2. Developments in key aspects of the Security Environment since the White Paper on Defence

2.1   Introduction

The White Paper on Defence 2015 contained an assessment of the Security Environment, which provided the context for the policy approach set out. As part of this White Paper Update, the Security Environment assessment has been updated in order to provide an overview of key developments and, in particular, to note changes that have occurred since the White Paper was published.

In 2015, the White Paper identified the increasingly blurred boundaries between internal and external security and highlighted that events in other countries can have significant reverberations in Ireland. As such, a broader view of national security was taken in the assessment of the Security Environment and nothing has changed in the meantime to merit any narrowing of this view. Accordingly, in this review, which is a key element of this White Paper Update, the broad security threats facing the State have been re-considered in the context of changes and developments since 2015, internationally and domestically, that may influence or have a bearing on the defence policy response in the years ahead. As a whole of government approach, this review provides a common perspective for all elements of government involved in the security of the State.

This review of the 2015 assessment is supported by information, including operational intelligence and situational awareness, shared by a range of a government departments and agencies which have key responsibilities in areas of national and international security. A comprehensive cross-sectoral analysis of factual, relevant and reliable information has been a key part of drawing this review together into one overall updated assessment of the current and future security environment. Based on available information, there has been a requirement to identify those areas which require continuing attention and those which for a variety of reasons may be either of greater significance or have reduced in importance.

Security assessment brings with it the risk of over or under estimating the significance of particular factors. In addition, the connectivity over time of different threats or events is not always straightforward. Human behaviour at inter-state, state, agency and individual level combine to shape the world in which we live. Perceptions, of real as well as possible or assumed threats, combine to create the overall picture. Capturing this very complex picture will always be challenging given that there will always be a degree of subjectivity involved. Moreover, as noted in 2015, the future security environment cannot be predicted with certainty and there will always be unknown future threats. What may seem remote today can quickly emerge as an immediate threat to the security of the State and its security interests and, as such, gaps in our knowledge can often emerge in the form of strategic shocks that have system-wide or transnational impact. It is important therefore that this updated assessment of the security environment is considered with the reality of that uncertainty in mind.

2.2   Developments in the Global and Regional Security Environment

2.2.1   Overarching Nature of Conflict

It is clear that the nature of conflict is continuing to evolve, but also that it has become increasingly complex. This is not to say that the overall magnitude of the threat level faced here in Ireland is necessarily greater than it was in 2015 but it is clear that new challenges, some unforeseen, are emerging globally with increasing evidence of non-conventional approaches being taken, and particularly so at state level. The security environment, therefore, must be assessed in the context of its level of stability and the varying way that threats may manifest themselves. These continue to evolve and an element of the security picture is to identify vulnerabilities within this evolving picture. For example, the increased blurring of the lines between inter-state conflict, terrorism and criminal activity, particularly in the cyber domain, is now commonly characterised as hybrid warfare whereby state and non-state actors may use conventional and high-end asymmetric methods concurrently across the land, sea, air, cyber and space domains.

In 2015, it was noted that conflict zones and fragile states are breeding grounds for terrorism, extremism and cross-border organised crime. Instability caused by fragile states continues to

have the potential to provoke broader conflicts while the organised crime landscape in the EU is fundamentally affected by the geopolitical situation in and around Europe. The impact of conflicts on the periphery of the EU in Libya, Syria and Ukraine on serious and organised crime in the EU has already materialised.

Conflict continues to involve a range of transnational, state, group and individual participants who operate at global, regional and local levels both collectively and individually. In some conflicts, there is concurrent inter-communal violence, terrorism, insurgency and criminality. In recent years, particularly in Syria and Yemen, conflicts have led to huge numbers of civilian casualties and caused catastrophic humanitarian crises. Since 2015, the use, by both state and non-state actors, of explosive weapons in populated areas has become a growing challenge. The use of such weapons in populated areas of Syria and Yemen has clearly been with a view to making certain urban locations uninhabitable. The devastating effect of this on civilians is not only with regard to the immediate impact of a sustained bombardment from explosive weapons, but also the longer term and secondary effects from the destruction of critical infrastructure and vital services. Such levels of destruction impede the economic, social and environmental development of countries affected, long after conflict has ended.

As such, this represents a further dimension to the growing threat of ongoing regional instability in affected areas. This has an impact on international crisis management operations, including Irish participation in UN missions operating in these regions, and the ability of peacekeeping forces to undertake the mandate assigned to them. It also has an adverse impact in the operation of non-governmental organisations (NGOs), development agencies and humanitarian workers in these conflict zones.

2.2.2   The Hybrid Sphere

Of particular concern to Ireland is the fact that hybrid activities have now become a significant feature of the European security environment. The fact that the threats faced are increasingly taking non-conventional forms is now a major security challenge. These are frequently state led attacks and can be physical, such as new forms of terrorism, digital, through complex cyber-attacks, or more subtle and aimed at the coercive application of pressure seeking to undermine core values, such as human dignity, freedom and democracy.

While definitions of hybrid threats vary, and need to remain flexible to respond to their evolving nature, the concept captures the mixture of coercive and subversive activity, conventional and unconventional methods (i.e. diplomatic, military, economic, technological), which can be used in a coordinated manner by state or non-state actors to achieve specific objectives, while remaining below the threshold of formally declared warfare.

