation regarding the retention of young, recently enlisted personnel. The literature reviewed suggests strong correlation between the development of retention strategies, and their benefits to an organisation, such as the Irish Naval Service.

My research adopted a qualitative research design with an interpretivist approach. The research draws on semi-structured interviews undertaken with ten military professionals from the Irish Naval Service, including the Senior Staff Officer in Charge of Human Resource functions, and the head of the Seaman's Branch.

Analysis of the interviews resulted in a number of new findings. A primary outcome conclusively acknowledged the urgent need for the Irish Naval Service to develop a retention strategy for young enlisted personnel. Of particular concern was the unanimous agreement that current turnover rates are having a direct bearing on those that remain in the organisation. The research further highlighted that the reality of life at sea must be made clear to all new recruits prior to joining before they qualify, prior to posting to sea.

The study is significant to the Irish Naval Service as it informs the theoretical understanding of the turnover processes combined with a unique focus on military turnover models that can be altered to suit the needs of the organisation.

Finally, of significant concern was the respondents' undeniable unanimity, that none are planning to remain in the Irish Naval Service beyond their first five-year contract, nor considering the military as a long-term career.

Trust in Safety: The Role of Trust in Irish Air Corps Flight Operations Supervision

Comdt Jay O'Reilly

This thesis explores trust relationships in the Irish Air Corps' and the role they play in an objective supervisory system for flight operations. The thesis investigates whether the level and type of trust within the organisation is appropriate to the current situation and explores what implications there may be for the oversight and safe conduct of flight operations. The increased reliance on trust is due to recent personnel losses within the organisation and the dependence on supervisors to regularly engage in the flight operations that they should be overseeing.

The exploration delves into areas of research including trust, organisational commitment, organisational citizenship behaviour and the psychological contract. Different types of trust are defined and the literature review gives the reader an understanding of the relevant factors at play within this supervisory system.

A subjective and qualitative ethnographic research methodology was designed using a mixed methods approach to gather the primary data from the members of the subject organisation. Personal and sensitive topics among members of the Irish Air Corps were explored, and investigation into the dynamics at play between different cohorts within the flight operations safety system was conducted.

The analysis assessed the basis on which individual cohorts trusted the others and explored the level of organisational commitment of the respondents. There was strong evidence to suggest high levels of trust between the cohorts with a healthy level of professional scepticism and objectivity. There was, however, some evidence of objective focused workarounds and rule breaches being used which may go unchecked due to the task saturation of the organisation's supervisors.

The Organisational Design for Special Operations Forces in Ireland – Is it Fit for Purpose?

Comdt Ger Rigney

This thesis aims to answer the central research question: To what degree are the structural arrangements of the Army Ranger Wing within the Defence Forces anomalous in comparison to the arrangements for these units globally?

The research was informed by data collected through an analysis of historical and current policy documentation, military orders and regulations. Semi-structured elite interviews were conducted with strategic leaders who currently are, or had been responsible for the implementation of Special Operations policy. These interviewees were drawn from the Irish Defence Forces, Belgium and New Zealand.

Analysis of extant policies, orders and regulations generally highlighted the value that the Defence Forces place on Special Operations. However, there are difficulties in translating this ambition into a tangible end-state. Examination of the high level structural arrangements in respect of Special Operations that exist within Belgium and New Zealand were undertaken. This underscored a level of uniformity that is at variance with the current Defence Forces structure. The uniformity applied, relates directly to the application of NATO standards.

Analysis of comparative standardisation documents from the UN and the EU that pertain specifically to Special Operations indicate an alignment with NATO standards. There is a stated Defence Forces intent to attain NATO standardisation. However, barriers remain to the delivery of a structural arrangement for the Army Ranger Wing commensurate with NATO standards. Within policy, orders and regulations a prescriptive end-state has been provided, the ways identified but the means have never materialised.

This thesis concludes that the structural arrangements of the Army Ranger Wing within the Defence Forces are anomalous in comparison to the arrangements for these units globally. It also proffers a way to address the current anomaly, within the existing policy, order and regulation framework.

“Feedback Given is Not the Same as Feedback Received” How Officers Perceive and Engage With Feedback in The Defence Forces – A Study of The Acceptance and Utilisation of Feedback

Comdt Fergal Ryan

This thesis explores trust relationships in the Irish Air Corps’ and the role they play in an objective supervisory system for flight operations. The thesis investigates whether the level and type of trust within the organisation is appropriate to the current situation and explores what implications there may be for the oversight and safe conduct of flight operations. The increased reliance on trust is due to recent personnel losses within the organisation and the dependence on supervisors to regularly engage in the flight operations that they should be overseeing.

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Flexible Working Arrangements and The Defence Forces

Comdt Paddy Sheahan

Flexible Working Arrangements (FWA) have become a pervasive feature of how businesses sustain a talented, productive and content workforce. The evolution of contemporary employment markets and societal development has resulted in an ever-increasing demand from workers for flexibility in terms of when, how and where they work. Other nations have introduced FWA as a means to sustain their armed forces – such as the United Kingdom and Australia. In recent years, the narrative relating to the Defence Forces (DF) has been dominated by poor pay and conditions, high turnover rates, and low morale. This research aims to explore to what extent FWA are an appropriate and achievable initiative for the DF in order to help support and sustain its most important asset. The research also examines barriers that might exist to the introduction of FWA, and characteristics of a viable scheme in the DF. The research adopted a qualitative approach to the subject using a single case study and semi-structured interviews with key position holders of the DF and Department of Defence. Inductive thematic analysis of the data gathered identified themes for analysis, and helped mitigate any preconceived analytic framework of the researcher who had an insider perspective as a member of the DF.

The research found significant appetite among tactical level military commanders for the introduction of formal FWA to facilitate personnel who need flexibility to balance domestic and professional responsibilities. Strategic level research participants acknowledged that FWA have a role in wider society in terms of workforce management, but that an extensive examination of FWA is required prior to any implementation in the DF. The research found that FWA should be carefully introduced taking into account the extant organisational culture and existing work practices. The introduction of such a significant scheme would require unambiguous support from strategic leadership, organisational culture sensitivity, and an iterative process of policy formulation, implementation and evaluation. Misunderstandings around FWA can lead to mistrust, the undermining of organisational cohesion, and a disparity between policy and practice. There is potential for multifaceted organisational and individual dividend including improved retention, recruitment and morale; improved gender balance; and enhanced organisational reputation as a societal leader of exemplary work practices without compromising business or operational activities.