The range of hybrid methods and activities is wide, with growing concerns over elections being interfered with, disinformation campaigns, media manipulation, malicious cyber activities and perpetrators of hybrid acts trying to radicalise vulnerable members of society as their proxy actors. Concerns also abound around state led attacks on critical infrastructure, economic and trade-related blackmail, and the undermining of international institutions.

Where such activity occurs, there is usually an emphasis on exploiting the vulnerabilities of the target and on generating ambiguity to hinder decision-making processes. Hybrid strategies are integrated, synchronised, and tailored to achieving a specific effect according to the target. They involve centralised implementation or an effective coordination between different levels of decision making. Hybrid attacks can be deniable and use a combination of covert and overt means. The tactics are intentionally designed to create confusion and blur the distinction between peace and war, making it difficult for the targets to respond in a timely and efficient manner.

The level of hybrid activity is certainly increasing, as is Ireland's response to it. As such, it is important to avoid any potential complacency about how Ireland, as an EU member state, may be the target of activity in this area, and particularly so if it is aimed at de-stabilising the EU.

2.2.3   Cyber Security

In 2015, the White Paper noted that advances in technology will continue to present both opportunities and threats. Societies are increasingly reliant on technology which underpins basic functioning of many aspects of states, including critical national infrastructure. Our increased reliance on technology in all facets of our lives and business processes has created

a potential vulnerability that can be exploited by those who have the means and knowledge to do so. As such, cyber security has become an increasingly mainstream concern in the last number of years due to some very public incidents. These incidents have provided a very visible reminder of the extent to which modern societies and economies depend on network and information systems, including remote management, and of the vulnerability of these to attack from a wide range of threat actors, ranging from states to criminals of various scales. These seek to infiltrate and manipulate these systems towards their own ends and to gather sensitive data. Moreover, the diverse nature of the incidents have shown how threat actors in this space can use and develop attacks in combination with other tools, including military force, disinformation and economic means – described above as hybrid activity. As such, the complex and dynamic nature of security threats, vulnerabilities and consequences in the cyber sphere are becoming increasingly clear - risks arise without regard for geography, and in ways that challenge the abilities of states to detect and respond appropriately.

Cyber security is now central to the global security environment, and has given rise to a diverse set of responses from states and international organisations. Many of these stress the need for greater resilience of critical systems, as well as secure and rapid threat and vulnerability information exchange. Allied to this is the need for coordinated national incident response capacity and enhanced international efforts to institute new norms for state behaviour online, and to address cyber crime.

Aspects that should not be overlooked in this analysis are developments in the area of artificial intelligence and the fact that technological advancements are becoming a significant aid, at state level, to military organisations, in terms of effective command and control, and to law enforcement authorities in the fight against serious and organised crime. This includes the use of advanced digital forensics tools.

2.2.4   *Terrorism*
Terrorism is one of the most profound challenges of our time, but defining terrorism is not straightforward as there is no single internationally accepted definition. The University of Maryland based authors of the Global Terrorism Database, however, define terrorism as "the

threatened or actual use of illegal force and violence by a non-state actor to attain a political, economic, religious, or social goal through fear, coercion, or intimidation."[1]

No country is immune from the threat of terrorism, and no country can address the challenge alone. As a basic headline indicator of the trend in terms of recorded terrorist incidents worldwide, the situation is that in 2017 there were a total of 10,900 separate incidents, compared to 13,587 in 2016 and 14,965 in 2015. In European terms, the number of such incidents fell to 401 in 2017, from 407 in 2016 and 1,017 in 2015.[2]

Despite this overall downward trend in the number of incidents, member states of the EU have been the target of repeated terror attacks since 2015. In 2018, a total of 129 foiled, failed and completed terrorist attacks were reported by nine EU member states and these resulted in the deaths of 13 victims. The number of attacks represented a decrease compared to 2017 (205 terrorist attacks causing 68 deaths) and, a sharp spike in 2017 excepted, is in line with an overall downward trend that started in 2014. While "ethno-nationalists" and "separatists" continue to account for the largest proportion of attacks, all 13 fatalities in 2018 were as a result of so-called "jihadist terrorist attacks". In its most recent EU Terrorism Situation and Trend Report (2019), EUROPOL observed that all such attacks in 2018 were committed by individuals acting alone and targeted civilians and symbols of authority. EUROPOL commented that often the motivation of the perpetrator and the links to other radicalised individuals or terrorist groups remained unclear and, furthermore, mental health issues contributed to the complexity of the phenomenon.[3]

According to the UN Secretary General's April 2018 Report on Activities of the UN system in implementing the UN Global Counter-Terrorism Strategy: "The global fight against terrorism is currently entering a new phase in which the international community has to confront several parallel and interlinked global terror networks." Investigations into the terrorist attacks in Paris and Brussels, carried out in November 2015 and March 2016 respectively, uncovered the involvement of some of the perpetrators in different types of serious and

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[1] Global Terrorism Database Codebook: Inclusion Criteria and Variables, University of Maryland, 2018.
[2] Global Terrorism Database, University of Maryland, 2018.
[3] EUROPOL, EU Terrorism Situation and Trend Report, 2019.

organised crime including drugs and firearms trafficking. The profit-driven nature of organised crime activities is in many cases incompatible with terrorist acts, given the subsequent media and law enforcement attention given to the perpetrators. However, the evidence of a cross-over between terrorism and organised crime is a growing cause of concern given the fast pace of radicalisation, access to logistics and infrastructure associated with organised crime, and the use of organised crime methods as a means to finance future terrorism related activities.

Following the rise of Islamic State in Iraq and the Levant (ISIL) after 2014, the international community has faced a continuously transforming global terrorism landscape. Challenges to countering terrorism are compounded by rapid developments in closed communications technologies as terrorist groups quickly adapt and make use of these developments to facilitate their financing, recruitment and propaganda. Experience has also shown that the actions of "lone actors" using rudimentary means can also cause significant deaths and injuries. Perpetrators of such attacks are frequently unconnected to a centralised terrorist network, but have been self-radicalised through internet and social media based propaganda that is targeted at those vulnerable to influence as a result of racism, social exclusion, mental health and economic difficulties.

2.2.5   *Proliferation of Weapons*

The illegal and unregulated distribution of conventional weapons, including small arms, continues to exacerbate conflicts in many regions of the world, including Africa. Such weapons empower insurgents, extremists, pirates and criminal gangs, which can in turn undermine the governance structures of fragile states. This was identified as an issue in 2015 and remains a key security challenge.

Concern also continues to remain about the proliferation of weapons of mass destruction and missile technology. Thousands of such weapons exist and the risks increase where the possibility arises that state authorities may lose control of parts of their missile and munitions arsenal.

This concern increases where there is potential for terrorist groups to obtain Chemical, Biological, Radiological and Nuclear (CBRN) weapons. Controlling access to materials and

technology, from which such weapons could be manufactured, is a key security issue. Recent years have seen a marked increase in the number of incidents where chemical weapons have been used, in particular, since 2012. Their use has seriously threatened to undermine the universal prohibition on the use of chemical weapons.

Furthermore, the use of chemical weapons, in an entirely civilian context, in the UK last year, has served to demonstrate their lethal nature as well as the need to bolster a strong rules based system that serves as a deterrent to any state that may actively facilitate or surreptitiously countenance the use of such a deadly form of military technology. The strong and united response of the international community, including Ireland, was an important and clear signal of the level of shared abhorrence at the use of such chemical weapons in those and any other circumstances.

In recent years, there has been a rapid advancement of Unmanned Aerial Vehicle (UAV) technology and the use of armed or strike enabled UAVs has become increasingly widespread. The development and use of Lethal Autonomous Weapons Systems by some states, which are putting increasingly significant resources into this technology, has also grown. The development of these systems brings a new dimension to the area of weapons proliferation and potential usage.

2.2.6   Espionage

There is increasing evidence internationally of the threat that espionage presents to the sovereignty, national security and economic well-being of states. Espionage can involve the presence of agents and proxies operating in or against a target state, including citizens who are unaware of the true purpose of the activity and their role in it. It is also increasingly intertwined with activity in the hybrid and cyber domains. This can encompass attempts to influence policy to the disadvantage of the target state, to obtain confidential industrial secrets and intellectual property, and to source technology (with potential use for military purposes) as well as obtain "dual-use goods"[4] outright. Efforts by states to acquire restricted materials or knowledge are quite sophisticated, often with several layers of deception in

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[4] Materials with an innocent application but which could be put to possible military use.

order to camouflage the intended end user and purpose, and to circumvent controls such as sanctions, treaties, and international protocols.

In October 2018, the Dutch Government made public details of an attempted cyber-attack, in April 2018, by the Russian GRU[5] on the Organisation for the Prevention of Chemical Weapons (OPCW) which is based in The Hague. The Dutch authorities provided specific details of the operation carried out and identification of the four individuals involved as GRU officers was confirmed with supporting information obtained from phones and a laptop seized. The four entered the Netherlands on Russian diplomatic passports. At the time of the attempted attack, the OPCW was investigating the poisoning of Sergei Skripal and his daughter in Salisbury (UK). It was also examining an alleged chemical attack in Syria by Russian-backed Syrian forces. The Russian authorities deny any knowledge or involvement.

2.2.7   *Transnational Organised Crime*

The UN Convention against Transnational Organised Crime provides an internationally shared definition of an organised criminal group as "a group of three or more persons existing over a period of time acting in concert with the aim of committing crimes for financial or material benefit." Increasingly, however, geography is no longer a limiting factor in today's security environment and organised crime networks are operating on a transnational basis exploiting free movement, free trade zones and well-developed transport infrastructure in the EU. It is understood that there are now more than 5,000 such groups operating internationally who are under investigation in the EU. Most of these are active in more than three countries and an increasing number are involved in more than one criminal activity. Such activities include drug smuggling, smuggling of migrants, human trafficking, money laundering and cybercrime as well as counterfeiting activities. As noted in 2015, while organised crime is a global threat, its effects can be felt locally and are a cause of significant suffering throughout the world, including Ireland.

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[5] Despite a name change in 2010, the Russian military intelligence service is still commonly known by the Russian acronym GRU (which stands for Main Intelligence Directorate).