Examination of the Role of Militaries in National Cyber Defence to Meet Increasing Cyber-Threats

Lt Cdr Fergal Tubridy

Within the Defence Forces (DF), the idea of “space” traditionally may be observed as ‘geographical space’, i.e. ‘land’, ‘sea’ and ‘air’. This habitual way of thinking about ‘space’ was always central to DF doctrines. In recent decades, however, the idea of the ‘space’ to be defended by military forces had to be expanded to include threats emanating from cyberspace. The importance of cyberspace in society and its increasing use as a platform for dispute have established this new space as a place of significant security concerns for governments and the military nationally and internationally.

The purpose of this study is to research and construct the case that is a contribution to policy thinking about the cybersecurity of Ireland. The case developed here may, of course, be subject to critique by those of alternative viewpoints. The best policy for Ireland can be worked out in a critical dialogue in which disagreement with the thesis proposed can be met with a better alternative.

This thesis addresses the question of whether the role of the Defence Forces in the national defence of the State needs to be redefined, given the increase in nefarious activity in and through cyberspace.

The review of selected studies highlighted key themes: the lack of a consistent definition surrounding ‘cybersecurity’; challenges states face in attributing and deterring unwanted cyber activity; the meaning of ‘neutrality’ in cyberspace; and designating protectors of a states’ ‘cyberspace’.

The research approach is viewed through the lens of constructivism and interpretivism, coupled with using a qualitative approach. Furthermore, the triangulation process of semi-structured interviews and documentary analysis allowed for the exploration of themes and the generation of findings. The main finding emanating from the research is that the DF should have a leading role in national cybersecurity, not as a single entity, but as part of a whole of society approach consisting of public, private, and academic sectors.

ABSTRACTS

3 Joint Command & Staff Course

MA In Leadership, Management and Defence Studies

Modern Approaches to Standard Military Field Training. Can Blended Technological Alternatives Offer Viable Training Options to The Irish Defence Forces?

Comdt Bernard Behan

The aim of this thesis is to ascertain if blended technological alternatives to traditional field training can offer viable training options to the Irish Defence Forces? A conceptual framework is developed to focus the study on three main areas; teaching and learning, technological training alternatives and military application. This framework is used to categorise and guide the study through DF training and education processes and architecture, and is informed by relevant literature and theory in these areas.

In terms of relevance, the logistics required to support the training and preparation of our soldiers for combat readiness are mandatory requirements which are causing an ever-increasing strain on DF resources annually. A significant problem is the inevitable process of obsolescence with equipment and the rate maturation of current training tools, aids, methods and practices compared to the advancement and pace of technological change.

A mixed-methods approach was adopted for research and deemed the most suitable to achieve the end state via triangulation of documentary analysis, semi-structured interviews and survey questionnaires. The interviews were completed with strategic level military and civilian management and the survey was completed by DF personnel of all ranks and representing the three services.

The findings recognise that our current training and education system is still functional; however, modernisation and coordination between directorates is required if we are to keep pace with the evolution of technology and its associated benefits for DF operational readiness. An adoption of the DOTMLPFI (Doctrine, Organisation, Training, Materiel, Leadership, Personnel, Facilities and Interoperability) process aligned with a capability development section is seen as a progressive way to achieve this transition and this approach was amplified by the participants of the study in terms of future development and financial investment required to maintain effectiveness.

Barriers to Accessing Mental Health Services in The Defence Forces

Comdt Murtagh Brennan

In 2016 Ireland had the third highest rate of mental health illness in Europe. Almost 19 per cent of the Irish population experienced mental health problems (OECD/EU, 2016). This statistic highlights the importance of mental health issues and our interaction with services.

The current study aimed to examine the perception of the Defence Forces (DF) mental health services in order to explore why members may feel unable to access these services. Further objectives sought to identify how DF member's interacted with DF mental health support services, and sought to make recommendations on how this service can be delivered in an effective, equitable, and appropriate manner. A further research objective was to provide recommendations to the DF leadership concerning the findings of this study.

Data was collected through a questionnaire with serving members and supplemented by interviews with key personnel in the DF mental health services.

The findings recognised the important role the DF mental health support services have in an organisation where serving members are currently experiencing high levels of stress. The research also indicated that there are systematic challenges to the DF mental health services, most notably a lack of awareness among serving personnel as to the correct referral system, and a concern over the confidentiality of the process of requesting support at unit level. Research findings indicated concerns with stigma and labelling, and a concurrent negative impact on career prospects.

The research recommends that the DF mental health support services may meet the needs of serving members when accessed, but the aforementioned barriers are affecting current and possible future engagement between DF support services and serving personnel.

Military Humanitarian Assistance and Disaster Relief: Is There a Requirement for a Formal Policy on Defence Forces Humanitarian Operations?

Comdt Donal Burke

This thesis answers the central research question: is there a requirement for a formal policy on Defence Forces humanitarian operations? The strategic guidance document for the Defence Forces, the White Paper on Defence, identifies humanitarian operations as one of the Defence Forces designated roles. However, there is no formal policy on how the Defence Forces can perform this humanitarian assistance and disaster relief role.

This thesis considers the complexity and challenges military's face when operating within the humanitarian space. The review of the literature identifies the increasing global incidence of natural disasters. It also demonstrates the lack of capacity of the traditional global humanitarian actors to deal with these increasing demands. This situation has pushed governments to find alternative ways to respond to emerging crises. Humanitarians have predominantly adopted a pragmatic approach to the military's involvement in the humanitarian space. This approach is shown to be driven by the necessity of the humanitarian challenges that they are facing.

A mixed methods approach was adopted for this research. Initially, data was collected in order to assess Defence Forces personnel's personal experiences of humanitarian operations. This research method provided a rich source of data and provided the foundation for the subsequent research. The second stage of data collection was the conduct of semi-structured interviews with strategic policy and decision-makers within the Defence Forces, the Department of Defence, Irish Aid and the Department of Foreign Affairs. These interviews generated a broad understanding of why there is currently no Irish policy on military humanitarian assistance and disaster relief.

The research suggests that the Defence Forces has proven its value and utility in previous humanitarian operations. However the 'ad-hoc' nature of these deployments is unlikely to change, unless the Department of Foreign Affairs, as the lead government department for humanitarian affairs, sees additional value in the Defence Forces' formal involvement.

‘Vices Bringing Security’: Is the Use of Offensive Action in UN Peace Operations a Necessary Evil?

Comdt Seán Coffey

This paper has explored the UN’s approach to the use of force, particularly offensive action, in peace operations. The central thesis is that offensive action is a ‘necessary evil’ in the contemporary operating environment of peace operations. Some Member States of the UN view offensive action as contrary to the principles of peacekeeping, and as such a ‘vice’ that must be avoided. This paper argues that the consequences of failure to act in UN peace operations are considerably more dangerous and Member States should not disregard what can be an effective tool in trying to achieve the objectives of the UN Charter.

Identifying a gap in the literature regarding the ambiguity surrounding the use of force in peace operations, this paper has sought to separate the concepts of robust peacekeeping and offensive action as practiced in MONUSCO, DRC. The key to separating these concepts is their link to the principles of peacekeeping. In the case of ‘robust’ peacekeeping, the UN should maintain the link to the principles of peacekeeping. As regards offensive action, it is argued that there should be no rigid requirement for maintaining the link with the principles of peacekeeping. As such, offensive action should be integrated into the concept of peace enforcement in order to avoid ambiguity that results in inaction by TCC’s in mission areas. To demonstrate these points, this paper examined the case of MONUSCO in DRC.

A number of conclusions have been reached that can contribute to our understanding of an ambiguous but fundamental part of UN peace operations. First, the UN should issue a clear doctrine regarding the use of force in peace operations. Second, the UN should nest mandates that use offensive action with the concept of peace enforcement. Doing otherwise contributes to ambiguity and results in inaction by TCC’s in mission areas. Thirdly, the use of military force is dependent on politics, both that of the host country and of the TCC’s. Successful use of offensive action in peace operations is dependent on both. Fourth, the protection of civilians is sufficient justification for the use of offensive action and UN Member States should be willing to embrace the use of offensive action to achieve that aim. Finally, the consequences of failure are too grave not to warrant a willingness to change.

‘The Infodemic of Disinformation’: What is The Defence Forces' Role in Mitigating the Threat of Disinformation to National Security in Ireland?

Comdt Nollag Conneely

Disinformation is a current threat to democracies, it polarises societies and creates distrust in national institutions and governments. Disinformation is part of hybrid warfare which is employed by state and non-state actors to target democratic states. Although propaganda has a long history in conflict, disinformation due to the advancements of online platforms poses a more severe and immediate threat. The recent advancements in the digital sphere means the initiators of disinformation are continuously creating novel methods to maximise its effects. As society has moved from broadcast and print media, to online media it has challenged our norms in relation to its regulation and transparency. Therefore research on methods to detect, deter and punish disinformation are in their infancy. This thesis examines the complexity of disinformation and analyses what role the Defence Forces may play in mitigating its affects.

The literature review analyses the characteristics of our democracies which facilitate disinformation such as neoliberalism and freedom of speech. It identifies that our education and awareness, regulatory and non-regulatory approaches to uphold our democratic principles have struggled to adapt to the rapid advancements in the online environment. The literature review examines the characteristics of the current state, and non-state actors who exploit this gap through disinformation as part of their strategic approach.

Research grounded in a post-positive philosophy with an overarching qualitative approach was utilised to draw upon the expertise of a number of practitioners in the area of disinformation. The utilisation of a shared understanding model of data collection in semi-structured interviews allowed for the exploration of themes and the generation of findings. These findings aimed to address the gap in the literature under the themes of education and awareness, regulatory and non-regulatory and identify the role the Defence Forces should play in supporting these. Findings and recommendations emanating from the research identify how the Defence Forces can assist a whole of government approach to maintain national security against disinformation through education and awareness, regulatory and non-regulatory responses. A recommended framework is provided to achieve this.

Westmeath and the Great War: Recruitment, Veterans, Commemoration

Comdt Michael Daly

This thesis aims to answer the primary research question: What were the perceptions throughout County Westmeath of local participation in World War I and how have these perceptions evolved over time? A research framework based on three components of recruitment, veterans, and commemoration that comprise the historical context of World War I is employed to guide this thesis.

An Arts and Humanities research approach was adopted for this study. Initially, secondary sources were consulted in order to comprehend national perceptions of the war, and as a means to compare and contrast perceptions in county Westmeath. While secondary sources examine national perceptions, they are limited in their research of regional perceptions. These research lacunae are addressed through consultation of primary sources. The archives of local newspapers have been invaluable in this regard and have been utilised to measure political climates over time and attitudes to Crown Forces in Westmeath.

The war effort was backed unstintingly in Westmeath. Prior to the war, people from Westmeath had demonstrated their support of nationalist causes through land agitations of the United Irish League. There was ardent support for John Redmond nationally and in Westmeath when he called for volunteers to join the war effort in support of Home Rule.

Throughout the course of World War I, the political climate changed dramatically in Ireland and this is reflected in Westmeath in 1918. The veterans of the war would return to an unfamiliar home, where their accomplishments were perceived as a contribution towards the British Empire. This climate would challenge official commemoration of the fatalities of the war. Popular commemoration however, in confined spaces such as the Church of Ireland, has been common practice since the end of the war. Thanks to current day inclusive thinking, popular commemoration of World War I has been extended to a wider community in Westmeath.

This thesis has been an opportunity for the author to conduct personal research of the war service of James Daly, a relative who fought and died in World War I.

The findings of this thesis highlight an important aspect of military heritage in Westmeath, and in turn the heritage of the Defence Forces. The leadership of the Defence Forces will truly understand the culture of the organisation when all aspects of our military history are acknowledged.