2.2.8   Climate Change

Warming of the climate system is unequivocal. The fifth assessment report of the UN Intergovernmental Panel on Climate Change (IPCC, 2013) concluded that there is at least a 95% probability that the global warming of the last 50 years is a result of human activity. The Paris Agreement of December 2015 committed 195 countries, including Ireland, to the goal of limiting the increase in global temperature to well below 2°C above pre-industrial levels. However, it is important to note that even if this goal is met, the impact of climate change will continue over the coming decades because of the delayed impacts of past and current emissions.

The IPCC predicts more frequent hot and less frequent cold temperature extremes over most land areas. According to the IPCC, the impacts of climate change will include a higher risk of flooding and changes to crop yields. Global mean sea level is expected to continue to rise during the 21st century due to increased ocean warming and increased loss of mass from glaciers and ice sheets which will contribute to upward trends in extreme coastal high water levels in the future.

Climate change is likely to result in increasingly violent weather patterns, drought and natural disasters. This could aggravate existing water and food shortages and increase the likelihood of regional instability, with resultant humanitarian and economic crises. Population growth and migration flows will also be influenced by the effects of climate change. Globally, climate change will see increased competition for scarce resources and may have devastating consequences for many states on Europe's periphery. In Europe, according to the European Environment Agency (EEA), climate change can be seen as a threat multiplier that may exacerbate existing trends, tensions and instability both within Europe and across European borders. The Agency also notes that recent research suggests that an unprecedented drought in the southern Mediterranean has been one of many drivers shaping local conflicts that triggered the Syrian civil war, which ultimately led to the substantial increase in refugee flows to Europe. The impacts of climate change on the Arctic region illustrate the multiple

interactions between human security and geopolitical risks, even though they are not currently associated with direct geopolitical conflicts.[6]

2.2.9   Migration

While migration has long been a global issue, it has struggled to find a place on the UN agenda until recently. The 2030 Agenda for Sustainable Development was a landmark in acknowledging the "positive contribution of migrants" and setting an express target for safe, orderly and regular migration. Following Ireland's successful stewardship of the process leading to the adoption of the 2030 Agenda and the Sustainable Development Goals in 2015, Ireland co-facilitated the negotiations leading to agreement on the outcome for the UN Summit held in September 2016 to address large movements of refugees and migrants. At this Summit, governments adopted the New York Declaration for Refugees and Migrants.

This Declaration contained a series of commitments to address issues specific to large numbers of people on the move, including a Comprehensive Refugee Response Framework and created parallel processes for two Global Compacts; one on Refugees and one on Safe, Orderly and Regular Migration.

The 2015 White Paper noted that Irish people have a long history of migrating and have contributed positively to the growth and development of many countries. Ireland also continues to benefit from the positive contribution made by people who have come from abroad and settled in this State. Free movement of people between member states under the EU treaties has also contributed positively to economic development.

Inward migration to the EU arises for various reasons including as a response to political conflict, environmental or economic pressures. Changes observed since 2015 include the fact that fewer people are now migrating as a result of conflict and, as such, the context has changed somewhat. Compared to 2015, there has been a substantial decrease in numbers of migrants detected entering the EU but large scale migration, both regular and irregular, will continue to raise significant challenges for host countries and for the EU more generally.

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[6] EEA Report No 1/2017 – Climate change, impacts and vulnerability in Europe 2016.

These challenges include how to ensure a fairer and more equitable distribution of migrants across the Union, how this may impact on existing policies and structures including the Common European Asylum System and Schengen, concerns about economic impacts, and the rise of far-right and anti-immigration movements in parts of the EU that seek to generate and exploit disproportionate anxieties about the potential impact of inward migration on domestic security.

As noted in 2015, according to the UN Office on Drugs and Crime, the smuggling of migrants is a highly profitable business in which criminals enjoy low risk of detection and punishment.[7] As a result, the crime is becoming increasingly attractive to criminals and organised crime syndicates in particular. Furthermore, the distinction between the smuggling of migrants and human trafficking is often very subtle and sometimes they overlap. The migration crisis has resulted in an increase in the number of potential victims of human trafficking. In recent years, the traditional human trafficking flow from Eastern Europe to Western Europe has been replaced by multiple and diverse flows all over the EU. A growing number of vulnerable adults and unaccompanied minors in the EU are likely to be targeted by traffickers who, facilitated by weak governance, work closely with transnational organised criminal groups.

2.2.10 Globalisation

As noted in 2015, as a small open economy, Ireland benefits from globalisation and is more closely linked and inter-dependent on others than ever before. At the same time, it was stated that Ireland is exposed to all of the dangers, uncertainties and challenges in the wider defence and security environment that accompany globalisation. Since then, the challenges and uncertainties have increased and become more complex. To an extent not observed in 2015, the UN led framework of multilateral cooperation and collective security, globally and in Europe, is now at risk. This has implications across the spectrum but particularly for climate, trade and prosperity, and for security. There are indications that developing trade disputes could have damaging repercussions for global trade and investment flows overseen by the World Trade Organisation; doing further harm to other states' faith in global cooperation and

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[7] http://www.unodc.org/unodc/en/human-trafficking/migrant-smuggling-a-deadly-business.html

multilateralism. Such a polarisation, were it to become widespread, would serve to raise concerns about global and regional security.