“There is No Influence Without a Relationship” An Enquiry in to Why Army Leadership May Be Failing to Improve the Affective Commitment of the Troops

Comdt David Foley

Previous research indicates that levels of organisational commitment are low in the Defence Forces. Most importantly, levels of ‘affective commitment’ (the component of organisational commitment associated with affection, or love, for one’s organisation) are at their lowest amongst the most junior members of the Army. It is well established that affective commitment can be influenced significantly when followers are exposed to the phenomenon of ‘authentic leadership’. Authentic leadership comprises four components: Self-awareness, relational transparency, balanced processing of information, and an internal moral perspective. This study investigated the leadership to which our troops are exposed and its correlations with their levels of affective commitment. It asked: Are Army leaders delivering the type of leadership which can positively impact levels of affective commitment? If not, why not?

Through the use of surveys, the study gathered data on how Privates, Gunners and Troopers perceived they were being led in their units. The responses were themed in alignment with the four components of authentic leadership and patterns were identified and coded. Thereafter, unit commanders were interviewed in order to establish their perspectives and opinions on the approach taken to leadership within their units and the impact which they believe it has had on their troops and their commitment.

Analysis of the findings revealed a sharp dichotomy between the type of leadership which the leaders thought was being delivered to the troops, and the type of leadership which the troops believed they were actually experiencing. The findings suggest that this phenomenon is largely due to a lack of trusting and open relationships between leaders and followers which may potentially be damaging the commitment of the troops. The study suggests a number of reasons for this, including structural barriers to the building of trust, a severe lack of self-awareness amongst leaders, and a dearth of transparency in the leader-follower relationship.

Ireland's Soft Power Potential: A Toothless Tiger?

Comdt Shane Keogh

This thesis explores the concept of soft power and examines Ireland's soft power potential, with a view to determining if this sub-set of power can be translated into a tangible influence in international relations. The term has gained prominence since it was coined in 1990 by Joseph S. Nye and is now in common usage having entered the lexicon. However, the concept can be misunderstood and over-utilised. Therefore, this thesis aims to shed some light on the subject and determine if Ireland is the soft power nation that it aspires to be.

The thesis examines soft power by framing the concept in the first instance in the wider power paradigm, by looking at some of the classical commentary on power in international relations. Thereafter, a detailed examination of soft power is conducted to extract the relevant characteristic of that concept, with a view to applying same to Ireland specifically. It explores various conceptual traits such as influence, persuasion, and attraction, before highlighting the requirement for acquiesce, in the form of willing co-option. Soft power is an elusive entity, and it is difficult to give strategic direction to, but it is real. However, is it the power that it is perceived to be?

Lest We Remember: Why Does the Irish State Not Commemorate the National Army Soldiers Who Died During The Civil War?

Comdt Stephen MacEoin

This thesis asks why the National Army Civil War dead are not commemorated by the Irish State. Identifying a distinct gap in the literature regarding the Irish Civil War in general and the commemoration of the National Army war dead in particular, the research tackles some key assumptions regarding commemoration in Ireland, challenging in particular the assertion that historic amnesia towards military service in Ireland pertains to the British Army alone.

At national level, the commemorative ceremonies for the Irish State's own war dead reflect an ambivalence about asserting the State's origins, but also highlight a tension between the different traditions in Ireland. Approaching the problem through examination of both commemorative ceremonial and some of the key surviving structures of monumental material culture in the Irish commemorative landscape, this paper finds that this ambivalence is significant, reflecting perhaps Ireland's political and strategic culture. Ireland shares some similarities with the Spanish experience of civil war commemoration, but differs substantially in how it has essentially avoided the issue.

Drawing on themes such as inclusiveness, 'good history' and ethical remembering in commemoration, this study argues that there are inconsistencies in the Irish commemorative landscape which contradict the notion of real inclusiveness. It is suggested that the amnesia that surrounds the National Army war dead lacks moral intensity and falls short of the kind of inclusive commemoration that has rightfully managed to encompass the British Army war dead not just from the Great War, but from the revolutionary period in Ireland too. The assertion of this thesis is therefore that in Ireland today, as for most of the twentieth century, the National Army soldiers who died fighting for the State are not appropriately commemorated, neither by the State, nor internally within the Defence Forces. Moreover, it would appear that the Defence Forces itself has never really developed its own internal culture of commemoration since, United Nations service aside, there is almost complete amnesia regarding its dead from the Civil War, from the Emergency period and from the Troubles.

Finally, the thesis suggests a number of pertinent questions beyond the scope of the paper but worthy of further study. One such area is comparative study with the Finnish experience of Civil War commemoration, since both countries are small, peripheral and were subject to imperial domination. Another is how Ireland's strategic culture may be reflected in the status of its military in commemorative practices, with implications for the Defence Forces and its position within the Irish State and Irish society in general.

The Human Factor: A Study on the Influence of Human Factors Training Programmes on Flight Safety Culture in The Irish Air Corps

Comdt Finbar McArdle

This thesis studies the influence of human factors training programmes on flight safety culture in the Irish Air Corps. Human factors training programmes have become a central tenet in aviation training worldwide and the Irish Air Corps currently has such programmes in place. This thesis investigates if those programmes have influenced the flight safety culture within the Irish Air Corps.

The thesis explores research areas including culture, leadership and human factors. Various types of culture are discussed in the literature review which gives the reader the opportunity to appreciate the numerous cultures that may be present within a relatively small military organisation. The thesis also explores the role of leadership in culture which has significant relevance in a hierarchical military organisation.

An interpretivist and qualitative ethnographic research methodology is utilised incorporating a mixed method approach to gather data appropriate to the research topic. This mixed method approach took the form of distributing research questionnaires to various identified cohorts within the Irish Air Corps and interviews. Interviewees comprise those in key leadership and management positions within the IAC as well as an individual who re-joined the IAC following a period employed in the commercial aviation sector.

The analysis assesses the views and beliefs of respondents and interviewees on the influence of human factors training programmes on flight safety culture and compares the views of different cohorts. The interviewing of an individual who re-joined the Irish Air Corps also provides an external perspective to the gathered data.

Findings indicate that in general human factors training programmes have positively influenced flight safety culture within the Irish Air Corps, and in some respects these programmes are seen as a cornerstone of the Irish Air Corps' flight safety culture. However some shortcomings are also identified during this research process.

The Knowing–Doing Gap: Is Defence Policy Implementation in Ireland Fit for Purpose?

Comdt Michael Murphy

Ireland is a small state on the edge of Europe, dependent on global trade for our economic well-being, and increasingly vulnerable to a broadening range of security threats that affect the world today. In 2015, the Government launched the White Paper on Defence, and set out a defence policy framework and practical vision for the next ten years, to ensure that Ireland retains credible military capabilities and can meet anticipated future threats to the state's security. Shortly thereafter, project management was adopted as the implementation strategy for the White Paper. Fast forward six years, and we find a Defence Forces that is severely understrength, and in the midst of a recruitment and retention crisis, with no sign of abatement.

This thesis considers the complexity and challenges of defence policy implementation in Ireland; and within the context that the Defence Force's primary role is to provide for the military defence of the state from armed aggression, aims to answer the primary research question: 'Is the White Paper project management implementation approach fit for purpose?'. In so doing, the research also identifies the key factors for successful defence policy implementation, and develops a comprehensive picture of how organisational change can be realised through the use of a project management approach to implement policy.

The research process, grounded in a pragmatist philosophy and shaped by a deontological approach, was utilised to draw upon the reflection and experiences of a number of key military and civilian actors in the Defence Organisation, who play a pivotal role in the White Paper project management implementation approach. The employment of a mixed-method 'Convergence Model', allowed for the exploration of deductive themes uncovered in the review of literature, and data-led inductive themes identified during the primary research process. This led to the generation of findings, which begin to address the gap in the literature regarding the implementation of defence policy, and to address the research aim. The findings emanating from the research infer that the White Paper project management implementation approach is not fully fit for purpose. Finally, the findings were correlated, and recommendations posited with regard to the development of a White Paper project management implementation approach that is fully fit for purpose.

“Harden Up” Empathy and Leadership Effectiveness Among Military Leaders in the Irish Defence Forces

Comdt Niall O’Donoghue

The preparation of leaders in the Irish Defence Forces (DF) is very much focused on the more formal aspects of the role, on formally attributed authority and hierarchy. It doesn’t include the role of empathy between leaders and subordinates. The aim of the thesis was to answer the following central research question, what is the current use of empathy, and the impact of empathy on leadership effectiveness, among military leaders in the DF. What are military leader’s perceptions of the value of empathy in leadership? How does empathy effect a relationship with their subordinates? This research will allow future military leaders develop an appreciation and understanding of the power of empathy and the impact it has on leadership in a changing military culture. The thesis will also ascertain if its current place of recognition in leadership research merits application in the domain of military leadership effectiveness doctrine.

A mixed method approach was adopted for this research. Data was gathered using semi structured elite interviews with the emphasis on an international perspective. Interviews were conducted with military leaders from the Irish, United States and New Zealand militaries with expertise in leadership training. This was followed by the creation of an empathy questionnaire using the ‘survio survey platform’ to capture the thoughts and experiences of DF military leaders of all ranks. This survey was administered to leaders from the rank of Corporal to Colonel.

The research revealed a general consensus among participants that empathy is important in leadership. The data shows that there is much understanding and practice of empathy by leaders in the DF, but it is at the individual rather than the organisation or doctrine level.

The common element across the analysis on empathy is that an understanding of empathy is key to leadership education. Early exposure to this trait creates a greater awareness and an additional tool in the leader’s armory to deal with a situation. Interviews with senior personnel from a selection of other militaries show that empathy is an integral part of leadership education in those forces. Evidence from the interviews confirm that empathy is included in both New Zealand and United State Army leadership doctrine. However from the data collected, it is evident that empathy does not form an integral part of the DF leadership education. By not including empathy in leadership education at all levels in the DF, there is a missed opportunity to enhance this valuable trait on its military leaders. The aim of this thesis is to highlight the impact empathy has on leadership effectiveness among military leaders in the DF.

Taking the Time to Think: Are Reflective Practices an Important Tool to Develop Military Leaders?

Lt Cdr Alan O'Regan

The purpose of this research is to answer the question: Are reflective practices an important tool for developing military leaders? The research is centred around the experiences and attitudes of people towards reflection, its associated skills and its utility in leadership development. The research is informed by the central theories of reflective learning and military leadership.

The research was conducted using qualitative methods. A review of the literature was conducted, establishing baseline definitions for the research, models of reflection and its application in various settings including the military. A qualitative survey of previous students of the Joint Command and Staff Course was developed and distributed. This was submitted electronically by Google Forms and was anonymised to allow participants to answer freely. Elite interviews were conducted with the Defence Forces Chief of Staff, the Commissioner of An Garda Síochána and the Defence Forces Registrar. The emphasis of the questionnaires and interviews was on experiences and attitudes towards reflection and its positives/negatives from the participants' perspectives.

Further analysis of the literature showed many positive aspects of reflection and a selection of models that could be applied as suitable to the situation at hand. Experiences and attitudes varied with all the participants, however, most had a positive experience with reflection and would recommend it be introduced earlier in career training for personnel. Some had negative, or not so positive, experiences with their reflective practice experience. This tended to be as a result of them not fully understanding the 'why' of the process, having adequate (or taking adequate) time to complete the process and a perceived lack of training/instruction in the requirements etc. The impacts on reflective practice of attitude, previous experience and factors such as time are notable, however, the personal/professional development and benefits to decision making and leadership cannot be discounted. Reflection and reflective practices are not the be-all and end-all, but they are a valuable set of tools for the personal/professional toolbox to aid and develop the military leader.