Nevertheless, a more positive consequence of the shift on the part of some away from multilateral cooperation and collective security has been a re-doubling of effort on the part of Ireland and others to preserve and, where necessary, reform approaches to international cooperation. Strong continuing commitments on the part of the EU and the bulk of the international community to the Paris Agreement on climate change and the Iran nuclear deal are examples of this.

Ireland is highly dependent on external trade links and is reliant on the unimpeded movement of goods for our economic well-being. Any potential disruption or change to this pattern of movement of goods or services is a concern for Irish businesses seeking to access new and existing markets. In 2015, it was noted that as an island nation, Ireland is highly reliant on sea transport routes, particularly via the United Kingdom, for the import and export of goods and for essential supplies. The high reliance on these transport links presents a potential vulnerability that has been amplified by the UK's decision to leave the EU.

2.2.11 EU Global Strategy on Foreign and Security Policy

In 2015, the White Paper noted that a new European Foreign and Security Policy Strategy may give rise to different focal points, requirements and responses, and that Ireland will contribute to the development of these strategies and policies in order to ensure that our values and interests are fully considered.

Subsequently, the EU's Global Strategy on Foreign and Security Policy was adopted in June 2016. Its five priority themes are (i) security and defence, (ii) building resilience of states and societies, (iii) an integrated approach to conflicts and crises, (iv) support for cooperative regional orders and (v) supporting global governance. The Strategy has a positive focus on the Middle East Peace Process, disarmament, gender, the UN and importance of multilateralism more generally.

Since its adoption, implementation has focused on security and defence, resilience and the integrated approach. A priority in the time ahead will be the EU's work in support of global governance, multilateralism and the UN. Strengthening the EU's peace-keeping and crisis-management capacity in support of the UN will be an integral part of implementing the Global Strategy and will be done through the further development of the CSDP, as defined in the EU Treaties, including through greater cooperation and coordination between military and civilian CSDP Missions and Operations.

2.2.12 Economic Developments

The 2015 White Paper observed that the balance of economic power is expected to shift over the next half century with those countries with emerging growing economies accounting for an ever-increasing share of economic output. The Organisation for Economic Co-operation and Development (OECD) forecasts that a consequence of the rising importance of emerging markets in the world economy, notably China and India, but also Indonesia, is that the centre of gravity of world economic activity will continue to move from North America and Europe toward Asia.[8] Running alongside this economic shift is the rise of Asian, and in particular Chinese, influence in other regions. With a population of 1.3 billion, China is the world's second largest economy and is increasingly playing an important and influential role in development and in the global economy. China has been the largest single contributor to world growth since the global financial crisis of 2008.[9]

Growth in defence spending has continued in some Asian states, which have expanded their military capabilities. As noted in 2015, the associated re-balancing of global military forces can increase the risks associated with existing inter-state rivalries, including those relating to contested territories. While the Paper noted that, in the period 2006 to 2012, defence spending across EU member states had declined in real terms, the latest Eurostat figures indicate that this trend stabilised in 2015, 2016 and 2017.[10] In noting this trend, security is dependent on a variety of elements of which appropriate levels of defence are relevant. In considering threats, the defence component sits within a broader international framework

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[8] OECD Economic Policy Paper, 12 July 2018, The Long View: Scenarios for the World Economy to 2060
[9] https://www.worldbank.org/en/country/china/overview#2
[10] https://ec.europa.eu/eurostat/statistics-explained/index.php/Government_expenditure_on_defence

which should seek to reinforce security overall and avoid any suggestion of an approach which goes beyond protection of the international order and relevant interests.

2.2.13 Emergencies and Natural Disasters

As was noted in 2015, not all emergencies constitute a national security concern and are well provided for within emergency planning fora. However, emergencies can occur that have the potential to cause serious and protracted disruption to the functioning of a state and adversely affect its citizens. These could include severe weather events, pandemics or other natural disasters.

The Sendai Framework for Disaster Risk Reduction 2015-2030, was adopted by 187 states, including Ireland, at the conclusion of the Third UN World Conference on Disaster Risk Reduction (DRR), held in Sendai, Japan in March 2015. The Sendai Framework is the global blueprint for disaster risk reduction up to 2030.

2.2.14 Energy Security

EU countries' dependency on energy imports increased from 40% of gross energy consumption in the 1980s to reach 55.1% by 2017.[11] Projections indicate that the EU will import 77% of its energy by 2030. Europe will therefore become increasingly dependent on the rest of the world for its energy supplies – with much of its oil being sourced from Europe's surrounding arc of instability from North and West Africa to the Middle East and Eurasia. As noted in 2015, uninterrupted energy supplies are a key factor in both EU and Irish security, and require stable, well-functioning suppliers. Ensuring the stability of these states may require long-term international assistance. Changing global energy dynamics, and threats to the EU's energy security, have given greater impetus to the development of the EU's energy diplomacy and to efforts to strengthen European energy security. The publication of the EU Energy Security Strategy in May 2014 is an important development in this regard.