Technology and the Roadblock - When Change Meets Organisational Culture

Major Kyle Peatfield (US Army)

Today's youth may never know the frustration of riding their bicycle to the nearest video store, only to find the film they have waited to see has already been rented. The world has never been so interconnected, with immeasurable amounts of information and resources a click away. Technology consistently alters the fabric of society, offering new opportunities and often rendering the old as obsolete. Likewise, the rapid technological advancements of the twenty first century have the profound ability to alter how, where and with what the United States Army carries out its obligations. History shows us that success on the battlefield is not guaranteed to the side with the higher level of technological advancements. The competitive edge often resides with those who learn how to account for and integrate the required change that technology demands. This is perhaps more relevant now than ever before, given the embroiled nature of current global geo-political great power competitions. This study investigates how military leaders can manage technological changes within their organisations. Specifically, this research examines the utility of John Kotter's Eight-Step change management theory as a potential framework. This research cross analyses a review of contemporary change literature with data from semi-structured questionnaires from current military leaders. Four main themes emerge from this primary research: 1.) Military change is constant and technology plays a vital part, 2.) Leaders influence organisational culture which impacts change, 3.) The military relies on a leader's abilities and not a formalised process and 4.) Current military culture inhibits Kotter's Eight-Step Model. The research findings further identify the potential positive implications for institutionalising formal change management training into professional military education to equip leadership with a roadmap to managing change and further enhancing current organisational culture.

Can Facilitation be Used as an Effective Mechanism for Dealing With Industrial Relations Disputes Within The Defence Forces Conciliation and Arbitration Scheme?

Comdt Shane Quinlan

This study investigates the use of facilitation in an industrial relations context as a means to resolve conflict as part of the Defence Forces Conciliation and Arbitration scheme. A key component of a dispute resolution process is that it is seen to be open, transparent and functioning correctly. This will build confidence in the scheme. The Irish government published its Strengthening our Defence Forces – Implementation Plan, with the ultimate goal to be “an employer of choice whose members continue to serve Ireland with pride and dedication” (Government of Ireland, 2019, p. 2).

For this to come to fruition the Defence Forces must have a credible, functioning, transparent, dispute resolution mechanism, as failure to do so may result in employee dissatisfaction, where a sense of injustice may be felt by the employees. In carrying out this research semi-structured interviews were selected as the primary source of data collection. The senior office holder representing the strands of Military Management, Department of Defence and both Representative Associations were interviewed. The key findings of the research suggest that flexibility must be maintained between all parties to the C&A scheme to enter into facilitation. Secondly, an independent facilitator should be utilised in cases where both parties agree to facilitation to deal with issues at Conciliation Council. Thirdly, consideration should be given to appointing the Independent Chair of Conciliation Council, Mr Declan Morrin to fill the role of the facilitator. Fourthly, the research recognises that there are limitations in the facilitation process as a result of DPER influence. Finally, in the spirit of “Jointness” Military Management should be included as an official member of Conciliation Council. All parties to the C&A agreement acknowledge that more engagement in the process of facilitation is needed to resolve conflict as we move into the future.

Review the Impact of Overseas Service on Retention of Officers in The Irish Defence Forces

Comdt Jamie Troy

The aim of this thesis was to assess and inform to what extent overseas service has impacted on the retention of officers within the Defence Forces and identify suggestions for minimising any negative impact. Is overseas service viewed as a positive and an incentive for remaining in the organisation? Or is it viewed as an inhibitor and therefore a reason for leaving? The literature review exposed common themes in western militaries in relation to overseas service and its impact. It identified that there have been several pieces of research conducted around the area of overseas service from an Irish perspective but it also exposed two gaps. First was that all the existing research evolved around serving officers as opposed to retired officers and secondly the role of the officer's partner/spouse had not been considered.

This research thesis was based on a conceptual framework which centred on a triad of the retired officer, the partner/spouse and the child. This approach attained factual evidence as to the impact of overseas service on the retired officer's decisions to leave rather than serving officers whose answers could be considered assumptive or hypothetical. Research based on an explanatory sequential design and emanating from an interpretivist epistemological perspective and a constructionist ontological opinion facilitated a mixed methods approach. This involved qualitative semi-structured interviews with Defence Forces Human Resources and the officers' representative association and subsequently quantitative surveys with retired officers and their spouses.

The results affirmed that overseas service does play a role in officers' decision making when considering early retirement. It confirmed that overseas service has a greater impact on retirement for officers at certain stages of their lives. It also reflected that an officer's partner/spouse has a significant role to play in the decision to remain in the Defence Forces. This correlates with findings from other western militaries. This research offers suggestions which could mitigate the impact of overseas service on officers and provide necessary supports to the partner/spouse and child. This has potential for enhancing retention of officers which could be of benefit to the officers, their families and the Defence Forces.

Exploring China's Smart Power: Implications for the EU?

Lt Cdr Daniel Wall

China's rise could be the most significant political development of this century, and its leaders have advocated smart power as the means of achieving national goals. Smart power refers to the combined use of soft power and hard power strategies. In particular, this thesis emphasises that balanced smart power strategies across all areas of national power are needed to achieve long term success. The purpose of this thesis is to explore how China uses smart power to achieve national goals and establish if this power-wielding is pursuing irredentist or neo-colonial goals. There are differing opinions on how the West should respond to China's strategic culture and strategic methods. The author merges Nye's (2009) and Khomko's (2019) national power conceptions and assesses power preferences in each national power sphere. The assessment of these smart power characteristics informs implications for the European Union. A principal conclusion is that adherence to strategic culture and inflexible core values negatively affect China's smart power. China's global and regional soft power appeal has diminished due to increasing antagonism and repressiveness. Despite having a rich culture, the Chinese Communist Party's inherent unattractiveness ensures that China will struggle to develop its smart power.



Contributor Biographies

Senior Chief Petty Officer Ruairí de Barra is the Senior Enlisted Leader of the Mechanical Engineering and Naval Dockyard unit of the Irish Naval Service. An Engine Room Artificer by trade and a Marine Engineer by qualification, he has served for 24 years; including service overseas on Operations PONTUS and SOPHIA. He holds a BA in Leadership, Management and Naval Studies from CIT, and a MComm in Government and Public Policy from UCC. He is the inaugural recipient of the 'Lt Gen MJ Costello' award from An Cosantóir, and he has been twice nominated for the European Military Press Association awards. He is a regular contributor to An Cosantóir, and his work has featured in Emergency Services Ireland, Contact, and Signal magazines. An elected representative of PDFORRA for 16 years, he is currently the Assistant Secretary of the Naval Base and Dockyard district.