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[11] https://ec.europa.eu/eurostat/statistics-explained/index.php?title=Energy_production_and_imports#More_than_half_of_EU-28_energy_needs_are_covered_by_imports

2.2.15 Resource Scarcity

Insecurity in the global food chain will continue to impact on all states, and not just on those that directly experience climate change. Feeding the Earth's population in a context of rapid urbanisation and changing consumption preferences will require an increase of up to 70% in global food production by 2050, at a time of declining resource availability and severe climate stress and volatility. Even now, when global food production is sufficient to feed the world's population, nearly one billion people suffer from hunger and under-nutrition due to several factors including: inadequate incomes, vulnerable livelihoods, an estimated 30-50% in food losses throughout the global food chain and geo-political challenges leading to poorly distributed intensification of food production. Furthermore, 1.6 billion people live in countries and regions with absolute water scarcity and this number is expected to rise to 2.8 billion people by 2025. A particular cause for concern is that terrorists, international criminal organisations, and militants may be in a position to use the scarcity of resources to promote their own interests, and, by doing so, undermine affected governments.

2.3 Developments in the Geopolitical Environment

In 2015, the White Paper noted that following a period of apparent stability, new and serious conflicts had erupted adjacent to the EU which challenged perceptions about the stability of the broader European region. The suddenness at which these crises arose highlighted the unpredictability of the security environment and reignited concerns not seen since the end of the cold war. The instigation of actions that threaten and impact on security at global and European level remain an on-going cause for concern. A more variable global setting in which multilateral approaches are not always consistently pursued may contrive to generate additional uncertainty and enhance a context that is more permissive to aggressive behaviours in the security environment.

While conflict and tensions in Eastern Europe, the Middle East, Asia, Africa and elsewhere continue to challenge international peace and security, it remains the case that the probability of a conventional military attack on Ireland is low. However, as in 2015, conflicts affecting member states of the EU present serious concerns for Ireland and the future outlook remains unpredictable. Uncertainty over the future shape of the external environment, with the continued evolution of non-conventional hybrid threats, remains a concern.

The dynamic for the EU has changed. While continuing to present for the world a firm commitment to democratic values based on multilateralism and treaty-bound commitments, the political landscape has at times seemed to cast doubt on the resilience and benefits of this approach for all. The rise of more extremist political forces along with some continuing economic pressures has challenged the EU to maintain its full force in being a pole of attraction for enhancement and promotion of peace and stability.

Tensions continue in this neighbourhood within and between some states that were formerly part of the Soviet Union. Certain states have sought greater integration with the West and others continue to remain oriented towards Russia. Russia encourages these ties through various measures, including political, economic and security means. The ongoing conflict in Eastern Ukraine and the illegal annexation of the Autonomous Republic of Crimea and the City of Sevastopol by Russia have illustrated the potential for the escalation of military confrontation in the region. As an indication of associated concerns, in 2016 NATO member states agreed at the Warsaw summit to enhance its forward presence in Eastern Europe with four multi-national battalion-size battlegroups in Estonia, Latvia, Lithuania and Poland.

Tensions between Russia and Georgia regarding the breakaway regions of Abkhazia and South Ossetia and the dispute between Armenia and Azerbaijan over Nagorno-Karabakh continue to threaten to undermine peace and stability in the region. In the Western Balkans, the efforts of the international community have contributed to the ongoing stability. However, problems and clear challenges remain, which need to be addressed, building on the security achieved so far.

In terms of Brexit, both the EU and the UK share the same security and defence interests and both are committed to the establishment of the necessary mechanisms to work closely together following the UK's signalled departure from the EU. Both the UK and the EU are committed to the UK remaining firmly part of Europe and in a reciprocal way continuing to be an important part of the EU's security.

The situation in the Middle East is expected to remain volatile for the foreseeable future and it is reasonable to conclude that current conflicts have little chance of reaching a quick

resolution. The protracted Israeli-Palestinian conflict will continue to fuel resentment across the broader region, and other internal and regional conflicts and diplomatic disputes will also continue to impact on security in the region and beyond.

In spite of the territorial defeat of ISIS in Iraq and Syria, the security situation in Syria, Iraq, Yemen and Libya and the strength of extremist groups in each country are also likely to play a major part in the evolution of the transnational terrorist threat over the next ten years. The number of foreign fighters from all parts of the world currently operating in that region makes it likely that new terrorist groups and networks will be formed. These groups continue to have a destabilising effect on the region and this trend is likely to continue. There are also concerns that the EU nationals who have already engaged in conflict in Syria and Iraq may contribute to the evolution of the transnational terrorist threat to EU nations. The security situation in Afghanistan is also a concern. The Taliban remain the main threat, but attacks in recent years have demonstrated the continued and increasing threat to Afghanistan posed by ISIS. The chances of concrete peace negotiations, and a substantial improvement in the security situation, remain slim in the short term. Renewed threats to the nuclear agreement with Iran may also lessen regional stability.

The instability arising from the recent uprisings in North Africa and the Middle East is likely to continue for some time due to the failure to satisfy the 'Arab Spring generation' and the tightening or closing down on political space for civil society and advocates of democratic change. This will also fuel migration, as recently seen in the Mediterranean, and the increasing risk of marginalisation of ethnic or religious minorities. It may also contribute to a potential growth in support for radical groups. A range of governance failures will also exacerbate security issues in the coming years leading to increased risks associated with ungoverned spaces. Indeed, this trend is already visible in the region.

Sub-Saharan Africa (SSA) will continue to suffer the impact of profound and chronic instability, driven by state failure, poor governance and corruption in three main regions; the Horn of Africa, across the Sahel and the Great Lakes region. In areas where the State is weak, organised crime and terrorism networks are often interconnected. Further growth in extremism is likely to be apparent over the next decade. Countries such as Mali, Sudan,

Nigeria, Somalia and the Central Africa Republic already have significant issues with extremist groups. Organised crime in human and drug trafficking, and wildlife poaching is likely to continue to be a feature.

With high levels of youth unemployment at a time when 70% of the population is under 35 in most SSA countries, political unrest and instability is a considerable risk in the coming decades. Competition for resources is also likely to fuel regional conflict in the Great Lakes and across the continent.

Weak governance structures and an increasing threat from non-state actors will continue to threaten the stability in some areas of the Central and South Asian region. The development by North Korea of nuclear weapons, increased military spending, along with territorial disputes, are a cause of concern.

The Arctic has also become the focus of renewed geopolitical, economic, academic and environmental interest due to the melting of the polar icecap, combined with progress in offshore capabilities.

2.4 Developments in the Domestic Security Environment

2.4.1 Domestic Terrorism

The Good Friday and subsequent agreements continue to underpin a stable peace process that commands overwhelming cross community support, although there are challenges in securing agreement between the parties in Northern Ireland in order to form a new Executive. However, there remains a real and persistent threat from paramilitary groups who are prepared to use violence in order to oppose democracy and peace. The level of threat from these groups is reviewed on an ongoing and active basis. While the threat of an attack in the State is generally considered to be low, these groups carry out planning and preparatory activities for attacks in Northern Ireland, where the threat is classified as severe. The State has a strong commitment to counter any such activities aimed at undermining peace and prosperity on this island.

The authorities here and in Northern Ireland, working jointly and individually against these paramilitary groups, have disrupted their activities and secured convictions in the courts. An increased factionalisation among these groups is apparent in recent years. While this can weaken their coherence, it can potentially lead to greater volatility in the small groupings. Moreover, inextricable links have developed between the paramilitary groups and organised crime. They are heavily involved with criminal gangs in the drugs trade; they engage in extortion and smuggling; they are also known to provide expertise and firearms to criminal gangs.

In the context of Brexit, the commitments made by the Irish and British Governments and the EU, including in the area of rights, will be fundamental to ensuring an outcome that sustains the achievements of the peace process and provides no advantage to the violent objectives and actions of paramilitary groups on the island of Ireland.

2.4.2   International Terrorism

As outlined in 2015, the threat to Ireland as a target of international terrorism remains under constant review, taking into account developing security threats including identified common risks that arise for western democracies generally. The experience in other European countries has shown that the threat level can escalate rapidly and the source and intensity of that threat can differ. A threat can also emerge suddenly as a result of factors that lie outside the control of Government. Events such as these are a continuing concern.

In 2015, concern was identified about self-radicalised individuals acting alone – often referred to as "lone actors". Since the White Paper was published in 2015, terrorist attacks in Paris, Brussels, Nice, Munich, Berlin, London, Stockholm, Manchester and Barcelona have, amongst others, provided stark examples of the lethal threat experienced and faced by European states. The frequently unsophisticated nature of such attacks highlight the challenges that face security authorities in seeking to prevent atrocities of this nature. Moreover, it is apparent that these types of attacks can inspire subsequent plots by other "lone actors" or very small groups of radicalised individuals who, because they may be "home-grown" and have not travelled to, or returned from, conflict zones, may not be directly connected to any terrorist network and be unknown to the intelligence services.

In this context, there is continuing concern about the process of radicalisation and the range of influences, including the internet, which can enable this process. Overall, while the potential source of the threat to this State from international terrorism has evolved, the threat level has remained unchanged since 2015 and Ireland also continues to have a responsibility to seek to prevent transnational terrorist groups from using the State as a refuge or as a base from which to direct their activities against targets in other countries.

As noted in 2015, Ireland has always engaged actively, through the EU, UN and other international bodies, in crisis management and in tackling the root causes of instability. This proactive approach mitigates security risks in the international environment, which is in Ireland's interest. UN and UN-mandated missions, including military missions, are among the instruments used by the international community in the collective security response. Active engagement by Ireland in this collective response can lead, on occasion, to an increase in the threat to Ireland directly or by association, without, necessarily always, significantly altering the general security environment that Ireland faces.

Ireland along with other democracies puts a premium on societal freedoms and seeks to ensure that in its responses to threats that actions taken do not of themselves work counter to the cherished rights of its citizens. Threats to a fully functioning democratic society are therefore considered in this wider context and the aims of those behind such threats factored into the relevant analysis and ultimately responses.

2.4.3   Cyber Domain

In 2015, the White Paper noted that Ireland, like most of Europe, has highly developed infrastructure that is in many cases dependent on information and communication technologies (ICT). Critical national infrastructure such as energy, water, social welfare, telecommunications, banking and healthcare are dependent on ICT not just to operate effectively, but to operate at all. Cyber security risks exist for government and public utilities as well as for commercial entities and individuals.