Jonathan Carroll is a PhD Candidate and Lecturer with the Department of History at Texas A&M University specializing in military history from the American and French Revolutions to the present day. A native of the Republic of Ireland, Jonathan graduated with a Law Degree in 2015, and completed his Master's in Military History and Strategic Studies in 2016, both from Maynooth University. In 2020 Jonathan was awarded an Advanced Certificate in International Affairs specializing in military and nuclear weapons policy from the Bush School of Government and Public Service. His research interests include military operations other than war (MOOTW) focusing on military interventions, low-intensity conflict, and counterinsurgency. His current research project, God's Work in Hell, explores the intervention in Somalia from 1992-1995 by UNOSOM/UNITAF, moving away from the current dominance of Black Hawk Down to establish what happened during this experiment in the world's first failed state. Jonathan is the 2020 recipient of the Dr. David L. Chapman '67 Research Fellowship and is the 2021 Smith Richardson Foundation Fellow in World Politics and Statecraft. Before coming to Texas, A&M Jonathan served in the Irish Reserve Defence Forces (2005-2017) as an NCO and subsequently a commissioned officer and has published several times on Irish defence policy regarding the Army Reserve.

Dr Niall Connors is a member of the 63rd Cadet Class. He served with the Defence Forces for over 27 years, retiring from the Air Corps with the rank of Lieutenant-Colonel. In addition to the normal Command and Staff appointments, he was both a type-rating instructor (TRI) and type-rating examiner (TRE) on a number of fixed-wing aircraft types and also completed overseas tours in Afghanistan and Cote d'Ivoire. He is currently an Assistant Director within the Safety Regulation Division of the Irish Aviation Authority. From a broader education perspective Niall is a Doctoral graduate of the University of Nottingham, holds BSc and MA degrees in leadership disciplines and a post-graduate diploma in Aviation Leasing and Finance from the Law Society of Ireland. He has also completed the 'Strategic Management of Regulatory and Enforcement Agencies' programme at the Harvard Kennedy School, the 'Managing Organisational Risk' programme at the London School of Economics & Political Science (LSE), and the National Transportation Safety Board's (NTSB) Air Accident Investigator's programme at the George Washington University in Washington DC.

Dr Brendan Flynn is a lecturer at the School of Political Science and Sociology, NUI, Galway. His research interests include maritime security and defence and security studies more broadly. He teaches European politics and Ocean and Marine politics and has lectured at the Irish Defence Force's Joint Senior Command and Staff Course. He was a co-editor of the 2018 Defence Forces Review. Recent publications include Flynn, Brendan. "The coming high-tech Sino-American War at Sea? Naval Guns, Technology hybridity and the "Shock of the Old"." *Defence Studies* (2021): 1-22, and Flynn, Brendan (2021) "Looking at Baltic Security From Beyond the BSR and NATO", pp.35-70 in Nikers, Olevs and Otto Tabuns (eds) *Baltic Sea Security: Regional and Sectoral Perspectives*. Washington, D.C.: Jamestown Foundation. Livia Margna is currently specialising in conflict studies within the framework of a double degree programme in Security, Intelligence and Strategic Studies taking place at Dublin City University, Glasgow University and Charles University Prague. In her master thesis, she analyses the role of the media in constructing Islamist and right-wing extremist threats. Her research interest in the nexus both between language and political violence and between the domains of hard and soft security goes back to her previous academic and professional experience: Before analysing security threats for the Swiss Embassy in Indonesia and the Swiss contingent in NATO's KFOR peacekeeping mission, she majored in political science with a focus on political philosophy and minored in Arabic and German literature.

Comdt Conor King is an Army Officer with over 23 years' service in the Defence Forces. He has been the RACO General Secretary since 01 January 2019. His last position prior to his secondment with RACO was Officer Commanding 1st Mechanised Infantry Company, Defence Forces Training Centre (DFTC), with responsibility for the fleet of Infantry Armoured Personnel Carriers (APCs) and the stewardship of the ongoing MOWAG Maintenance and Mid-life upgrade project. He has served in a variety of appointments, at Unit, Formation and DFHQ level as well as overseas in missions in the Balkans, the Middle East and Africa. Sample appointments include Resource Management Analyst - Strategic Planning Branch; Senior Auditor - Office of the Comptroller and Auditor General (while on secondment), and more recently, Staff Officer G3/7 (Operations, Training & Education), DFTC HQ, and a range of unit level appointments in the 12 Infantry Battalion, from Platoon Commander to Company Commander. His Academic qualifications include a BComm with German (NUI Galway), a Master of Business Studies Degree in Human Resource Management (University of Limerick) and a MSc in Business (Leadership & Management Practice) from UCD Michael Smurfit Graduate Business School.

Lt Col Ray Martin is Chief Air Traffic Services Officer in the Irish Air Corps (IAC), responsible for air traffic services and airspace matters. After commissioning he completed training as an air traffic controller in the IAC. His military training includes the Junior Command and Staff Course and the Senior Command and Staff Course as well as Aerospace Battle Management in the UK School of Aerospace Battle Management and Theatre Air Control at the Turkish Air Defence School. He is closely involved in civil military cooperation and participated in a number of joint projects including radar systems implementation, introduction of Point Merge at Dublin Airport, UK-Ireland Dynamic Sectorisation Operational Trials and UK-Ireland-Norway Transition Altitude project. He is a member of the national Aviation Meteorology Automation Project (AMAP) steering board. Internationally, he is Vice-chairman of the EUROCONTROL Military ATM Board. In 2021, he was appointed by the EU Commission as one of the two European military members of the European ATM Network Management Board. In 2021 he was appointed as part of the inaugural chair team of the European Network Directors of Technology

Group. A graduate of University College, Galway and Trinity College, Dublin, he holds an MA from Maynooth University. He is an Associate Lecturer with Carlow Institute of Technology where he lectures in several aviation related subjects.

Dr James McCafferty DSM, PhD served in cavalry units with 34, 36 & 39 Irish Battalions. He served with the United Nations Operation in the Congo (ONUC), and subsequently completed five tours of duty with the United Nations Peacekeeping Force in Cyprus (UNFICYP). He was conferred PhD at Maynooth University in 2014 for his thesis 'Political and military aspects of the Irish Army's service with UN forces in the Congo 1960-64' a copy of which is lodged in Military Archives.