The State has adapted to this, like many others, by both building capacity and systems to respond to incidents as and when they occur, and by taking measures to improve the

resilience of critical national infrastructure and services. The former is embodied in the growth and development of the National Cyber Security Centre, the latter in the Network and Information Regulations 2018, which compels Critical National Infrastructure Operators to take a series of measures to protect their systems.

The centrality of network and information technology issues to the global security environment notwithstanding, the unique concentration of major technology companies in Ireland underscores the importance of coordinated systems of resilience to protect the economic and social well-being of the State and its citizens.

2.4.4   Organised Crime

The cross-over between organised crime and subversive paramilitaries was noted in 2015, particularly in the context of the use of improvised explosive devices by criminals within the State. As noted above, the links between both have continued to increase in recent years and have contributed to the factionalisation that has occurred within republican paramilitary groups.

There continues to be a growing connectedness between domestic organised crime groups and networks across Europe and further afield that are involved in a wide range of transnational criminal activities including drug smuggling, money laundering, fraud and human trafficking. Through these connections, there has been a noted increase in the volume of firearms coming into the possession of organised crime groups in this State. Ireland continues to play its role in international action to combat the activities of transnational organised crime, including through operational co-operation by the Naval Service, An Garda Síochána and Revenue in drugs interdiction in the maritime domain both bilaterally with partner states and through MAOC-N.[12]

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[12] Maritime Analysis and Operations Centre - Narcotics (MAOC-N) is a Lisbon based agency established to combat transatlantic drug trafficking, by air and sea, to Europe and the West African seaboard. Ireland and six other EU member states participate in MAOC-N.

2.4.5 Espionage

A developing factor in the domestic security environment is the threat to national security and economic well-being from espionage in the form of the clandestine activities by hostile states, including by their intelligence officers. Such activity is known to be multi-faceted and may involve cultivating sources with a view to intelligence gathering and gaining protected, sensitive information relating to this State, as well as to international institutions and external organisations to which Ireland is affiliated. Furthermore, the potential repercussions of espionage activities on the confidence of foreign direct investment in Ireland has potential to affect our economic development. This State will continue to take preventative measures to safeguard our sovereignty, national security and economic well-being from espionage activities that are hostile to our interests.

2.4.6 Energy Security

The commencement of production from the Corrib gas field at end 2015, which is now operating at full capacity, reduced Ireland's overall energy import dependency in 2016 from 90% to 70%, a significant improvement in security of supply. Currently almost 60% of Ireland's natural gas needs are met by indigenous production. However, the Kinsale fields (Kinsale Head, Ballycotton and Seven Heads) are expected to cease production by 2021, and by 2025/26 Corrib gas supplies will have declined to less than 40% of initial peak production levels. The anticipated reduction in Corrib and Inch gas supplies will mean that connections to international networks will remain key in terms of energy security. Post-Brexit, Ireland and the EU will become increasingly reliant on non-EU sources of energy (UK, Norway, Russia, Middle-East). Over the course of the next decade, it is likely that further electricity interconnection to the UK and to France will be built. Ireland's energy security is therefore heavily reliant on a relatively small number of vital installations, both onshore and sub-sea. As Ireland continues to decarbonise its electricity system, offshore wind installations will be developed, initially in the shallower waters in the Irish Sea by mid-2020s with floating wind technologies deployed off the west coast later in the decade.

2.4.7 Maritime Domain and the Illegal exploitation of natural resources and security of offshore infrastructure

As noted in 2015, being an island, many of the risks and threats listed in the EU Maritime Security Strategy are relevant to Ireland's maritime domain. This includes threats to Ireland's economic resources arising from illegal, unreported and unregulated fishing or other illegal exploitation of Ireland's maritime resources and has the potential to deplete fish stocks and destroy marine habitats.

The development of off-shore renewable energy technology will lead to an increased focus on maritime based energy systems in the coming years, and the future development of infrastructure will need to be monitored. Whilst the current threat to existing infrastructure is assessed as low, the security challenges that could be posed in the event of a change in the threat assessment will also need to be continuously reviewed.

A continuing feature of the wider domestic security environment is the possible security implications arising from foreign military air or maritime activity in the vicinity of Ireland. Such activity, while not necessarily constituting a direct threat to this State, can raise tensions and may have an undermining effect on security overall.

2.4.8 Natural Disasters

In 2015, the White Paper noted that Ireland's geographic position does not pre-dispose us to the same level of risk of natural disasters as many other countries. However, the effects of climate change are continuing to lead to changes in weather patterns and an increased probability that severe weather events such as flooding could become more common-place in Ireland.

The possibility of a pandemic, caused by influenza and other diseases, remains an ongoing concern with the potential to cause serious disruption to society. Animal infectious diseases such as Foot and Mouth disease also have the potential to cause significant economic loss.

2.5   Policy Implications

The threats set out in this updated assessment of the security environment, as contained in Chapter 2 of the White Paper on Defence 2015, will continue to require a broad policy response with policy lead roles resting in a variety of government departments and agencies. Defence policy is one aspect of this broader policy response and the implications of the changes outlined in this review will be considered in the context of overall defence policy requirements, and with regard to the other elements of work carried out as part of the White Paper Update.