Capt Tadhg McCarthy joined the Defence Forces in 2007. He is a member of the 84th Cadet Class and was commissioned in January 2009 to the 27th Infantry Battalion in Dundalk. In September 2010, he commenced third level education in Dublin Institute of Technology where he studied Geomatics mapping and surveying. He graduated in 2014 with a Bachelor of Science. He has served in a variety of military appointments both at home and overseas. He has completed three overseas deployments: two deployments with the United Nations Interim Force in Lebanon (UNIFIL) and one deployment, with EUFOR Operation Althea in Bosnia and Herzegovina. Currently, he is a student on the 3rd Land Command & Staff Course in the Military College, Defence Forces Training Centre.

Comdt Stephen Mac Eoin joined the Army as an Officer Cadet in 1999. He was awarded a double First in French and History from NUI, Galway (2006) and later an MA in Archives Management from UCD (2008). He was awarded a distinction on the 3rd Joint Command Course (2021) and an MA (1:1) in Leadership, Management and Defence Studies (Maynooth), where he received a prize for the best MA thesis. Alongside his military career, Commandant Mac Eoin has been actively involved in heritage and commemoration projects within the Defence Forces since 2007, most recently serving as Officer in Charge (Director) of the Military Archives. A member of the Government's Expert Advisory Group on Commemorations and the National Archives Advisory Council, he has led the delivery of several key archival projects informing recent historiography, including notably the digitisation of the Bureau of Military History (1913-1921) Collection. From 2015 to 2016, he was seconded to the Ireland 2016 team in the then Department of Arts, Heritage, and the Gaeltacht as the Defence Forces liaison officer. He is a regular contributor to TV and radio documentaries and has been a spokesperson for Defence Forces heritage and commemoration matters for many years. Commandant Mac Eoin has served in a wide range of command and staff appointments, including operations officer in the DFTC and class officer of the 94th Cadet Class. He has completed four tours of duty overseas as a peacekeeper, in Kosovo; Chad; Lebanon and the Congo and served for one year as exchange instructor at the French St Cyr Military Academy. He is currently the deputy commanding officer of the 3rd Infantry Battalion, Kilkenny. He is married and has four children.

Lt Col Timothy O'Brien is the Executive Officer and OIC of Planning and Capabilities Section in the Directorate of Operations and Plans, Defence Forces HQ. As OIC Planning and Capabilities Section his responsibilities include the development of contingency plans and operational orders for Aid to the Civil Power and Aid to the Civil Authority operations. In addition, he is a member of both the Government Task Force and National Steering Group for Major Emergency Management as well as a member of the National Oversight Group for COVID 19 related excess fatalities. His previous appointments as a Lieutenant Colonel include School Commandant of UNTSI, OC 7 Infantry Battalion and Cathal Brugha Barracks and Operations Officer, 2 Brigade.

Neil Richardson holds a master's degree in Military History and Strategic Studies from Maynooth University, having previously studied Philosophy in University College Dublin. He is employed as the General Secretary of the Reserve Defence Forces Representative Association and is also a serving officer in the Irish Army Reserve. Neil is the author of three military history publications; *A Coward If I Return, A Hero If I Fall: Stories of Irishmen in World War I* (2010) – which won the Argosy Irish Non-Fiction Book of the Year award at the 2010 Irish Book Awards – *Dark Times, Decent Men: Stories of Irishmen in World War II* (2012), and *According to Their Lights: Stories of Irishmen in the British Army, Easter 1916* (2015). Neil has lectured nationally and internationally about Irish involvement in the First World War, and has made several national television and radio appearances, including as consultant historian on RTE television's First World War centenary programme 'My Great War.'

Dr Andy Scollick is a consultant in the field of European defence and security. He specialises in systems thinking and the development of resilience-based approaches. His focus is on the interconnections between climate change and defence, the role of emerging and disruptive technologies including uncrewed vehicles, strategic foresight, and the Irish Defence Forces. Between 2014 and 2019, he worked as a defence policy analyst and advisor to government, military and civil society actors in Ukraine and other European countries. For 22 years prior to that, he was an advocate, policy analyst and consultant in the field of European marine sustainability and maritime policy, working for national, EU and international NGOs. Andy holds a PhD in sustainability science, complex adaptive systems theory, and maritime governance from University College Cork where he also worked as an EU project researcher and lecturer.

Colonel Ronald Ti (Australian Army Reserve) is a Colonel in the Australian Army. He transferred from full-time to reserve service in July 2020 and has recently completed an MA in Military History and Strategic Studies at Maynooth University. He is a recent (2020) graduate of Higher Command Studies Course at the Baltic Defence College in Estonia. Col Ti is a military logistician who enlisted in the Australian Army in 1994. His career has combined periods of both full and part time service, taking advantage of the organisation's flexible employment policies to explore options both within and outside the ADF. His service has included several operational deployments as well as overseas postings and exchanges. He has a personal and professional interest in Reserve policy, dating from an earlier position in the Reserve Personnel Agency. In 2021, Col Ti will commence a PhD researching military logistic resilience at the War Studies Department of Kings College London. He

is also currently a full-time Lecturer in Joint Operations in the Department of Military Studies at the Baltic Defence College, Tartu, Estonia.

Lt Cdr Ferghal Tubridy was commissioned into the Naval Service in 2003 as an Electrical Engineering Officer. In 2005, he completed the Communication Information Systems Young Officer Course in the Defence Force Training Center. He has served in various appointments in Naval Operations Command, Naval Support Command, and Naval College. He has also served as the Electrical Engineering Officer onboard the Flagship L.E Eithne. He holds a Bachelor of Engineering Degree in Electronic Engineering from MTU and a Master of Science Degree in Forensic Computing and Cyber Crime from UCD. He is also a graduate of the Command and Staff School in 2020 and holds a Master of Arts in Leadership, Management and Defence Studies from NUIM. He is currently the OIC Electrical/Electronic Section, Weapons Electrical Unit in the Naval Service.

The DISARM Arctical (Page 136) was written by an Ordnance Technical Officer (Comdt) as the DISARM project team lead. The project team was staffed in addition by the students of the 53rd Trainee Technician course. The identities of the author and team members are withheld for operational security reasons.

MACHINE MADE BREAD

